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STUDY ON THE STUDENTS' CONSUMPTION OF ENERGY DRINKS

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Abstract

Many times, when we are tired, we are tempted to replace a relaxation walk, the use of psychological relaxation techniques, or even a "nap" with the ingestion of an energy drink.

Having in mind the increasing number of energy drinks and their rising popularity, despite the possible negative effects, the coaches and the managers of sportive structures should take initiative in educating the students regarding these products.

Keywords: *consumption, drinks, students*

Introduction

Many times, when we are tired, we are tempted to replace a relaxation walk, the use of psychological relaxation techniques, or even a "nap" with the ingestion of an energy drink. How many of us, and especially of our children, do not start the day with the usual cup of coffee?

The market of energy drinks rose exponentially in the last years. Their use by the sports practitioners needs a thorough analysis, which results the teachers and trainers should take into account, during the times they think about life inside and outside sports.

Caffeine represents the main "energy" in energy drinks. Its ability to improve performance, in certain conditions, was well documented. Considering that, ingesting a too large quantity of caffeine can have negative effects on the body. Professional athletes are constantly struggling to increase their performance, trying a variety of strategies in order to reach this objective. Incorporating the energy drinks in a training diet is such a strategy.

In today's university campuses, the students (including physical education students) use energy drinks as an ingredient for alcoholic cocktails. In case in which alcohol and large quantities of caffeine are consumed together, a lot of students find themselves ingesting more alcohol and entering a more severe drunken state, which can lead to serious health problems and other consequences.

The term of "energy drink" suggests activity, and the non informed consumer could think that such a drink would support physical exercise. Ranging the energy drinks on the shelves close to traditional refreshing sports drinks consolidates such a hypothesis, of a positive correlation between their use and physical exercises. Some specialists extrapolate, sometimes in an exaggerate manner, the effects the energy drinks have on the body, existing the legend that doping in sports

began with the first glass of Coca Cola. Of course, this assertion is obviously exaggerated, but it includes a grain of truth, which is that between the morning coffee and doping the only difference is. the ingested quantity, or sometimes, the mixture of alcohol.

The main substances contained in energy drinks can be reduced to:

- Caffeine;
- Taurine;
- Glucuronolactone;
- Vitamins.

Fornicola (2007) observed that "in average, adults drink 200 mg of coffee a day, which is approximately two cups of coffee. While the caffeine is, without a doubt, the largest contributor as the effect produced by the energy drinks is concerned, still, there is no study determining the possible problems associated with long term ingestion of high taurine and glucuronolactone concentrations".

Hypothesis

In writing this paper, we started from the hypothesis that a significant number of teachers and students consume regularly energy drinks, especially during stress periods.

Conducting the research

In this article we avoided to name the energy drinks, in order not to advertise or make negative publicity.

During their study of college students consumption of energy drinks, Malinauskas et al. observed that 51% of them consumed more than a dose of energy drinks during the semester in which they were interviewed.

The quantity and moment of the energy drinks consumption

We tried to apply the same questionnaire to the Faculty of Movement, Health and Sports Sciences students, of the "Vasile Alecsandri" University of

Bacau. The result amazed us, because, unlike the Canadian students, the Romanian students are frequent consumers of energy drinks, 68% of the male students and 55% of the female students. We repeated the test for the teachers and we found, surprisingly, that the percentage is of 63%.

It is not very clear how many adults consume energy drinks, but it is certain that, despite producer warnings, a lot of children are regular consumers. The Florida Toxic Substances Control Center started to follow the cases with high caffeine exposure after 39 persons aged between 2 and 20 years old, presented as symptoms panic attacks, between January 2007 and march 2008 (Cohen, 2008).

The energy drinks are sold with colorful descriptions and provocative names that make them sound fun and interesting.

We extended the questionnaires with questions referring to the moment in which the energy drinks are used. 76% of the respondents said they consume this type of drinks in the morning, 21% in the evening, and 3% did not mention a specific time.

Referring to the ambiance in which these drinks are consumed, we observed that 73% prepare their drinks in their rooms or they keep them in the refrigerator, consuming them in first hours of the morning, with colleagues of family, 17% said they consume such drinks in the evenings, in clubs or discotheques, or during concerts, with friends, while 10% consume their drinks during competitions, or alone.

Miller (2008) expressed for the first time the phenomenon called the "rock toxic identity". Miller defined the rock toxic identity as being the state of having "an sports-related identity predisposed to risks and hyper-masculinity". The rock toxic identity can increase the risky behavior, and the consumption of energy drinks can be a foreseer of this phenomenon (Miller, 2008). The desire to improve the sportive performances and to expose their athletic identity can influence the young athletes in their consumption of energy drinks, at a higher level in comparison with the rest of the students.

The energy drinks - alcohol combination

The athlete students are more predisposed towards the consumption of such substances than other students. In the case of team sports, the participants are especially susceptible to consume alcohol in a high risk manner. Such observations, especially when we take into consideration such things as the rock toxic identity, suggest that the newly popular practice of mixing energy drinks with alcohol, exposes the athlete students to a higher risk. The consumption of energy drinks mixed with alcohol diminishes the subjective sense of intoxication.

This means that someone can consume more

alcohol than usual, because he/she does not feel drunk. Moreover, the state of fatigue produced by the alcohol consumption, which normally gives the tendency to limit the alcohol consumption, can be masked by the caffeine in the energy drink.

By combining a depressor (the alcohol) with a stimulant (energy drinks that contain caffeine), could clearly accentuate the risks typical to alcohol consumption. This practice, in combination with the tendency among athletes to party with alcohol, should constitute reasons for concern. O'Brien et al. (2008) indicated that "the pupils who reported consuming alcohol mixed with energy drinks presented a larger number of alcohol-related incidents, leading to a drunken state etc". The study emphasized a percentage of 33% of the respondents who said that they use to combine alcohol with energy drinks, using, generally, strong drinks, like whiskey or vodka. It is interesting to notice the fact that 3% of the teachers who responded, said that they occasionally consume alcohol mixed with energy drinks.

Probably many of those reading this article will remember the nights spent with books in front of their eyes, during their university years, in which the sleep was chased away using large quantities of coffee. Today, the athlete-students who do not like the taste of coffee, can choose an energy drink, instead. Used with moderation, the consumption of energy drinks, for sustaining a study session, can seem harmless. Regardless, coaches and sports managers should make sure that the athletes are familiarized with the potential negative effects of caffeine (when it is consumed excessively), with the purpose of helping them to make informed and responsible choices, no matter the circumstance.

Occasional consumption

The occasional consumption of energy drinks contributes largely to their increasing popularity. Now available everywhere, the energy drinks leave the impression of a choice similar to coffee or a refreshing drink.

The consumption of energy drinks can become even more frequent and socially acceptable. The athlete-students are susceptible to be a part of this tendency, especially as there is a lack of information regarding the energy drinks, their ingredients, and their actual effects on athletic performance and health.

Consumption for stimulating the athletic performances

Does the consumption of energy drinks really increases athletic performances? Caffeine is the only energy drinks ingredient that was thoroughly studied, and which shows the proven effects; the short and long term effects of large doses of taurine and glucuronolactone need further study. The athletes have

long used caffeine before training sessions and competitions, but most of them still do not understand how these substances affects them, for example, the caffeine, acting as a diuretic agent, can be dangerous for athletes, aggravating the dehydration they can experiment during competitions.

Conclusions

Having in mind the increasing number of energy drinks and their rising popularity, despite the possible negative effects, the coaches and the managers of sportive structures should take initiative in educating the students regarding these products. While the benefits claimed by taurine and glucuronolactones in the energy drinks are not proven, the potential positive and negative effects from another common ingredient, the caffeine, are well documented.

The choice to use the caffeine before practice or competition should be the individual's, based on adequate knowledge of the assertions for and against it, and on past experiences using caffeine. To these people, information should be furnished, regarding the caffeine level contained in various foods and drinks, in order to monitor their effects.

Most energy drinks do not have, actually, a larger content of caffeine than a cup of coffee, but there is a visible tendency towards selling them in larger recipients, hence larger portions and more caffeine. If an energy drink ingested before a competition improves the state of mind and the concentration, it would be difficult to suggest it being a significant danger to health. Assuming that a consumer is not sensitive to caffeine, its negative effects are less likely to become obvious, except when the consumption becomes excessive. Although deaths associated with the consumption of energy drinks in sports were reported, these seem to be isolated cases, involving many portions with a high level of caffeine.

Moreover, the ability of the energy drinks to "mask the feelings in a drunken state, allows an increased consumption of alcohol, which, in turn, increases the possibility for some young drinkers to make choices with negative, if not disastrous results. The proof suggests that the consumption of energy drinks, with or without alcohol, is increasing, thus the education of students-athletes, regarding all aspects of

energy drinks ingestion, must become a priority for the sportive departments, in order to ensure their health and safety.

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Étude sur la consommation de boissons énergisantes par les étudiants

Mots-clé: consommation, boissons, étudiants

Résumé: C'est bien possible que bien des fois on remplace une promenade de relaxation par une boisson énergisante. Malgré leur possible effet négatif, les entraîneurs et managers sportifs devraient prendre l'initiative d'éduquer les étudiants sportifs en regard de ces aspects.

Studiul privind consumul băuturilor energizante în rândul studenților

Cuvinte cheie: consum, băuturi, studenți

Rezumat: De multe ori când suntem oboșiți avem tentația de a înlocui o plimbare de relaxare, utilizarea tehnicilor psihice de relaxare sau chiar un „pui de somn” cu ingerarea unei băuturi energizante.

Având în vedere proliferarea de băuturi energizante și popularitatea lor în creștere, în ciuda posibilelor efecte negative, antrenorii și conducătorii structurilor sportive ar trebui să ia inițiativa în educarea studenților-sportivi cu privire la aceste produse.

WAYS OF ASSESSING THE EXPLOSIVE FORCE IN THE PHYSICAL EDUCATION STUDENTS

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Abstract

In this paper, we present a new way of assessing the explosive force in the physical education students (but also in other students). Our study emphasizes the conceptual differences in touching the students' potential, by comparison with similar European institutions. The obtained results emphasize differences between Romanian students and Spanish students. We can say that the protocol presented in this study can be successfully applied in Romanian physical education faculties, with useful results, both for the students and for the teachers and specialists.

Keywords: student, plyometrics, faculty, evolution.

Introduction

The biomotor potential of the population of over 18 years of age (the university and the post-high-school students) confronts, according to statistics (<http://sn135w.snt135.mail.live.com/default.aspx?wa=wsignin1.0>) with a decrease in the effort capacity, whereas the obesity and the number of persons with diabetes, for this age category, increased alarmingly in the last 10 years, both nationally and internationally. As a consequence, the physical education and sports specialists should pay more attention to the aspects mentioned above. Unfortunately, some of the students from the Romanian Physical Education faculties are a part of the category of the mentioned subjects. According to the Physical Education faculties curriculum and syllabus demands, the assessment of the motor skills potential and of the effort capacity during the studies, is lacking almost entirely, and if this is done, it is not performed in a continuous manner, or with a well-defined end. In this paper, we propose a battery of tests, comprising several drill structures, with a various complexity, for assessing the explosive force indicators in the physical education students.

Although on European level, a large program of unifying the youths' motor ability assessment drills - the "Eurofit Physical Fitness Test Battery" - (Epuran M. 2005), was initiated, it is used by physical education specialists only rarely.

The tests we are about to present are a part of the explosive force assessment protocol (the contraction-relaxation alternating cycle, "CEA-ciclo de etiramniento-acortamineto"), of the Miguel Hernández University (UMH) of Elche, Spain, based on plyometric performances.

The plyometric method contributes to the development of the explosive dynamic force (of the blockstart push force, of accelerating, of decelerating, of

absorption etc.), with the help of one and two-leg take-offs. This old method is also known as the "jump training". The name "plyometrics" was introduced in the specialized literature by the American coach Fred Wilt, in 1975. Inside the plyometrics, Gilles Cometti presents three methodical procedures of performing it: the simple plyometric method, the high plyometric method and the hardening plyometric method (Rață G., 2006).

Material and methods

- Wooden caskets of different heights.
- Chronometer.
- Athletics fences.
- Adhesive tape for tracing the hexagon on the working surface.

Research subjects

The research subjects were, for the initial testing, second year students of UMH (Universidad Miguel Hernández of Elche) whereas for the final testing, second year students of the Faculty of Movement, Sports and Health Sciences, Bacau. The groups were composed of 5 students each.

The assessment methods were

1. The hexagon drill.
2. Jumping over obstacles of various heights.
3. Jumping from a surface onto the ground, followed by running.
4. Jumping from a high surface, followed by a change in direction at the touch of the ground.

Description of the drills

A. The hexagon drill:

1. The subject jumps over the sides of a hexagon (61 cm), being placed laterally inside the hexagon.
2. We timed the time in which the subject jumps over all of the hexagon sides.

- B. Jumping over obstacles of various heights:**
1. We align 6 obstacles, 20-30 cm high, in a straight line, at a distance of 60-80 cm between them.
 2. The drill is in jumping over the course with both legs, as quickly as possible.
- C. Jumping from a surface onto the ground, followed by running:**
1. The subject is situated on a 40 cm high surface.
 2. He/she performs a jump onto the ground, after which a jump over a 60 cm high athletics fence. After that, he/she runs at a maximum speed over a distance of 10 meters.

- D. Jumping with a change of direction:**
1. The subject is situated on a 40 cm high surface. He/she performs a jump onto the ground, when the ground contact is produced, the subject changes direction laterally, over a 15 cm high obstacle, after which he/she runs at a maximum speed over a distance of 10 meters.

NOTE: Each drill is performed 4 times, the final value being the arithmetical means of the intermediary values. The pause between repetitions is of 1 minute.

Results of the research

After the students performed the drills mentioned above, we recorded the following data:

*Table 1.
The dynamics of the values obtained by the students of the UMH*

Subject	No. of repetitions	Drill 1	Drill 2	Drill 3	Drill 4	The general average for subject
1	1	2''99	3''65	2''20	3''18	
	2	2''92	3''15	2''05	3''13	
	3	2''74	3''08	2''17	2''99	
	4	2''23	3''26	1''99	3''06	
Drill average		2''72	3.28	2''10	3''09	2''79
2	1	3''74	3''51	2''37	3''69	
	2	3''29	3''45	2''22	3''22	
	3	2''83	3''52	2''44	3''13	
	4	2''89	3''64	2''12	3''33	
Drill average		3''17	3''18	3''53	2''28	3''34
3	1	3''44	3''68	2''33	3''54	
	2	3''45	3''46	2''39	3''53	
	3	2''84	3''44	2''07	3''37	
	4	2''96	3''51	2''21	3''26	
Drill average		3''17	3''52	2''25	3''42	3''09
4	1	3''53	3''69	2''12	3''85	
	2	2''91	3''53	2''21	3''40	
	3	2''99	3''35	2''06	3''25	
	4	2''66	3''43	2''25	3''04	
Drill average		3.02	3''50	2''16	3''38	3''01
5	1	3''24	3''85	2''31	3''72	
	2	3''23	3''68	2''29	3''90	
	3	2''88	3''56	2''14	3''88	
	4	2''92	3''84	2''19	3''39	
Drill average		3''06	3''73	2''23	3''72	3''18
The general average for subjects		3''03	3''51	2.20	3.39	3''03

Table 2

The dynamics of the values obtained by the students of the Faculty of Movement, Sports and health Sciences

Subject	No. of repetitions	Drill 1	Drill 2	Drill 3	Drill 4	The general average for subject
1	1	2''94	3''19	2''81	3''22	
	2	2''50	3''16	2''84	3''40	
	3	2''79	3''69	2''16	3''19	
	4	2''81	3''36	2''54	3''09	
Drill average		2''76	3''35	2''58	3''22	2''97
2	1	3''47	3''88	2''81	3''57	
	2	3''43	3''72	3''12	3''46	
	3	3''81	3''75	2''94	3''36	
	4	3''68	3''30	2''88	3''24	
Drill average		3''59	3''66	2''93	3''40	3''39
3	1	3''19	3''78	2''38	3''65	
	2	3''30	3''60	2''20	3''40	
	3	3''03	3''57	2''38	3''27	
	4	2''59	3''42	2''84	3''24	
Drill average		3''02	3''59	2''45	3''39	3''11
4	1	3''03	3''80	2''65	3''41	
	2	3''44	3''52	2''37	3''58	
	3	3''06	3''39	2''94	3''29	
	4	2''91	3''22	2''53	3''12	
Drill average		3''11	3''48	2''62	3''35	3''14
5	1	3''75	3''90	2''60	3''85	
	2	3''44	3''59	2''59	3''87	
	3	3''15	3''90	2''66	3''45	
	4	3''21	3''75	2''22	3''38	
Drill average		3''38	3''78	2''51	3''63	3''32
The general average for subjects		3''17	3''57	2''61	3''39	3.18

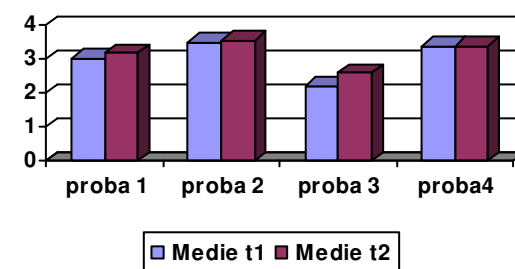


Fig. 1. Comparative chart of the values obtained by the tested subjects

Discussions

As it can be seen in the above chart, the dynamics of the obtained results shows us that the FMSHS students recorded inferior values in comparison with the UMH students, for 3 of the 4 drills, for the fourth having the same average values, but the individual dynamics records again high enough variations. The biggest difference was recorded in the jumping and change of direction drill. We can say that the differences we encountered could be the

consequence of the fact that the FMSHS students confronted this protocol for the first time, while the Spanish subjects perform regularly and frequently this kind of protocols for assessing their motor potential and effort capacity. We cannot say whether the performance of this working protocol can influence the results in a positive manner, by comparing with the UMH subjects, but surely we can obtain interesting results if this kind of drills were to be performed concomitantly in all the Romanian physical education faculties.

Conclusions

- This kind of protocol can give us important information about the motor potential and the effort capacity, specific to the physical education and other type of students;

- The presented protocol had a positive influence on the students, regarding their openness and desire to perform new motor structures, on one hand, and to observe their motor profile on the other hand;

- All of these structures, specific to the chosen protocol, can be improved or adapted, according to the particularities of the working group.

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Méthodes d'évaluation de la force explosive chez les étudiants en éducation physique

Mots-clé: Étudiant, pliométrie, faculté, évolution

Résumé: L'article présente une nouvelle modalité d'évaluation de la force explosive, en soulignant les différences conceptuelles d'approche du potentiel des étudiants dans les divers pays européens.

Modalități de evaluare a forței explozive la studenții facultăților de profil

Cuvinte cheie: student, pliometrie, facultate, evoluție

Rezumat: În lucrarea de față se prezintă o nouă modalitate de evaluare a forței explozive la nivelul studenților facultăților de profil (dar și pentru cei de la alte facultăți). Studiul nostru evidențiază diferențele conceptuale de abordare a potențialului studenților, în comparație cu instituțiile similare din Europa. Rezultatele obținute evidențiază diferențe între studenții de la noi din țară și cei din Spania. Putem aprecia faptul că protocolul prezentat în acest material poate fi aplicat cu succes și în facultățile de profil de la noi din țară cu rezultate utile, atât profesorilor cât și specialiștilor din domeniul și studenților.

ASPECTS OF IMPROVING THE METHODOLOGY OF IMPLEMENTATION OF THE CURRICULUM, VOLLEYBALL, QUALITY LEVEL, CLASSES OF GRADE NINE FROM HIGH SCHOOL

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Summary

According to the modeling requirements up to the level of each class, there are intermediary models, which are able to provide the model's propriety of the volleyball game. In this project, we had as a target the idea of the necessity in order to improve operating methodology for achieving curriculum content. We proposed a model for group class grade nine, including an optimal baggage of technical – tactical knowledge required of volleyball practice.

Key words: methodology, curriculum, volleyball

Introduction

The youth initiation from grade nine of High School into the secrets of volleyball game, learning and practicing it as soon as possible to acquire all shares of game set in the curriculum, has always been an operational objective of physical education lesson. To successfully pass over these issues, put before education, teachers need to think ahead new

formulations of instructional and educational requirements, new curricula, which by their terms, to give autonomy to the way the teacher thinks and acts for its completion, and thus be more flexible in the choice of objectives, methods, teaching resources and forms of assessment used to measure the educational quality.

This study has its roots in the experience as a teacher and volleyball player. In the years that I worked

with the school team, made me better understand the psychology of students and to know more on the requisite current and future of the volleyball. It is considered that phasing techniques and tactical actions, as outlined in the school curriculum can be accelerated or even exceeded in the specific physical education lesson. To prove this, we formulated the following hypothesis: curriculum implementation methodology (chapter- volleyball) for Classes grade nine to twelve, can be improved without this being detrimental to other chapters, with a good selection, organized and systematic used methods and means. "

After modeling requirements in each class, there are intermediate models model capable of acquiring competitive game of volleyball. Contemporary Teaching has developed a special alert system, integrating it from this perspective, the scientific revolution and modern technology.

In this project we started from the necessity to improve operating methodology for achieving curriculum content. We proposed a model for group class grade nine, including an optimal baggage of technical – tactical knowledge required of volleyball practice.

Separating this model, in intermediate models, according to the classroom level of knowledge it was established the methodology drive contents in curricula, for one school year and the beginning of the first semester and the end of the second semester.

We refer to these two periods of the school year as a volleyball game can be practiced successfully in outdoor weather conditions are favorable.

This study aims at development of a final plan and the class of grade nine requirements, applying an improved methodology. Achieving this task is reflected by the comparative study of results obtained in the two groups, namely control group and experimental group.

With these proposals put into practice, it aims to create an optimal working atmosphere in physical education lesson, giving it a more attractive, while being an impetus for students to sport performance.

Material and method

In carrying out the experiment of improving educational type, were used as subjects, students of classes, grade nine-A and B of National College "Mihai Eminescu", Toplița. The class team of grade nine- A, took a total of 14 students and the class team of grade nine- B, 12 students. They chose these classes, although boys were not equal in numbers as their initial level was similar.

During the course of experimental work, they received an outdoor volleyball court and a gym by school type.

The teaching materials used in the experiment were: a device for measuring the height of jumps, volleyball balls and medicinal balls.

Reduced number of hours in the physical education lessons, requires learning to find swift strategies to learn the game of volleyball. Based on work done, have tried a fresh view on the actual content of the game of volleyball and instructional methods by which to achieve accelerated learning, while leading to a full accelerated practice of the game of volleyball.

Some of the exercises used for the witnesses – group are presented below:

Passing the ball forward, with two hands:

Pairs with one ball; short distance 2-3 m; catching the ball; fixing the position; throwing the ball to the partner.

Taking over the ball from bottom, with two hands:

Pairs with one ball; taking the ball over from the bottom, player one catches the ball and he serves again, in pairs with one ball; taking over the ball on a short distance.

General provisions of the curriculum are:

Exercises for:

Movement in the terrain, holding the fundamental position, passing the ball with two hands, taking over the ball from the bottom, individual blocking, serve the ball.

Tests of physical and technical verification tests were as follows:

- tests of physical development were: testing the speed of travel 3 meters and testing explosive force of leg muscles (detention);
- tests of the technique were: underhand serve, overhand serve, and taking the ball with 2 hands of thrown balls.

In the opening stage in the technical and structural movement, we considered important, accurate representation of their training, in the student's concept. For this we used verbal description, explanation and demonstration form, repeated several times. The demonstrations were accompanied by clear verbal explanations, with emphasis on essential details of each technical element. After the stage of learning, the students aware of the technical elements started their practice from the beginning it was passed at first without the ball, then with the ball. At this stage, each item was intended to correct technical errors. Students enter the consolidation phase after growing sense and "spirit of the ball" observation, and the sense of distributive observation.

Emphasis was placed on improving individual tactics and collective tactics game; this will make technical – tactical executions, easily and with maximum efficiency. Improving the volleyball game was stimulated by games and competitions with teams with school readiness equivalent to other classes.

An ongoing concern was the formation of stimulating thinking and tactical skills of each student

so that the end of training, each component of the team to accurately and easily perform the following: passing the ball overhand, with two hands ahead and over the head, taking the ball from an underhand position, with two hands from a serve and from attack, an underhand serve from the front, and from the overhand in front, the attack and the individual blockage.

And that tactical actions:

- passing the ball in the opposite court, preceded by two hits;
- the settlement areas;
- arrangement on two lines in game 4x4 and statutory rotation;

- settlement to acquire the serve with the lifter in Zones 2 or 3;
- organization of the 3 shots.

The following are resources for game development and dynamic driving qualities, selected and applied during the study.

Results and discussion:

Results obtained from initial and final testing of the two samples, namely the control and experimental group were recorded in some summary tables. In Table. 1 are listed the results obtained in the control group.

Table.1 Analysis of results from control group

			The height of the jump	The movement	The underhand serve	The overhand serve	Taking over the ball from an underhand position
Initial testing	X	Average	16.43	5.26	6.14	2.00	5.57
		Median	16.00	5.25	6.00	2.00	5.50
		Minimum	12.00	4.80	4.00	0.00	3.00
		Maximum	22.00	6.00	9.00	4.00	8.00
	S	Standard deviation	3.13	0.30	1.61	1.18	1.69
	Resu me	Coefficient of variability	19.06	5.84	26.21	53.66	30.49
Final test	X	Average	21.29	4.93	8.86	3.93	8.36
		Median	21.50	5.00	9.00	4.00	8.50
		Minimum	16.00	4.60	7.00	2.00	6.00
		Maximum	29.00	5.30	10.00	6.00	10.00
	S	Standard deviation	4.07	0.22	1.03	1.27	1.39
	Resu me	Coefficient of variability	18.62	6.14	21.16	38.21	14.79

The table is apparent that the height of the jump from the place(detention), the first test was an arithmetic mean of 16.43 cm. and the second test has a value of 21, 29 cm. It appears, therefore, an improvement of 4.86 cm. Standard deviation from the first test was 3.13 and the second test of 4.07. Coefficient of variation is between the limits of 19.06 to 18.62. Observe then, from the first to the second test group, increased group homogeneity.

Movements on the arithmetic average of 3 m., at the first test was 5.26 seconds, while the second test of 4.93 seconds, so there is an improvement of 0.33 hundredths. The first test standard deviation was 0.30 to 0.22 in the second test, and coefficient of variance shows a slight decrease in group homogeneity from 5.84 to 6.14 while maintaining high uniformity, however, limits.

Regarding the underhand serve, out of 10 tests, first test the arithmetic mean was 6.14 and in the second test was 8.86 results increase of 2.72.

Regarding the overhand serve, the arithmetic mean is low and the standard deviation is between 1.18 and 1.27 and coefficient of variability observed between 53.66 and 38.21, a decrease of 15.45.

Arithmetic mean after taking the ball from an underhand position, the first test was 5.57 and the second test at 8.36 and found an improvement is 2.79. The first test standard deviation was 1.69 and the second test of 1.39. Note that group homogeneity increased as demonstrated by the coefficient of variation which lies within the range of 30.49 to 14.79, making the transition from lack of uniformity in average homogeneity.

The results obtained for the experimental group are listed in Table 2.

Table 2
Analysis of results from the experimental group

			The height of the jump	The movement	The underhand serve	The overhand serve	Taking over the ball from an underhand position
Initial testing	X	Average	18.25	5.00	6.33	2.66	5.83
		Median	18.25	5.00	6.50	3.00	6.00
		Minimum	13.00	4.80	4.00	0.00	3.00
		Maximum	23.00	5.40	9.00	6.00	10.00
		Standard deviation	3.07	0.30	1.61	1.77	2.51
	Resume	Coefficient of variability	16.67	6.16	25.48	66.57	43.14
Final test	X	Average	23.08	4.67	7.41	8.25	8.83
		Median	23.00	4.75	7.50	8.00	9.00
		Minimum	17.00	4.20	5.00	6.00	7.00
		Maximum	30.00	5.10	10.00	10.00	10.00
	S	Standard deviation	3.72	0.30	1.37	1.35	1.02
	Resume	Coefficient of variability	16.15	6.45	28.59	16.44	11.65

In the case of the height of the jump from the place, there is an increase in the arithmetic average of the first test (18.25 cm.) at the second test (23 cm.). The first test standard deviation was 3.07 and 3.72 in the second test, the coefficient of variation ranging between 16.67 and 16.15 with greater homogeneity.

Regarding the movements, there is an arithmetic average of the first test for 5 seconds and the second test of 4.67 seconds. The first test standard deviation was 0.30, with a coefficient of variation of 16.16 and in the second test, the standard deviation of 0.30 was also changing the coefficient of variation was 6.45. It is observed a greater homogeneity comparing with the first test.

In the case of the underhand serve, the standard deviation was 1.61 and coefficient of variability 25.48 in the first test and second test standard deviation was 1.37, so the homogeneity of groups increased, a fact demonstrated by the coefficient variability. improvement is observed for the overhand serve and found homogeneity is increased.

In the case of taking over the ball from an underhand position, the standard deviation of 2.51 reached in the first test second test 1.02, and increasing homogeneity of variance coefficient from 43.14 to 11.65.

Following the set, we found that the arithmetic mean final testing of the control group (of the class grade nine- A) for the height of the jump from the place, there was 21.29 cm to 23.08 cm., average obtained in the experimental group of the class grade nine-B, an

improvement of 1.79 which shows a good physical preparation in both groups. Standard deviation from the control group, the final test was 4.07 and coefficient of variation of 18.62 to the experimental group who received a standard deviation of 3.72 and a coefficient of variation of 16.15, which shows better homogeneity in the latter.

It is noted some increases and a better homogeneity with the other evidence the group experiment, reaching maximum, especially in the overhand serve.

Conclusions

Volleyball specific training as contained in the existing school curriculum is easily achievable in specific conditions to any schools without special equipment.

The used structures and adjusted claims for the experimental group, simple and accessible, assured very quick assimilation patterns intermediate passing game and have facilitated the 6x6 game models.

Exercises with the ball, not the specific game structures were used in training for specific physical preparation or analytical correction of individual executions.

At the High School level may be developed and applied even during the lesson, intermediate models capable of acquiring competitive game 6x6 models, necessary to participate in competitions between High Schools.

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**Aspects de l'amélioration de la méthodologie
d'application du curriculum scolaire en volleyball au
niveau de la neuvième**

Mots-clé: Méthodologie, curriculum, volleyball

Résumé: Selon les demandes de la modélisation au niveau de chaque classe, il y a des modèles intermédiaires aptes à assurer l'acquisition du modèle du jeu compétitif de volleyball. On propose un

modèle optimal de connaissances technico-tactiques pour les élèves de lycée.

**Aspecte privind îmbunătățirea metodologiei de
aplicare a programei școlare, capitolul volei la
nivelul clasei a IX-a**

Cuvinte cheie: Metodologie, programa școlară, volei
Rezumat: După cerințele modelării la nivelul fiecărei clase, există modele intermediare capabile să asigure însușirea modelului jocului competițional de volei.

În această lucrare am pornit de la ideea necesității îmbunătățirii metodologiei de acționare, pentru realizarea conținutului programei școlare, în care am propus un model, care cuprinde un bagaj optim de cunoștințe tehnico – tactice, necesare practicării jocului de volei la nivel de liceal.

HIGHER PHYSICAL EDUCATION IN THE REPUBLIC OF MOLDOVA: BETWEEN TRADITIONS AND REFORM

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Abstract

In recent years the reform of higher education has been a fundamental priority for the countries that have joined the progressive movement called the Bologna Process. This phenomenon has initiated some major reforms at the state level and at the level of every institute of higher education apart. The aim of the authors of this article is to show the impact of the Bologna phenomenon in the Republic of Moldova in general and in the State University of Physical Education and Sport in particular.

Key-words: *European educational area, the Bologna Process, quality of education, university autonomy, evolution of quality*

Implementation of the Bologna Process is leading step by step to the establishment of the European area of higher education that adheres to the principles of quality and transparency. In the context of cultural diversity the fundamental aim of this intensive process of reformation is the creation of a knowledge-based society (Constantin M., 2008).

Higher Physical Education in the Republic of Moldova is determined by the imperatives of the modern society, by the necessity to assert on the international scale and to integrate in the European university area.

That is why the State University of Physical Education and Sport elaborates the strategies that will contribute to the transition from the existent educational patterns to the European university standards (Plan de

acțiuni privind implementarea prevederilor Procesului Bologna în sistemul învățământului superior din Republica Moldova, 2005):

- promotion of effective cooperation with foreign educational centers;
- participation in the international scientific and educational projects;
- academic training of SUPES collaborators at foreign university centers;
- creation of optimal conditions for the teaching process at BA, MA and PhD courses for local and foreign citizens;
- organization of international scientific meetings and symposia;
- organization of sports competitions and joint training camps;

- elaboration of transnational curricula, joint research projects and international multidisciplinary programmes;
- revision of the curriculum of physical culture of the Republic of Moldova in order to adjust it to the dynamics of the international academic requirements in concordance with the principles of the Bologna Declaration.

Reformation of the specialized higher education is determined by the following objective factors:

- specific character of the development of the international economics;
- demands of the labour-market;
- conditions of social integration through different professions;
- traditions of the university education of the Republic of Moldova.

Despite the national specificity, the quality of higher physical education remains the foundation of the reform. The assurance of quality needs a profound evolution at three obligatory levels: institutional, national and European (Sistemul european de transfer al creditelor de studii ECTS. Ghidul utilizatorului, 1997).

So, in the process of assurance of qualitative education SUPES has set the following criteria:

- quality of general and professional skills and knowledge of the graduates;
- quality of professional training of the teaching staff;
- quality of the university scientific researches;
- economic efficiency of physical education and sport in higher education.

All these goals can be reached by such actions

as:

- elaboration of the Committee of evaluation and assurance of quality within SUPES;
- improvement of the methods of evaluation of the teaching staff and the students' knowledge;
- elaboration of the mechanisms that analyse the achievements and success of the university teaching staff;
- expansion and modernization of the equipment for teaching and research processes (teaching and research laboratories);
- improvement of the process of matriculation to SUPES in order to select candidates according to their merits and vocation;
- improvement of the organization of the teaching process in order to make teaching and teaching plans more individual and flexible;
- implementation of new educational technologies;
- elaboration of mechanisms for the labour-market insertion of young people during and after their studies;
- academic upgrading;

- creation of a modern type of university library;
- determination of the equivalence between studies, qualifications and titles through the continuous reformation and improvement of teaching plans for the under-and postgraduate cycles according to the latest imperatives of the contemporary methodology;
- improvement of the system of further education: every year more than 560 teachers and coaches from all over the republic complete our courses of professional development.

As the quality of education is increasing, the emphasis must be put on quality management. It represents the activities that determine quality policy, the objectives and responsibilities which are implemented by such means as: quality planning, quality control, quality assurance and continuous quality improvement (Constantin Bratianu, 2002).

Modernization of the management at the institutional and national levels represents the key elements of the strategy of the development of physical education and sport in higher education. In order to put the reform into action not only a coherent and active policy is needed but also some institutional mechanisms for coordination, organization and evaluation which are convergent with the university autonomy.

Autonomy is the legal framework in which the academic community (lecturers, researches and students) exercises its academic freedom that is associated with teaching, learning, evaluation, research, production and transmission of knowledge under self-government. We try not to make our university autonomy an obstacle for the promotion of national strategies of the development of education and its quality assurance.

We aspire to the university autonomy in three main domains:

- domain of organizational structures;
- functional domain;
- domain of management of available resources.

Thus, with the lapse of time, university autonomy will be interpreted not only as a simple autonomy of institutes of higher education but also as the autonomy of the whole university system.

Realization of these reforms is based on the efficient process of quality planning which sets the objectives and conditions of the application of quality system elements. It is related to education and presupposes a series of managerial activities of strategic planning as it follows:

- determination of the main directions of the evolution of the University;
- formation of the general policy adopted to the educational system;
- identification of key issues;
- elaboration of strategies on the issues;

- revision of the plan in case if some specific situations occur.

Improvement of the quality is achieved by the actions of the entire organization to increase the effectiveness and efficiency of the process and activities in order to ensure greater benefits both for the organization and its clients (Bontaş D., 2007).

At the national level in terms of quality we rely on such fundamental principles as:

- orientation to better results and the growth of our University's competitiveness on the market of educational services and our graduates' competitiveness on the labour-market;
- recognition of the qualifications, degrees and diplomas offered by SUPES on the European market;
- development of the institutional culture of quality involving the university staff and using the experience of other universities of our country.

Quality assurance is the major goal of SUPES and it includes:

- Definition of responsibilities of all departments of the institution.
- Evaluation of internal programmes, external analysis and students' analysis of the results.
- Application of the system of accreditation, certification or procedures comparable to the European ones.
- International participation, cooperation and organization of our University with European networks.
- One of the distinctive ways in which pedagogical education and didactics can improve the quality of the programmes is implemented through the active partnership with employers and professional authorities. The first ones, collaborating at the place of work, implement the relevancy of the courses to the social needs. The second ones through their functions of stabilizers, can ensure the growth of standards at the national and international levels.
- Lecturers conduct and take part in researches in the process of evaluation of quality and its growth in higher education, as well as in other sectors of evaluation (Budevici A., Manolachi V., Carp I., 2008).

The process of quality evaluation is quite complex and needs a variety of instruments and participants. Consequently students are widely involved in the process of quality assurance and improvement as reflective participants.

The academic staffs of our educational departments develop professionally by taking part in conferences, seminars and short courses. Preparation of the university lecturers becomes a way of

quality growth as a part of the continuous training strategy used by most institutions.

In order to improve the quality of the learning process in the State University of Physical Education and Sport we tend to achieve the balance between the time spent in collective teaching (courses, seminars, laboratory works) and the time allotted to individual training (practical works, individual studying, etc). In this context some modifications are being made to optimize the proportion between the hours of direct contact and individual work.

The Moldovan society needs a good university system of physical education that will prepare youth for an active and productive work on the dynamic labour-market of our democratic and open society. Higher physical education has assimilated many new educational practices, nevertheless innovations in the field of physical culture and sport in the Republic of Moldova are not yet sufficiently integrated into the coherent educational system that is demanded by the modern labour-market.

Renovation of physical education has a series of objective possibilities:

- a better delineation of the rights and responsibilities of the university governing bodies;
- growth of university freedom;
- transition from the "user" of the educational system to the "designer", "author" of new systems;
- involvement of qualified foreign specialists in the educational process;
- possibilities to obtain supplementary funding sources.

All these factors taken together lead to the transformation of our institution into the centre of education, methodology and science, which is included in the number of competitive academic centres of Europe and Asia, the Baltic and CIS states.

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**L'enseignement supérieur en Moldavie, entre
tradition et réforme**

Mots-clé: Espace éducationnel européen, le processus Bologna, qualité de l'enseignement, autonomie universitaire, évaluation de la qualité

Résumé: La réforme de l'enseignement supérieur constitue la priorité des pays adhérents au Processus de Bologne. Ce phénomène a commencé des réformes amples au niveau de l'état et dans chaque institution d'enseignement supérieur.

**Învățământul superior de educație fizică din
Republica Moldova: între tradiție și reforme**

Cuvinte cheie: Spațiu European al învățământului superior, procesul Bologna, calitatea învățământului, autonomie universitară, evaluarea calității.

Rezumat: În ultimii ani reforma învățământului superior constituie prioritatea fundamentală pentru țările care au aderat la mișcarea progresivă numită Procesul de la Bologna. Acest fenomen a pus începutul unor reforme de amploare la nivel statal, precum și la nivel de fiecare instituție de învățământ superior. Autorii articolului își propun drept obiectiv să arate care este impactul fenomenului Bologna în Republica Moldova la general, și în Universitatea de Educație Fizică și Sport, în special.

**CONTRIBUTIONS REGARDING THE IMPROVEMENT OF THE
ASSESSMENT, EQUIVALENCE AND PROFESSIONAL RECOGNITION
THROUGH SCIENTIFIC COMPETITION, IN THE FUNDAMENTAL
FIELD OF PHYSICAL EDUCATION AND SPORTS**

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Abstract

Implementation of the Bologna process in specific system led to the development and implementation of new educational concepts, quality, skills assessment, equity and national and international recognition focused on competition. In the harmonization of the educational system to EU standards required by national mechanisms have been created which included performance management and reform required a fundamental area of science, physical education and sport.

Provisions of the legislation in force require education assessment system and professional recognition in the educational reform process, a new component, namely the equivalence of specific criteria of fields.

Specific conclusions drawn in prior research confirms, that applying the new model of assessment, equalization and professional recognition by scientific competition, will allow one ranking and the promotion of values specific to our basic education system and will allow an objective assessment of promotions the functions of academics and those who work mainly in the area of sport performance.

Keywords: *assessment, professional recognition, scientific competence, equivalence.*

Introduction

During the European reform process, the Romanian educational system is going through a metamorphosis period, as it applies a participative quality management.

Implementation of the Bologna process in specific system led to the development and

implementation of new educational concepts, quality, skills assessment, equity and national and international recognition focused on competition. In the harmonization of the educational system to EU standards required by national mechanisms have been created which included performance management and reform required a fundamental area of science, physical

education and sport.

Strengthen the fundamental domain specific system imposed "promoting a new national concept of assessment and professional recognition focused on scientific competition" (Lador I.I., 2005) by application of education legislation in force on educational components, harmonized with the national, European and Euro-Atlantic system.

This concept involves creating a national uniform system of assessment and professional recognition by scientific competition, the specific system, the components of research, professional journals and communication sessions, which I can achieve a ranking and the promotion of values education system.

Implementation of the new model of assessment and professional recognition by competing in the national science education specific to the domain of – *Physical Education and Sport* has led to the creation at national level, subordinated to the Ministry of Education, Research, Youth and Sports (MECTS) of the National Council for the Study of University Sports (C.N.S.S.U.), an organism constituted since 2008 at FSU level in Romania.

Structurally and functionally, C.N.S.S.U works (as evidenced by its involvement in the event that action, namely the National University Scientific Forum) by committees of specialized experts. It is intended that immediately after the council members to develop a regulation under which the will highlight the skills assessment, professional recognition under uniform rating scale by scientific competition in the departments, faculties, universities, national and international systemic relationship National Council for Attestation of Titles, University Diplomas and Certificates, its specialized committee. The National Agency for Quality Insurance and the Specialty Commission, respectively on the systemic relationship, the International Commission for the Study of University Sports (C.E.S.U.) inside F.I.S.U., the European Commission for the Study of University Sports (C.E.S.U.E.) inside A.E.S.U., the Sports Research Commission inside the European Union and others.

Performance management is a systematic approach to human resource management in general and performance evaluation in particular, by using objectives, performance, assessment and feedback as a means to motivate teachers to understand and to fully exploit their creative potential. We believe that performance assessment has a central role and constitute an important or essential part of human resource management system.

It is a managerial activity justified, always current and very important, with many individual and organizational implications.

Material, method

Performance Evaluation of teachers in an institution of higher education appears to have an important impact on educational activities, social and organizational climate of the institution with direct repercussions on growth in overall efficiency and quality of education in particular.

In the Romanian higher education system, according to the current legislation, the assessment of the teaching staff for granting academic didactic titles is done by the National Council for Attestation of Titles, University Diplomas and Certificates inside the Ministry of Education and Research, Bucharest.

Assessment of the candidate in the contest to fill the post of associate teaching professor or university is by scoring, on a scale adapted to the specific department or department, approved by the university senate, according to OMEC no.5098/2005, OMEC no.5099/2005 and OMEC no.3548/2006.

Starting from the specific activity of our industry, the research aims to identify some steps to assess the quality of research institutions in the field of teachers responsible for high performance sports activity, thus making the specifics of this activity.

In conducting the research we have developed the following *hypothesis*:

Only if the equivalent indicators for assessing the quality of the academic scientific research of the competitive sports specialists will be identified, the specificity of the *Physical Education and Sport* domain activity could be capitalized.

To identify and equate specific minimum criteria for the assessment and recognition PES field training, we used a SWOT assessment type.

Strengths:

- Scientific university research is a fundamental component, having a major contribution to completing the work of education and education of the young generation.
- The results obtained in scientific research are an important indicator of quality of university and is funding criteria.
- Evaluation performance level scientific research university and defining indicators of equivalences of funding (IC6), also called performance criteria, established and calculated by the CNCSIS, based on a specific methodology. (Dobrescu T., 2009)
- Promotion and dissemination of interdisciplinary research on improving the methodology of sports training, participation in competitions, the restoration and recovery of athletes in the national and international scientific events.

Weaknesses:

- Poor perception of the phenomenon of sport as an integral component of social education - culture;
- Lack of standards in the assessment of research projects concerning local and national businesses, for achieving high sports objectives.
- Lack of domain specific PES axes respectively of the process of "manufacturing and modeling of champions" world, and Olympic.
- Lack of ISI magazines specific to the PES domain in the country.

Opportunities:

- Provisions of the legislation in force require education assessment system and professional recognition in the educational reform process, a new component, namely the equivalence of specific criteria of fields.
- Specificities of the fundamental field of science: *Physical Education and sport* and their purpose, compared with other areas.
- Integrating the sport sciences and increasing the contribution of scientific research in support of sport performance.
- Some regulations of the educational institutions in the country assess performance with scientific research and sports as an essential component of business and academic community members, providing an important criterion for assessing their performance and professionalism.
- The emergence of specific indicators to other areas as indicators of scientific assessment and the arts.
- The existence of the OMEdC 3548 of 06.04.2006, on the Equivalence of minimum standards on core areas.
- OMEdC 3548/2006, at criterion 3, respectively the scientific contribution, evaluates the

contributions to knowledge development in the area by customizing the patents for candidates in the field of physical culture and sports, published works may relate to sports performance.

Threats:

- Association of Romanian scientists in the world, make suggestions for amendments to the Code of Education project (variant of 6 September 2009), relating to higher education, scientific research says that the equivalence of sports performance, (art. 5 p. 13), may have impact on scientific performance in that any equalization would result in the impossibility of applying international best practices in evaluation research (Ad Astra, 2009).
- Decreased interest in athletic performance technicians to disseminate the results and experience gained in achieving exceptional performance.

The beneficiaries of a new model of assessment, equalization and professional recognition through scientific competition (Table 1) are: academics, of equivalence of the competition receiving the hierarchy of values, colleges and universities in the system profile, developing research, publishing and scientific communication "champion forming laboratories" in sports performance. Consequently, to the equivalence propositions presented below, can influence the National Consultative Councils of the M.Ed.C.T.S and their Commissions, C.N.A.T.D.C.U. and A.N.C.S. and respectively the Physical Education and Sports Commissions inside them, which evaluate, according to the laws, both the teaching staff during the stimulation, motivation and promotion process, and during the evaluation and institutional accreditation process.

Table 1. Equivalency of the minimal standards for promotion in the fundamental field of science of Physical Education and Sports

No.	OM Criteria 5099	According to OM 5099/2005	OM Equivalences 3548/2006	Equivalences for top performance sportive activity*
Associate Professor/ researcher 2 nd degree	Research Activity	Projects won through competition, 5 years - manager	1 Grant manager = 1 specialized research book - author	1 Grant manager = 1 national research project (with specialized national federations, national bodies) for obtaining high sportive objectives.
	Scientific Contribution	2-4 articles/studies, patents - the last 5 years, author/co-author of which 2 ISI/ BDI index	1 ISI article/study = 3 specialized studies	1 ISI article/study = 1 I - III place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the OG or WCh. and/or World Cup;

Professor/researcher 1 st degree		1 specialized book as prime/only author	-	1 book = 1 I-III place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the NC, A division or the National League or the Romanian Cup;
	Research Activity	Projects won through competition – minimum 2 of which 1 manager and 1 international – the last 5 years	1 international Grant = 2 specialized research books - author	1 Grant director = 1 national research project (with specialized national federations, national bodies) for obtaining high sportive objectives.
	Scientific Contribution	5-7 articles/studies, patents - the last 5 years, author/co-author of which 4 ISI/BDI index	1 ISI article/study = 3 specialized studies 1 BDI citation = 2 specialized studies	1 ISI article/study = 1 I - III place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the OG or WCh. and/or World Cup; 1 BDI citation = 1 IV - VI place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the OG or WCh. and/or World Cup; or 1 I-III place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the ECh and/or European Cup, or Balkan Championship and/or Balkan Cup.
		2 specialized books of which 1 as prime/only author	-	1 book = 1 I-VI place occupied by an athlete trained and/or recovered (individual sports, sportive games) at an international level (pupils, students and/or graduates): at the OG or WCh. and/or World Cup;

*ENDORSEMENT: Through written confirmation of the specialized National Federations, on specific sports branches.

NOTE The equivalence of an indicator can be done only once for every result obtained in the performance activity

Conclusions

Overall findings stemming from the completion of a genuine research proves the need to develop and apply a new model of assessment, equalization and professional recognition in the fundamental, *Physical Education and Sport*.

The need for equity in the evaluation and professional recognition has important role in ensuring the veracity and probity process of promoting values in education system specific.

We consider that this new equivalence model promoted in a specific system will be adopted by the Specialized Commissions of the M.Ed.C.T.S consultative organs, respectively C.N.A.T.D.C.U. and

A.N.C.S., as a *criterion* for the de *professional assessment and accreditation process* at an *institutional, national and international level*.

Specific conclusions drawn in prior research confirms, that applying the new model of assessment, equalization and professional recognition by scientific competition, will allow one ranking and the promotion of values specific to our basic education system and will allow an objective assessment of promotions the functions of academics and those who work mainly in the area of sport performance.

We appreciate that this new model provides a domain specific amount of *Physical Education and Sport* educational system, its scientific resources,

strengthens and promotes the benefit system and personal interest, institutional and general education system in Romania.

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3. OMEdC 5098/03.10.2005, *Criterii de evaluare pentru concursurile de ocupare a posturilor universitare.*
4. OMEdC 3548/06.04.2006, *Echivalarea standardelor minimale pe domenii fundamentale.*

Contributions concernant les améliorations de l'évaluation, équivalence et de reconnaissance professionnelle par la concurrence scientifique, dans le domaine fondamental de l'éducation physique et du sport

Mots-clés: *évaluation, reconnaissance professionnelle, la concurrence pour la validation scientifique.*

Sommaire: *Application système spécifique processus de Bologne a conduit à l'élaboration et la mise en œuvre de nouveaux concepts éducatifs, la qualité, la compétence, l'évaluation et la reconnaissance de l'équivalence de la concurrence nationale et internationale centrée. Dans le processus d'harmonisation du système éducatif aux normes européennes de l'Union au niveau national ont créé des mécanismes de gestion de la performance et a appelé à une réforme qui inclus domaine fondamental de la science, l'éducation physique et sportive.*

La législation en vigueur exige l'éducation professionnelle de l'évaluation et de reconnaissance dans le processus de réforme de l'éducation, à savoir l'équivalence d'un des domaines nouveaux critères propres à chaque volet.

Spécifiques de recherche confirme les conclusions précédemment que l'application du modèle

d'évaluation de nouvelles, l'équivalence et la reconnaissance par la concurrence de formation scientifique, peut réaliser un classement et à la promotion des valeurs dans notre système d'éducation spécifiques à la fondamentale et peut faire une évaluation objective des promotions sur l'enseignement universitaire et ceux qui opèrent principalement dans le domaine de la performance sportive.

Contribuții privind optimizarea proceselor de evaluare, echivalare și recunoaștere profesională prin competiție științifică, în domeniul fundamental, educație fizică și sport

Cuvinte cheie: *evaluare, recunoaștere profesională, competiție științifică, echivalare*

Rezumat: *Aplicarea procesului Bologna în sistem specific a condus la elaborarea și aplicarea unor noi concepte educaționale, ale calității, competențelor, evaluării, echivalării și recunoașterii naționale și internaționale centrate pe competiție. În cadrul procesului de armonizare a sistemului educațional la standardele impuse de Uniunea Europeană la nivel național s-au creat mecanisme ale managementului performant care au cuprins și impus reformarea domeniului fundamental de știință, Educație fizică și sport.*

Prevederile legislației învățământului în vigoare impun sistemului de evaluare și recunoaștere profesională, în cadrul procesului de reformă educațională, o nouă componentă și anume echivalarea unor criterii specifice unor domenii de activitate.

Concluziile specifice cercetării confirmă ipoteza elaborată în prealabil, potrivit căreia aplicarea noului model de evaluare, echivalare și recunoaștere profesională prin competiție științifică, va putea realiza o ierarhizare și promovare a valorilor în sistem educațional specific domeniului nostru fundamental și va putea realiza o evaluare obiectivă a promovărilor pe funcții didactice universitare a celor ce-și desfășoară activitatea preponderent în sfera sportului de performanță.

IMPLEMENTATION OF ANALYTICAL CURRICULUM PROJECT (SYLLABUS) IN TRAINING THE STUDENTS AT "BASKETBALL" – BASIC COURSE

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Summary

The present work is a sample from an experimental ample study which followed the optimization of technical part in the basketball game, but also general aspects regarding the professional training of students in this faculty. The researched problem was the poor level of technical training at "Basketball" basic course in the present conditions of reduced number of hours, crowded analytical programs and non-partitioned efficiently from the point of view of the content game and the lack of a modern methodology of learning, evaluating, correcting errors of content, resolved by using a video analysis specialised software. The students' training was sustained by conceiving an analytical curriculum presented in this article which aimed the distribution of training forms and dividing the content of each component, with the proper approach of technique discipline "Basketball" basic course.

Key words: analytical curriculum, basic course, students, technical training

Introduction

The present syllabus, which are busy and inefficient structured, make an incondite relation between the informative part (theoretical knowledge) and the formative part (habits and dynamic skills), a fact which determines a lockout in achieving the objectives regarding the complete and efficient assimilation of basketball. This aspect is shown by the continuous struggle of specialists in improving all components of the training system, insisting on the methodical-scientific side (D. Colibaba-Evuleț, I. Bota, 1998; C. Negulescu, 2000; C. Hânsa, 2003, 2006; A. Moanță, 2005; C. Ciocan, 2004; J.L. Fleancu, 2007; D.L. Ciocoiu, C. Ciorbă, 2008; D.L. Ciocoiu, 2009; etc).

In other words the success of training the students relates to the projection pattern of curriculum documents, to correspond with the present educational requirements (C. Hânsa, 2003; D.L. Ciocoiu, 2006; D. Colibaba-Evuleț, 2007; etc).

Working Assumption

The current training of students in "Basketball" with few hours and poor structured content, which doesn't justifies the profile "demonstrate", can encourage the training of specific skills game, at a superior quality level by implementing a new analytical curriculum to streamline the training components, especially the technical one.

The subject of research is represented by the educational process of vocational training of students in The Physical Education and Sport Faculties in "Basketball" basic course.

The aim of research is the optimisation of the

training students' process in the faculties at "Basketball" course by applying the project in the syllabus.

The research objectives:

1. Analysis and generalisation of literature data regarding the course "basketball" in the Faculties of Physical Education and Sport.
2. Observing the efficiency in applying this project of syllabus directed towards technical training of students at "Basketball".

Methods of research:

The methods and techniques of the scientific research used in the present article were: bibliographical research, study of curriculum, Type questionnaire survey method, experimental study method, statistic-mathematical method, graphic method.

Organization of research

The implementation of the syllabus in our research at "Basketball" (The Faculty of Physical Education and Sport Galati) has followed a regeneration and subdividing of game content, with the proper approach of *technical training component* which was applied to the group of experimental students (n=45) comparative with the witness group (n=42) that has studied the units of basic course "basketball" in conformity with the old curriculum, in liquidation (2005-2006).

To each compartment was distributed, in a logical sequence, the training forms, the number of hours, types of lessons and their themes which made the suggested objectives of research. Knowledge specialists' opinions were used in making the syllabus, contributing to high quality of the game and achieving professional

competence of students at "Basketball". The questionnaire was completed by 116 teachers who are working at Physical Education and Sport Chair in Romania and from I.N.E.F.S. Chisinau, Moldova. The investigated sample includes specialists with experience

and different scientific degrees, and ages between 24 – 64 years old.

The experimental programme was structured on three steps and presented in figure 1:

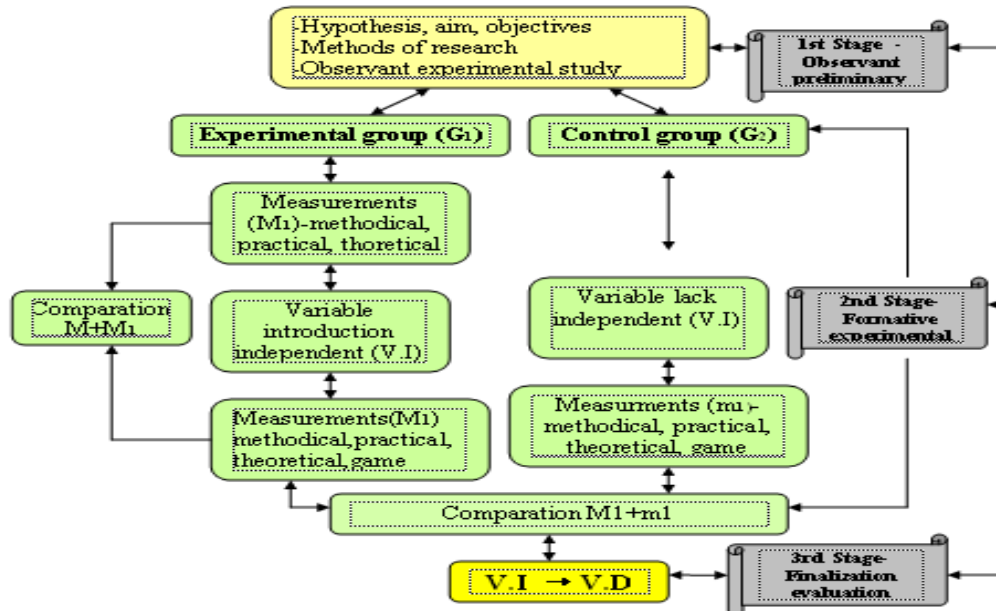


Figure 1. Organization of programme

Legend= M1- measurements experimental group; m1-measurements control group; V.I- independent variable
V.D-dependent variable

- The variables of the scientifically steps were:
- The independent variable (V.I) – subdividing the content of the schedule, the priority is the technical training which was made on a modern methodical step.
 - The dependent variable (V.D) – has highlighted the processes made by students by applying the experimental schedule and the methodical line based on the video analyses programme which determined the spatial parameters (the movement trajectory of segments in five points: throwing to the basket by standing, from dribbling, jump, passing the ball with two hands from the chest).

Results

Synthetically presented, the results of the experimental programme are:

The items from the experimental group have received superior results at all analysed qualifications: "correct" – 35,10%, partially correct – 41,10%, "incorrect" – 23,77%, comparative with the witness group: "correct" – 9,75%, "partially correct" – 40,46%, "incorrect" – 49,75%, which shows the training efficiency from a methodical point of view and the possibility to integrate and capitalize the didactic step

of "movement programme" of technical and global procedures of game.

The positive results of the grades taken by experiment group of students (8,03) confirms a good level of the quality –quantity report at evaluating the theoretical knowledge of the game, comparing with the witness group (7,27).

The difference between the final grade of the two groups is significant from a statistically point of view ($t=4,63$; $P<0,01$).

Learning the technical elements and procedures by the experimental group of students in the basic course „Basketball” is at a high quality level (7,09) because of a specifically motrical background comparative with the witness one (6,75). The value of test „t” shows that there are important differences between the two groups from a statistically point of view, so there is an evident progress for the experiment group ($t=2,17$; $p<0,05$).

Applying the technical components in the game by the students at „Basketball” has a value of 62,81% which shows the efficiency of the schedule and reflects the good level touched by the experimental group, specially at technical training comparative with the witness one (48,88%).

The data shows that the experimental curriculum has distributed a percentage of 25,92% for

the assimilation of theoretical knowledge and 74,06% for the practical and methodical activities, ensuring a coverage of deficiency in the number of hours provided

for the practical work in the current curriculum (figure 2).

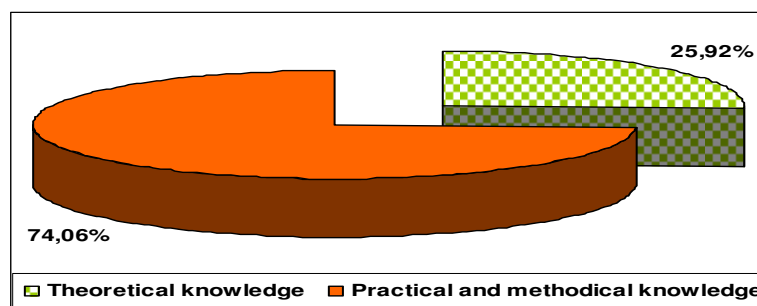


Figure 2 Percentage distribution of the number of hours for theoretical, methodical and practical knowledge in the syllabus at "Basketball" basic course

The proposed syllabus is structured on two compartments of students' preparation: **general compartment** in which are included the technical, methodical and practical preparation and the **specific compartment** which approaches the technical and tactical preparation in "Basketball". Each compartment interrelates with the other through content and forms of training regarding the way of rational, economical and efficient resolution of the game. The project is presented in annex 1.

The types of lessons used in the project of curriculum to train the theoretical and professional knowledge of students were: theoretical lessons like lectures, practiced-methodical lessons, evaluation lessons and independent lessons. It has to be mentioned the fact that the effects of the process, combining the two compartments purchased in the pedagogical preparation, was materialised through the instructive lessons.

Conclusions

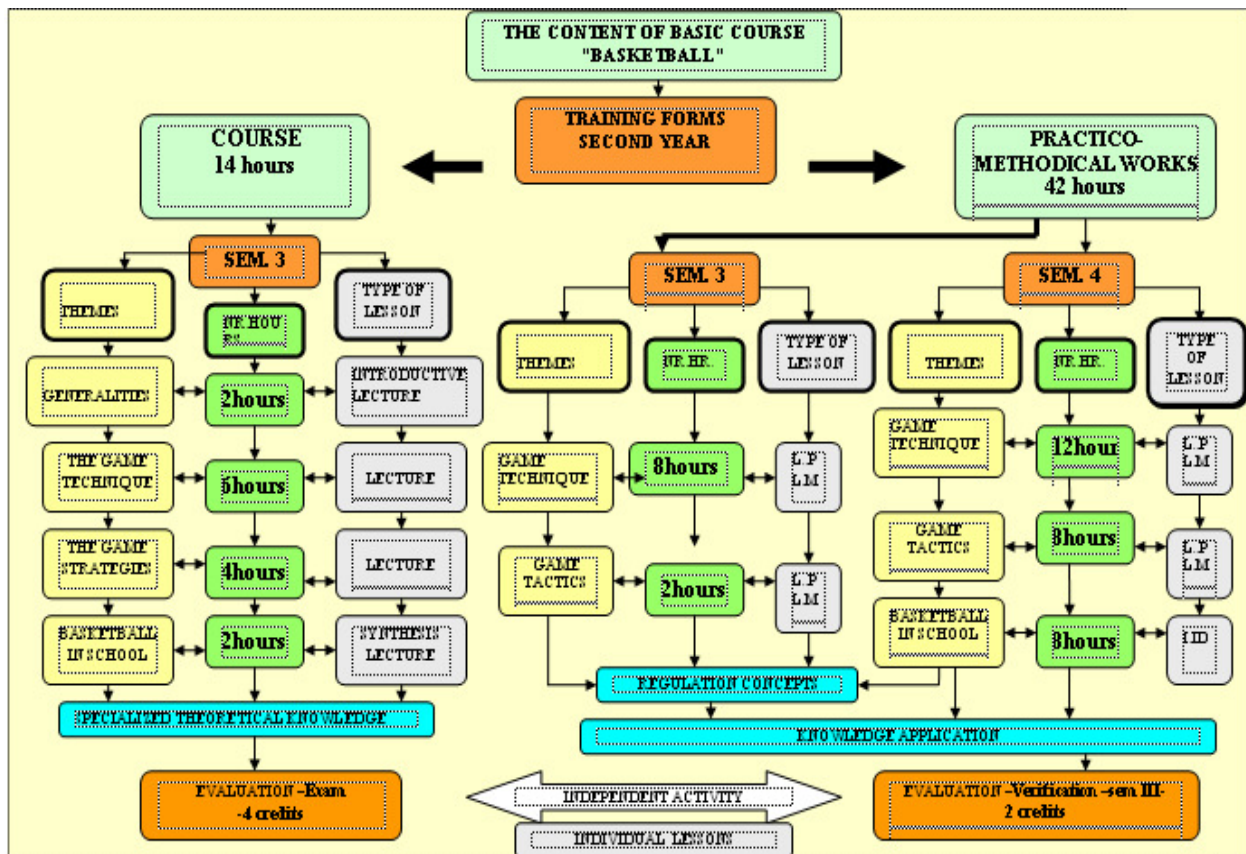
- The project of syllabus targeted the distribution forms of training and content of each component division, with special approach of the technical one in training the students at "Basketball".
- The deep approach of technical training in "Basketball" doesn't minimise the role of other components involved in the training process.
- The new curriculum has situated the *technical training component* of students in a modern methodological support (the video analysis), which allowed making an efficient didactic step (prevention, detection, correction of technical errors) in concordance with the future didactic requests of gradulators.

- The registered results in favour of the experimental group shows the functionality of our curriculum between its components, favors the link of this knowledge with the practical activity of game by surpassing the little number of hours in the present curriculum.

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Structure and content of syllabus at "Basketball" basic course



Legend: L.P –practical lessons , L.M – methodical lessons
L.ID – lessons of integrating teaching

L'implémentation du curriculum projet dans l'entrainement des étudiants pour le cours fondamental en basketball

Mots-clé: Curriculum, cours fondamental, étudiants, entrainement technique

Résumé: L'article est un extrait d'une ample étude expérimentale visant particulièrement l'optimisation de la composante technique dans le jeu de basketball, et aussi des aspects générales sur le processus de préparation professionnelle des étudiants dans les facultés de sport et d'éducation physique pour le cours de base en basketball.

Implementarea programei analitice proiect în pregătirea studenților la disciplina "baschet" curs de bază

Cuvinte cheie: Curs de bază, pregătire tehnică, programa analitică, studenți

Rezumat: Lucrarea prezentă este un extras dintr-un

studiu experimental amplu care a vizat în special optimizarea componentei tehnice în jocul de baschet dar și aspecte generale privind procesul de pregătire profesională a studenților din cadrul facultăților de educație fizică și sport la disciplina "Baschet" curs de bază. Problema cercetată a constituit-o nivelul deficitar de pregătire tehnică a studenților la disciplina „Baschet” curs de bază în condițiile actuale cu număr redus de ore, programe analitice aglomerate și necompartimentate eficient din punct de vedere al conținutului jocului și lipsa unei metodologii moderne, de învățare, consolidare evaluare, depistare și corectare obiectivă a greșelilor de tehnică, soluționate în cercetarea realizată, prin utilizarea unui software de analiză video specializată. Pregătirea studenților a fost susținută și prin conceperea unui proiect de programă analitică, prezentat în acest articol ce a vizat, distribuirea formelor de instruire și compartimentarea conținutului fiecărei componente, cu abordarea specială a celei tehnice la disciplina „Baschet”, curs de bază.

STUDY ON THE APPLICATION OF DIDACTIC STRATEGIES FOR THE CONSOLIDATION OF MOTOR SKILLS AND ABILITIES SPECIFIC TO THE COLLEGE SPORTS GAME

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Summary

This paper presents a study regarding the way for application of didactic strategies (differential treatment and problematization) with the purpose to consolidate the motor skills and abilities specific to the sports game during the physical education lessons over a school year.

Key-words: *abilities specific to sports game, didactic strategies, physical education, technical and tactical methods.*

Introduction

Teaching is one of the essential conditions of learning. For a successful common demarche of teachers and students, a didactic strategy is necessary, as well as certain ways for approaching and solving the teaching concrete duties. The development of the whole instructive and educational process is based on the correlation between the objectives and the strategies able to validate the success.

The teaching and learning suppose an action structure meant to impose the character of an operative system to all implied factors. The access of students to the sent message is conditioned by the way in which the information is produced but also the teacher's capacity for motivating the students and stimulating their thinking functions. [1, 2]

Teaching strategy envisaged the most logical route methodically and efficiently to be covered in addressing specific instances of chains of teaching and learning. Through his aiming contact the student to study new content, which involves the use of methods, procedures, means and forms of organization to enable skills (knowledge) to a higher quality level [1, 5, 6, 7].

As methods and techniques meant to facilitate the information accumulation [3] states that "the didactic strategies ensure the establishment of a certain correlation between teaching and learning". The teaching efficiency demonstrates if and how the didactic strategy chosen by teacher has influenced the quantity and the quality of students' accumulations. In this study, we shall try to present the possibilities for application of certain didactic strategies (differential treatment and problematization) during theme-based physical education lessons, i.e. sports games [4, 5].

The intention of authors is to present the results obtained with the support of didactic strategies for teaching and consolidating the motor abilities and skills specific to basketball and football by emphasizing that their application facilitated the carrying out of the

operational contents and objectives assumed through the disciplinary curriculum at a superior level within the experimental group.

Hypothesis

It was assumed that the elaboration and practical application of the didactic strategies during the physical education lesson focused on sports games (basketball – girls, football – boys) shall make the high-school instructive and educational process more efficient, and thus resulting in improved quality of the accumulation of the didactic contents of the curriculum for the discipline of Physical Education for sports games (by didactic strategies).

Investigation methodology

In order to establish the efficiency of the application of the strategies proposed for the physical education lesson focused on sports games, we have organized a pedagogical experiment for a witness-class. During this experiment, the scholar curriculum was covered without any special intervention, and, within the systems of lessons, we proposed for the experiment-class several didactic strategies meant to teach and settle the motor skills specific to sports games. During the experiment and in order to attain the proposed purpose, we used test, experts and statistical and mathematical methods as research methods.

The experiment was carried out within the National College "Costache Negri" Galati and we used two groups of 62 students for the witness-group, respectively 61 students for the experiment-group (two IXth classes for each group) during 44 lessons focused on sports games.

In order to develop the motor skills specific to the sports games, technical and tactical methods mentioned in high-school curriculum and bilateral games have been tested.

The technical and tactical methods tested for basketball are as follows: ball pass, ball catching, stopping, pivoting, dribbling, change of direction, free

throw into the basket.

From technical and tactical structure point of view, we have tested: passes from the middle of the terrain, passes followed by ball catching and stopping, pivoting, dribbling among 3 bars laid at 1 meter distance, passes at the middle of terrain, change of direction followed by ball catching and free throw into the basket.

Technical and tactical procedures tested in football are: bird balls, taking, driving the ball, "one to two, held at the gate.

Technical structure tested tactic in football is ball 5m leadership, passing landmarks including 5 located at a distance of 1m between them, "one to two" with teammates, taking pulled the gate and then muster.

The evaluation was made as follows: for the technical and tactical structure and for the bilateral game, the students have received a mark for each of the above mentioned specialty then, the average of marks have been made and thus resulting the level of the accumulation of technical and tactical methods; the evaluation was carried out by a group of experts comprising three teachers.

Results and remarks

By observing the general objectives of the physical education, the organization of the lesson, i.e. the elements of the content, shall take into consideration

the action methodology for learning, consolidating and improving the motor skills and abilities specific to certain sports branches.

For this purpose, the model for the annual planning of teaching units and didactic strategies presented in Table 1 was used for programming and planning the activity during the physical education classes focused on sports games. Tests and verifications were established in order to demonstrate the efficiency of the utilization of these didactic strategies during the physical education classes.

The elaboration of the teaching units for the sports games took into consideration the small number of lessons for initiation and the apparently big volume of technical and tactical methods needing to be taught. For this reason, certain contents shall be formatively taught, with more time for training and other contents shall be informatively taught.

Since the majority of IXth class students come from other teaching units, with different levels of instruction, we have noticed gaps regarding the accumulation level of motor skills and abilities specific to sports games and, for the motor skills specific to certain sports branches, we have selected those didactic strategies meant to make the physical education lessons and the teaching-learning process more efficient [1, 6, 7].

Table 1
Didactic model for the annual planning of teaching units and didactic strategies for motor skills specific to sports games for IXth class

Reference objective	Didactic strategies	Methodical methods and proceedings	Contents	Evaluation
<p>Basketball (girls)/ Football (boys) Improvement of technical and tactical elements and actions taught under the form of specific exercises; Application of technical methods taught by simple technical actions; Accurate performance of isolated methods; Combination of technical methods and individual tactical actions during the bilateral game. Application of technical and tactical knowledge and skills during the competitions, by observing the basic rules.</p>	<p>Differential treatment Problematization</p>	<p>Explication method; Demonstration method; Training method; Methods for execution errors correction;</p>	<p>Exercises for teaching the minimal technique with and without ball; Exercises for forming the basic mechanism and carrying out the analytical dynamic stereotype of technical methods; Exercises for the linkage of technical methods, creating the possibility of their consolidation under the form of complex structures; Application of technical and tactical actions obtained during the preparatory games, with reduced teams and on adapted terrains.</p>	<p>Predictive Systemic observation Formative Self evaluation Summative</p>

Thus, after the initial testing for the application of the didactic strategy differential treatment, we have organized groups of beginners and advanced students both for girls and boys; these groups shall remain closed and unmodified during the whole year. The methodical

approach of these strategies consists in the fact that the means for learning / consolidation / training have been designed differently for each group, depending on the instruction level, both for girls and boys (tables 2 and 3).

Table 2
Programmed instruction design for learning / strengthening / improving driving skills and skills specific sports game (Boys)

Means for beginners	Dozing	Means for advanced students	Dozing	Methods of teaching-learning, evaluation, methodical indications and working teams
Hit against leg side <ul style="list-style-type: none"> • Imitation exercises of hitting the ball with leg without ball. • Static ball hit after 3-4 steps flight, hit after a jump step. • Static ball hit after the partner's pass • Forward ball rolling and hit towards partner. • Hit of the ball thrown by partner from downward at a little speed. 	3 min 4 min 5 min 4 min 5 min Pause 45"	Leg hit with wide side <ul style="list-style-type: none"> • Pass the ball between 2 partners in running. • Simple spindle. Hit on the spot and movement behind the row. • Pass on the spot between 3 partners with two balls from extremities. • Pass the ball between 2 partners to hit the ankle of the other – on hits from downward, the other with an arc trajectory. • The same exercise, but with one-two introduction (taking over –leading, one-tow). 	4 min 5 min 3 min 5 min 4 min Pause 45"	- by pairs, by groups - explanation - demonstration - correction - assessment

Table 3
Programmed instruction design for learning / strengthening / improving driving skills and skills specific sports game (Girls Basketball)

Means for beginners	Dozing	Means for advanced students	Dozing	Methods of teaching-learning, evaluation, methodical indications and working teams
Ball passing <ul style="list-style-type: none"> • Ball pass on the spot with 2 hands on chest between 2 students at a distance of 2-3 meters. • The same exercise, from walking and then slight running. • Execution of the pass in teams with captain. In line and in circle. • Execution of the pass followed by the change of position to right, left avoiding the team. 	2x30" 2 x 10 repetitions 2x 10 repetitions 3x 10 repetitions Pause 30"	Ball passing <ul style="list-style-type: none"> • Execution of the pass in teams with captain, in line, in semicircle, in row and going to the end of the row, crouching after the pass, in triangle, in square. • Pass the ball with one hand and two hands from chest during running, between two partners, simple spindle, passes between three partners during running, between three with the change of places. 	2x 10 repetitions 2x 10 repetitions Pause 30"	-by pairs, by groups - explanation - demonstration - correction - assessment

After the consolidation of technical and tactical elements and methods and within the problematization, the students shall carry out a technical and tactical structure using the elements and proceedings learnt

before.

Results obtained after the testing of motor skills specific to sports games

The generalization of the information obtained

after the comparative analysis of the initial results of the accumulation level of motor skills specific to sports games of the examined students demonstrates a difference in the indices of all tests, but the progress was insignificant. This fact demonstrates that the witness-group and the experiment-group were homogenous at the beginning of test. But at the end of

experiment, the experiment-group is obviously predominant compared to witness-group, the final testing shows a difference of 0.64% for girls and 1.23% for boys after the evaluation of technical and tactical methods and a difference of 1.13% for girls and 1.40% for boys after the testing of bilateral game (Table 4).

Table 4

Statistical indicators between initial and final tests for skills test specific to sports games for the students of witness-groups and experiment groups

Tests national system of evaluation	Tests	GIRLS (n=78)		BOYS (n=45)	
		Witness-group (n=40) $\bar{x} \pm m$	Experiment group (n=38) $\bar{x} \pm m$	Witness-group (n=21) $\bar{x} \pm m$	Experiment group (n=24) $\bar{x} \pm m$
Technical methods Football B Basketball F (mark)	TI	6,13±0,24	6,18±0,27	6,57±0,34	6,46±0,37
	TF	6,66±0,22	7,33±0,18	7,43±0,32	8,66±0,33
	t	1,93	4,26	2,46	5,79
	P	>0,05	<0,001	<0,05	<0,001
Sports game Football B Basketball F (mark)	TI	6,30±0,26	6,46±0,28	6,68±0,35	6,54±0,38
	TF	7,19±0,26	8,32±0,25	7,70±0,34	9,10±0,37
	t	8,75	6,00	2,75	6,24
	P	<0,01	<0,001	<0,05	<0,001

After the comparative analysis of final results regarding the accumulation level of motor skills specific to sports games of the studied students, the pedagogical experiment shows (Table 5) that during all tests, the experiment-group has obtained significant indices compared to the witness-group ($P < 0.05$), thus demonstrating that due to the strategy applied to the experiment-group, the average of marks obtained by this was over 7 for the girls from the experiment-group compared to the witness-group, that obtained only 6 during the testing of technical and tactical methods. During the sports game, a bigger difference between the marks of the two groups can be observed. Consequently,

the average of marks obtained by the experiment-group is 9, compared to the average of marks obtained by the witness-group, i.e. 8.

As the above Tables 4 and 5 shows, the initial testing of witness and experiment groups demonstrates that the possibilities of IXth students are equilibrated for the majority of tests, both groups registering much closed results. But we can notice that the experiment-group that applied during the scholar year the proposed didactic strategies for the discipline of physical education, has registered a significant progress compared to the witness-group that used its own planning regarding the methodology approached.

Table 5.

Statistical significance testing driving skills in specific sports game control and experimental group students

Tests national system of evaluation	Tests	GIRLS (n=78)		t	P	BOYS (n=45)		t	P
		Witness group (n=40) $\bar{x} \pm m$	Experiment group (n=38) $\bar{x} \pm m$			Witness group (n=21) $\bar{x} \pm m$	Experiment group (n=24) $\bar{x} \pm m$		
Technical methods Football B Basketball F (mark)	TI	6,13±0,24	6,18±0,27	1,40	>0,5	6,57±0,34	6,46±0,37	0,22	>0,5
	TF	6,66±0,22	7,33±0,18	2,38	<0,5	7,43±0,32	8,66±0,33	2,67	<0,5
Sports game Football B Basketball F (mark)	TI	6,30±0,26	6,46±0,28	0,42	>0,5	6,68±0,35	6,54±0,38	0,27	>0,5
	TF	7,19±0,26	8,32±0,25	3,14	<0,5	7,70±0,34	9,10±0,37	2,80	<0,5

Conclusions

After the development of this study, the administration of means and organization forms, the information and other proceedings and methods, several conclusions may be drawn:

1. The teaching of sports games during the physical education lessons for IXth classes have ensured the accomplishment of operational contents and objectives assumed through the discipline curriculum by the experiment-group at a superior level.

2. The progress registered by the students of the experiment-group was assured by the application of the annual planning of learning units and the didactic strategies for the motor skills and abilities specific to sports games.

3. The results of the pedagogical experiment demonstrates that the didactic strategies applied to IXth students during the examined period had a positive influence on the accumulation level of motor skills and abilities specific to sports games.

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Étude sur l'application des stratégies didactiques dans la consolidation des habiletés motriques spécifiques des jeux sportifs au lycée

Mots-clé: *Habiletés spécifiques des jeux sportifs, stratégies didactiques, éducation physique, méthodes techniques et tactiques*

Résumé: *L'étude porte sur l'application des stratégies didactiques visant la consolidation des qualités motriques spécifiques du jeu sportif.*

Studiu privind aplicarea strategiilor didactice în consolidarea deprinderilor și priceperilor motrice specifice jocului sportiv în treapta liceal

Cuvinte cheie: *Deprinderi specifice jocului sportiv, educație fizică, procedee tehnico-tactice, strategii didactice*

Rezumat: *Lucrarea prezintă studiul privind influența și modul de aplicare a strategiilor didactice (tratarea diferențiată și problematizarea) asupra consolidării deprinderilor și priceperilor motrice specifice jocului sportiv în cadrul lecțiilor de educație fizică pe parcursul unui an școlar.*

MOTOR INDEXES DYNAMICS IN TIME, COORDINATION AND MOBILITY TESTS OF EXPERIMENTAL AND WITNESS STUDENT LOTS, DETERMINED BY THE DIFFERENTIATED PHYSICAL EFFORT EXPOSURE METHOD (GIRLS, 8TH GRADE)

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Abstract

The results obtained by the students in the basic experiment attest to the superiority of the differentiated planning of physical efforts in the physical education lesson that approaches motor skills related themes. This aspect has improved the physical condition indexes regardless of the level attributed to the initial phase. The superior results of the physical training tests applied to the experimental student lots are due to the increased effort requirements (42 of all the 68 annual lessons are motor ability-related, making up for 61.7%), several lessons even involving two themes of different aptitudes at once. The statistical calculus has proven that the differences between the witness and experimental lots are considerable and can be attributed to certain relevance thresholds ($p < 0,05$; $p < 0,01$; $p < 0,001$).

Key words: *motor abilities, differentiated and approximate exposure, combined motor skills, lesson plans, physical effort parameters*

Introduction

The somato-functional and motor gender differences require a proper segregation. Since the hereby approach already aims at dividing the students in separate value lots, a further division by gender would only result in problems regarding the organization and simultaneous use of the work space and didactic material. The test subjects are enrolled at the School n°13 of Galați and during the 2008-2009 school year, they were divided in a witness lot and respectively an experimental one (the former being formed of 56 students and the latter of 58 students).

The research hypothesis was based on the assumption according to which the development of motor abilities in lower-secondary education, based on the differentiated physical effort exposure method will lead to the improvement of the physical effort capacity as well as the physical training level, thus contributing to the achievement of the objectives set out to be reached for the eight grade and also of the lower-secondary graduate model's components.

The research approach focused on the use of the following methods: the analysis and generalization of the scientific and methodical literature; the investigation based on interviews and question forms; the educational observation; the measurements and tests method; the educational experiment; the statistic and mathematic data analysis and processing; the graphic and table method.

The contents of the experiment, its results and their interpretation.

As a solution to this particular problem, it is suggested that following the performances of the initial tests, the *girls* are to be distributed in appropriate value lots (most frequently of weak and intermediate level at the endurance and strength tests, yet without excluding the advanced levels at the coordination ones). The application of the differentiated physical effort exposure method to the value lots was focused on the data gathered from the three evidence sources (initial, current and overall), this being the only way for the lots to benefit from a correct evaluation of the criteria that were being considered and at the same time the contents of the syllabus being successfully covered, thus ensuring every student's chance to progress.

The value lots method has been applied to the experimental lots, consequently leading to various advantages being obtained with regard to the motor abilities themes: irregular exposure from one lot to another, based on different or similar exercises with an increased number of repetitions; a better motor and functional density should the activity be carried out in accordance with the lesson plan; good social interaction and an improvement of the relations within the lot; ensuring a high autonomy level; benefiting to the full

from the existing educational material.

The activity has proven to be even more efficient when the lot work relations were superior and when the students were well-informed regarding the exercise plan they were expected to follow. Furthermore, a strong lot emulation has been noticed, the students trying their best to score the highest results and at the same time to perform as good as possible, due to the accessibility of the contents in the syllabus. The values of the registered scores and the relevance of the differences in each lot are shown in the following graphics and tables.

At the physical **speed sprint – 50m** test, *the girls in the experimental lot* scored an average time of 8"35, lower than the initial one of 8"75, the difference being of 0"40. The relevance of the difference is given by (determined t)=3,94, a smaller value than (table t)=3,690, the difference being quite significant ($p<0,001$). *The girls in the witness lot* have scored an average time of 8"60, lower than the initial one of 8"70, resulting in an 0"10 difference. The relevance of the difference is given by (determined t)=0,96, a smaller value than (table t)= 2,060, the difference being irrelevant ($p>0,05$).

At the **shuttle run test 5x10m**, *the girls in the experimental lot* scored an average time of 15"59, less than the initial 17"53, thus resulting in a difference of 1"94. The determination of the significance is given by (determined t) =3,18, a greater value than (table t) =2,771, the difference being significant ($p<0,01$). *The witness lot* scored an average time of 17"09, lower than the initial value of 17"58, resulting in a difference of 0"49. The relevance of the difference is given by (determined t) =0,77, a lower value than (table t) =2,060, the difference being irrelevant ($p>0,05$).

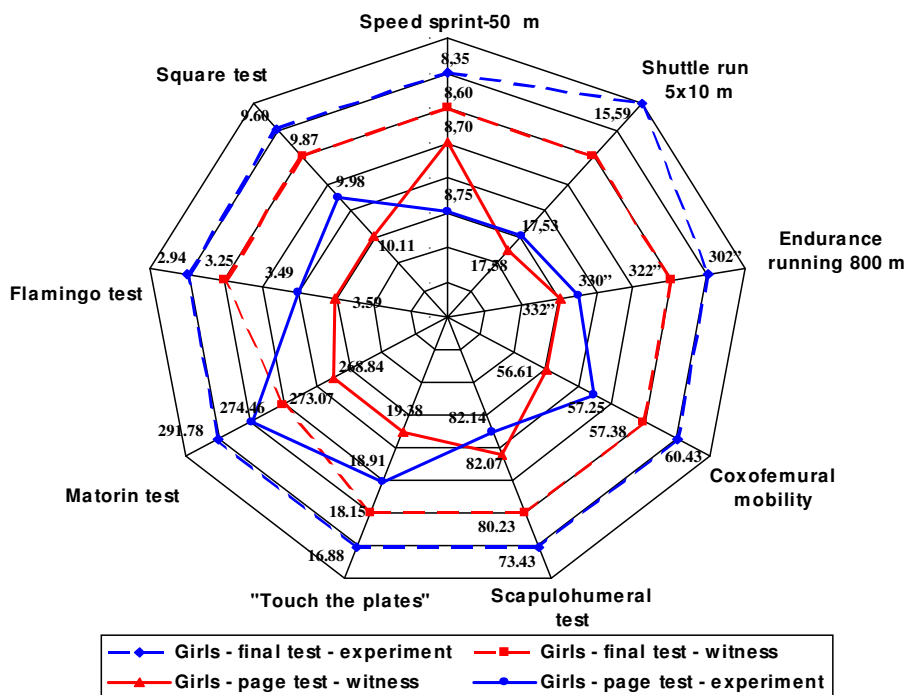
Regarding the **endurance running** test (800m), *the girls in the experimental lot* have scored an average time of 302", this being lower than the initial 330", resulting in a difference of 28". The calculus of the difference's relevance is given by (determined t)=3,88, a greater value than (table t) =3,690, the resulted difference being relevant ($p<0,001$). The average time of the *witness lot* is 322", lower than the initial value of 332", resulting in a difference of 10". The relevance of the given difference is given by the value of (determined t) =1,39, a lower value than (table t)=2,060, the difference being irrelevant ($p>0,05$).

At the **coxofemoral mobility** test, the value reached by the *experimental lot* is of 60.43 cm, greater than the initial one, 57.25 cm, resulting in a difference of 3.18 cm. The calculus of the difference's relevance is given by (determined t) =2,65, a greater value than (table t) =2,052, the difference being significant ($p<0,05$). *The girls in the witness group* have reached a value of 57.38cm, greater than the initial average of 56.61cm, resulting in a difference of 0.77cm. The

difference's relevance is given by (determined t) =0.61 a lower value than (table t) =2.060, the difference being irrelevant (p>0.05).

At the **scapulohumeral mobility**, the girls of the *experimental lot* reached a value of 73.43cm, lower than the initial one of 82.14cm, resulting in a difference of 8.71cm. The relevance of the difference is given by (determined t) =3.31, displaying a greater value than

(table t) =2.771, the resulting difference being relevant (p<0.01). Concerning the *witness lot*, the girls reached a final value of 80.23cm, lower than the initial 82.07cm, the resulting difference being of 1.84cm. The relevance of the difference is given by (determined t) =0.68, a lower value than (table t) =2.060, the difference being irrelevant (p>0,05).



Values of the speed, coordination, mobility and endurance indexes obtained during the formative experiment (in girls)

At the **touch the plates** test, the girls in the *experimental lot* reached an average of 16"88, lower than the initial 18"91, resulting in a difference of 2"03. The calculus of the difference's relevance is given by (determined t) = 3.76, a greater value than (table t) =3.69, the difference being relevant (p<0.001). In the

witness lot, the girls reached an average of 18"15, lower than the initial 19"38, resulting in a difference of 1"23. The relevance of the difference is given by (determined t) =2.02, a lower value than (table t) =2.06, the difference being irrelevant (p>0,05).

Table 1

The relevance of the difference between the same lots-girls (the speed, coordination, mobility and endurance indexes' dynamics)

No.	Test name	The witness lot n=26				The experimental n=28			
		Initial test	Final test	T	P	Initial test	Final test	t	P
		$\bar{X} \pm m$	$\bar{X} \pm m$			$\bar{X} \pm m$	$\bar{X} \pm m$		
1	Speed sprint 50m (sec.)	8,70±0,10	8,60±0,09	0,96	>0,05	8,75±0,10	8,35±0,08	3,94	<0,001
2	Shuttle run 5x10m (sec.)	17,58±0,61	17,09±0,53	0,77	>0,05	17,53±0,60	15,59±0,48	3,18	<0,01
3	Endurance running 800m (sec.)	332,00±6,81	322,00±6,24	1,39	>0,05	330,00±6,80	302,00±6,11	3,88	<0,001
4	Coxofemoral mob. (cm.)	56,61±1,17	57,38±1,13	0,61	>0,05	57,25±1,18	60,43±0,98	2,65	<0,05
5	Scapulohumeral mob. (cm.)	82,07±2,52	80,23±2,38	0,68	>0,05	82,14±2,56	73,43±2,13	3,31	<0,01
6	"Touch the plates (sec.)	19,38±0,51	18,15±0,44	2,02	>0,05	18,91±0,54	16,88±0,42	3,76	<0,001
7	Matorin Test (degrees)	268,84±5,43	273,07±5,32	0,72	>0,05	274,46±5,71	291,78±5,23	2,83	<0,01
8	Flamingo Test (tries)	3,59±0,15	3,25±0,12	2,26	<0,05	3,49±0,15	2,94±0,10	3,92	<0,001
9	Square test (sec.)	10,11±0,11	9,87±0,10	2,07	<0,05	9,98±0,10	9,60±0,09	3,80	<0,001

Note: P - 0,05 0,01 0,001
n=28 t = 2,052 2,771 3,690
n=26 t = 2,060 2,787 3,725

At the **Matorin test**, the girls in the experimental lot reached an average of 291,78°, greater than the initial average value of 274,46°, resulting in a difference of 17,32°. The relevance of the difference is given by (determined t) =2.83, a greater value than (table t) =2.771, the difference being significant (p<0.01). In the witness lot, the girls reached an average of 273.07°, greater than the initial 268,84°, resulting in a difference of 4.23°. The relevance of the difference is given by (determined t) =0.72, a lower value than (table t) =2.060, the difference being irrelevant (p>0,05)

The **Flamingo test** was concluded with an average of 2.94 attempts for the girls in the experimental lot, lower than the initial 3.49 attempts resulting in a difference of 0.55 attempts. The calculus of the relevance is given by (determined t) =3.92, a greater value than (table t) =3.690, the difference being relevant (p<0.001). Regarding the witness lot, the girls reached an average of 3.25 attempts, lower than the initial one of 3.59 attempts, thus resulting in a difference of 0.34 attempts. The relevance of the difference is given by (determined t) =2.26, a greater value than (table t) =2.060, this time the difference being relevant (p<0.05).

At the **square test**, the girls in the experimental lot have reached a final average of 9"60, lower than the initial 9"98, resulting in a difference of

0"38. The relevance of the difference is given by (determined t) =3,80, a greater value than (table t)=3,690, the difference being significant (p<0.001). The witness lot reached a final value of 9"87, lower than the initial 10"11, resulting in a difference of 0"27. The calculus of the difference's relevance is given by (determined t) =2.07, a greater value than (table t) =2.06, the difference being also significant (p<0.05).

Conclusions and proposals

The use of standardized means on the same parameters leads not to favorable results for the entire collectivity, thus requiring the differentiated exposure on value lots or even the replacement (alternation) of action systems acting as stimuli for the students. The structures being used trigger different reactions, based on the intensity of the effort: the sprints grant more self-control over the moving speed, but also over various forms attesting the endurance capacity, depending on the distance, the effort's intensity and the value of the given breaks that generally vary from one group to another.

The superior results of the experimental lot at the entire array of tests also emphasizes the interrelation between the tested motor abilities, which further proves that these must be analyzed and assessed in the growing process, being at the same time considered the related elements of a system and not independent ones, as the

values of some of the tests are directly influenced by the values of other skills assessed during the education process.

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La dynamique des indicateurs motriques dans les preuves de vitesse, coordination, mobilité et résistance chez les élèves des groupes témoin et expérimental par l'application du dosage différencié de l'effort physique (filles, 8e classe)

Mots-clé: Accessibilité, habiletés motriques, qualités motriques combinées, dosage orientatif et différencié, paramètres de l'effort physique, système de leçons

Résumé: Les résultats obtenus par les élèves inclus dans l'expérience de base prouvent la supériorité de la planification différente des efforts dans la leçon d'éducation physique centrée sur les qualités motriques.

Dinamica indicatorilor motrici în probele de viteză, coordonare, mobilitate și rezistență la elevii grupelor martor și experiment prin aplicarea dozării diferențiate a efortului fizic (fete clasa a VIII-a)

Cuvinte cheie: Accesibilitate, aptitudini motrice, calități motrice combinate, dozare orientativă și diferențiată, parametrii efortului fizic, sistem de lecții

Rezumat: Rezultatele obținute de elevii incluși în experimentul de bază demonstrează superioritatea planificării diferențiate a eforturilor fizice în lecția de educație fizică în care sunt abordate teme din calitățile motrice. Acest aspect a îmbunătățit indicatorii pregătirii fizice indiferent de nivelul inițial de la care s-a plecat. Rezultatele superioare la probele de pregătire fizică în clasele experimentale sunt datorate și volumului de lucru ridicat (din cele 68 de lecții anuale, 42 au teme din aptitudini motrice, deci 61,7% din total), în multe situații fiind întâlnite și două teme din aptitudini diferite în aceeași lecție. Calculul statistic a demonstrat că diferențele obținute la nivelul grupelor experimentale și între grupele martor și experiment sunt semnificative, corespunzătoare unor praguri de semnificație ($p < 0,05$; $p < 0,01$; $p < 0,001$).

THE EFFICIENCY OF USING GAMES OF MOVEMENT WITH TECHNICAL ELEMENTS FROM THE BASKETBALL GAME WITHIN THE PHYSICAL EDUCATION CLASSES TO THE ELEMENTARY SCHOOL PUPILS

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Summary

The research demonstrates the preponderant and particular role of the games of movement, with technical elements concerning basket-ball games, which influences, through its specific subject matter, the psycho-motile potential development of the elementary school pupils in the physical education classes.

Key words: games of movement, technical elements from basketball games, the physical education classes, elementary pupils.

Introduction

The multitude of tasks and movement shapes, within games, impose a certain order as to be better understood and better used. The literature points out several classification criteria, some of them related to the shape of the game, others related to its content, its players and the season in which one can perform it (Ionescu, M., 2000).

The game of movement characterizes itself through a simple content with few rules which is easy to understand. The games of movement are not proper only to small ages. Through games of movement one can accomplish a series of tasks regarding the physical preparation of older pupils, adults and even athletes. In organizing the games of movement one must bear in mind some methodic requirements which condition to a

greater extent the accomplishment of the outlined objectives (Cârstea, Ghe., 1997). The content of the game must coincide with the somatic-functional and psychic traits of the pupils.

Following the objective set in mind, the game of movement can successfully be used in almost all the moments of the lesson, with the exception of the one destined to the selective influencing of the locomotors apparatus. To the I-III grades the presence and the role of games in every lesson is undisputed, the latter contributing to the accomplishment of the instructive and educative objectives outlined in the process. Within the different instants, some objectives can be accomplished through games of movement which also contribute to the dynamics of the activity. Thus, a game of movement can draw attention to the lesson far more actively and efficiently. The preparing of the organism for such an effort can also be gained through games of movement which dynamical solicit the organism. The games of movement offer a various range of possibilities regarding the consolidation and application in different ways of the attested skills and habits, regarding the development of the motile qualities.

The efficiency of using games of movement in the physical education classes is given by a series of aspects: the sporting games represent, for children, the most attractive global activity through which one can take action to what the motile and psychic claim is concerned so that one can accomplish the instructive and educative objectives of the physical education lesson. As a global activity, the sporting game represents an activation tool of the organism's functions used by youngsters or adults as a recreation activity, as a physical and psychological relaxation (Bota, I., Colibaba, E., 1998). The games favor the performance and development of group relations with the highest efficiency indicators; from the emotional point of view the game has certain impacts on the man's personality favorably influencing his emotional traits and feelings, all of them determined by the positive or negative situations the team is faced with, by the community's interests, etc (Epuran, M., 1992).

The research's hypothesis

One leaves from the premise that using games of movement with technical elements from the basketball game within the physical education classes to the elementary pupils can positively influence the value of the general physical and motile development indicators.

The research's purpose

The goal of the research is mainly optimizing the teaching process of the physical education classes by using games of movement with technical elements from the basketball game within the physical education classes to the elementary school pupils.

The research's objectives

1. Studying the theoretic and practical aspects to what the content of the instructive and educative process is concerned within the physical education classes to the elementary school pupils.
2. Appreciating the level of the motile preparation, the physical development and the functional state of the pupils in the elementary school.
3. Experimental argumentation and verification of the method's efficiency concerning the games of movement with technical elements from the basketball game within the physical education classes to the elementary school pupils.

The practical importance is represented by the possibility of using on a larger

scale the methodic elaborations regarding the organization of the physical education of elementary school pupils by applying games of movement which contain elements from the basketball game with the purpose of reaching that selective influence on the development of the psychological and motile abilities, on implementing the methodic recommendations within the research in the instructive activities of the pupils from the elementary school, on the contribution of the increasing efficiency of the didactical process of the physical education classes.

In the basic pedagogical experiment 35 pupils were involved. The witness group contained 16 pupils, 10 girls and 6 boys. The experiment group contained 19 pupils, 11 girls and 8 boys, all of them between 10-11 years old.

The structure of physical education lessons to pupils in the experimental group were used games go play basketball with elements of training in the following situations: games for preparing the body for exercise, games influencing locomotor selective, developing quality driving games, games for learning / consolidation of motor actions.

Appropriating elements and processes Basketball games used motion experimental group physical education lessons were : free to move in land / general physical training, games for retaining, going and catching the ball, dribble games, games for throwing the basket, games for marking the opponent. Control group of physical education lessons conducted by traditional means and drive systems and components and processes of learning were taught individually basketball.

Basketball game used items were listed in physical education curricula in fourth grade.

An initial testing has been done in the beginning of the school year and afterwards a final testing at the end of the school year that is 2005-2006. The volume of the games within the lessons has been appreciatively 20'-25' (40-50%) of the actual lesson. During the whole experiment, both the experiment class

and the witness one have done two hours of physical education a week.

The measurement, in standard conditions, of the sample that we have set, with the help of some testing batteries, had as a purpose observing and pointing out the evolution of the somatic and functional, motile and physiological parameters for the pupils in elementary school, under a practical rapport.

From the somatic and functional point of view one has measured: the waist, the weight and the thoracic elasticity (the difference of the thoraces while breathing profoundly in and breathing forcedly out).

From the motile point of view, for every component that has been evaluated one has used the

following trials: 30m short run while standing; long run in a uniform, moderate tempo; extensions of the torso while sitting with your face down; lifting up the torso while sitting on your back; inferior extremities force: long jump while standing on your feet; throwing the rounder while sitting; throwing to a vertical target.

From the functional point of view we have used the following trails: the vital capacity (VC); the Ruffier test; the cardiac frequency (pulse) has been taken to the carotid in the orthostatic position; the respiratory frequency by recording the interchange of the inhaling and exhaling process within a minute of repose in the orthostatic position (number of respirations).

Table 1
The dynamic of the somatic indicators (girls; nr=21)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
Waist, cm	Exp	141,77	5,35	3,78%	148,76	5,35	3,99	2,931	<0,01
	Witness	144,9	7,53	5,23%	148,18	6,93	4,63	2,241	<0,05
Weight, kg	Exp.	34,31	6,11	20,16%	38,8	5,36	15,83	1,682	.>0,05
	Witness	36,8	7,86	24,83%	39,2	8,71	21,02	0,544	>0,05
Thoracic perimeter inhaling-cm	Exp.	65,52	5,36	8,23%	68,81	4,67	6,55	2,431	<0,01
	Witness	66,7	7,47	10,56%	65,3	6,12	8,87	0,762	>0,05
Thoracic perimeter exhaling-cm	Exp.	60,36	4,42	8,56%	60,68	4,11	6,75	0,234	>0,05
	Martor	62,88	5,67	10,23%	63,35	5,22	9,23	0,216	>0,05
Thoracic elasticity-cm	Exp.	5,16	1,34	38,43%	6,27	1,26	14,53	4,067	<0,001
	Martor	3,9	1,09	46,33%	2,95	1,87	34,36	2,103	<0,05

Table 2
The dynamic of the somatic indicators (boys; nr=14)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
Waist, cm	Exp	141,25	4,40	3,43%	146,06	5,12	3,41	3,641	<0,001
	Witness	143,16	7,53	5,23%	148,5	6,93	4,63	2,545	<0,01
Weight, kg	Exp.	37,25	6,67	17,88%	39,12	5,78	15,83	1,773	>0,05
	Witness	41,5	9,08	23,56%	42	8,85	21,02	1,041	>0,05
Thoracic perimeter inhaling-cm	Exp.	68,75	5,51	8,23%	73,62	5,19	7,55	1,334	>0,05
	Witness	70,32	5,65	7,56%	75,33	5,55	8,01	1,216	>0,05
Thoracic perimeter exhaling-cm	Exp.	63,73	5,44	8,56%	66,12	5,11	7,56	1,333	>0,05
	Martor	68,5	5,67	8,23%	70,66	5,55	8,23	1,212	>0,05
Thoracic elasticity-cm	Exp.	5,02	1,37	28,43%	8,25	2,26	24,53	5,061	<0,001
	Martor	4,66	1,26	36,33%	6,80	1,87	32,36	1,107	>0,05

The highest growing rate is recorded in the experiment group (girls) being of 5,02cm, while the lowest in the witness group (girls), that of 4,66cm. The waist values are around 148,5 cm both at girls and boys.

Thus we can assert that the sample we have researched has an average superior of that of the country (139cm) with almost 9cm.

Table 3

The dynamic of the motile indicators (girls; nr=21)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
30m short run-sec	Ex	6,83	0,57	7,78	5,94	0,34	5,32	7,091	<0,001
	Witness	6,84	0,58	7,49	6,4	0,49	7,43	3,112	<0,01
Long jump-cm	Exp	142,09	17,25	11,97	160,54	12,89	7,88	5,895	>0,05
	Witness	135,1	16,25	10,96	145,9	11,67	7,44	5,212	>0,05
Throwing the rounder-m	Exp	14,81	2,93	18,78	21,09	2,56	9,89	7,735	<0,001
	Witness	13	1,79	20,87	17,2	3,69	14,98	3,711	>0,05
Extensions of the torso, number of repetitions	Exp	25,63	5,91	31,09	36,9	21,49	46,65	4,799	>0,05
	Witness	20,5	7,05	27,23	31,3	12,15	29,12	4,781	>0,05
Lifting up the torso, number of repetitions	Exp	18,72	8,97	44,59	25,54	20,88	60,79	3,598	<0,001
	Witness	12,1	6,59	33,15	18,2	12,78	37,22	4,198	<0,05
Throwing at the target, number of successes	Exp	1,54	0,71	49,17	2,53	0,69	21,11	5,987	< 0,001
	Witness	1,3	0,62	47,86	1,7	0,62	20,69	2,023	>0,5

Table 4

The dynamic of the motile indicators (boys; nr=14)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
30m short run-sec	Ex	6,55	0,37	7,48	5,85	0,24	4,92	6,99	<0,001
	Witness	6,24	0,31	7,13	5,93	0,39	7,23	3,11	<0,01
Long jump-cm	Exp	150,87	16,25	11,37	167,37	12,12	7,40	5,895	<0,001
	Witness	147	15,25	10,66	159,66	11,60	7,14	5,212	<0,001
Throwing the rounder-m	Exp	18,12	2,88	18,65	24,68	2,34	9,32	4,6634	<0,001
	Witness	18,83	3,79	20,11	21,16	3,61	13,23	,597	<0,001
Extensions of the torso, number of repetitions	Exp	28,62	7,91	30,,09	39,12	19,49	42,65	4,799	<0,001
	Witness	25,66	6,93	26,23	34	13,15	30,12	4,701	<0,001
Lifting up the torso, number of repetitions	Exp	18,75	7,97	41,59	30,25	18,88	58,79	3,238	<0,001
	Witness	17,66	6,59	33,15	25	12,78	38,22	4,101	<0,5
Throwing at the target, number of successes	Exp	1,87	0,81	46,17	2,62	0,59	20,11	5,687	< 0,001
	Witness	1,96	0,87	45,86	1,70	0,51	19,94	1,023	>0,5

Analyzing the data from the 30m short run we have noticed that for the girl groups the speed average is 4,68m/s for the witness group and 5,04m/s for the experiment group. If we are to compare the data with the average on the country we shall see that groups of

girl pupils present averages that have a superior value only for the experiment group on the country (5,02m/s). For the boy groups the speed is 5,05m/s for the witness group and 5,12m/s for the experiment group.

Table 5

Static indicators for the functional trials (girls; nr=21)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
Vital Capacity-cm3	Exp	2090	342,7	17,23	2309	267,67	11,54	2,465	<0,01
	Witness	2180	276,4	12,56	2350	258,54	11,12	1,675	>0,05
The Ruffian Indicator	Exp.	14,43	2,23	15,78	8,63	1,56	17,43	12,34	<0,001
	Witness	14,84	2,64	17,32	9,08	2,12	25,34	8,861	<0,001
Cardiac frequency pulse/min.	Exp.	90,81	13,81	15,22	82,18	9,89	12,54	3,011	<0,01
	Witness	87,3	12,76	16,89	83,81	9,98	11,67	1,988	<0,05
Respiratory frequency respiration/min.	Exp.	24,06	2,89	11,67	18,9	1,73	8,65	8,423	<0,001
	Witness	22,9	2,82	11,87	20,11	2,11	10,65	5,237	<0,001

Table 6

Static indicators for the functional trials (boys; nr=14)

Trials	Group	INITIAL TESTING			FINAL TESTING			T	P
		x	s	cv%	x	s	cv%		
Vital Capacity-cm3	Exp	2500	365,6	14,67	2637	227,22	9,86	3,112	<0,01
	Witness	2316,66	317,9	13,56	2417	72,6	11,87	1,784	>0,05
The Ruffian Indicator	Exp.	14,78	2,31	15, 87	8,58	1,42	16,23	12,56	<0,001
	Witness	13,51	2,16	15, 67	9,33	1,96	19,87	7,123	<0,001
Cardiac frequency pulse/min.	Exp.	84	11,78	14,11	75,37	7,40	10,67	3,756	<0,001
	Witness	90,66	10,67	13,93	83,33	8,34	11,23	2,991	<0,05
Respiratory frequency respiration/min.	Exp.	23,87	2,96	12,34	18,12	1,23	7,12	9,334	<0,001
	Witness	23,67	2,76	12,51	18,66	1,67	9,67	5,346	<0,001

Analyzing the values of the Ruffian indicators within the final testing for the girl groups we have noticed that their capacity for effort is rather good. The boy groups have an average that puts them in a good zone to what the capacity for effort is concerned.

Conclusions

One can state out the following conclusions based on the results of the scientific process organized to verify the hypothesis of the paper in cause:

Improving functional indices at the end of the experiment indicate that teaching was adapted whole sample positive effort in physical education lessons.

1. The movement games of action used as an independent variable have determined progress to what the experiment group pupils is concerned, confirming the hypothesis of the research from the instructive point of view.

2. Programming the games of movement by using technical elements from the basketball game within the physical education classes for the elementary school pupils has a double effect, instructive and educative. Thus, from the instructive point of view, pupils form themselves necessary basic skills of approaching sporting games from the educative point of view. One can count on considerable effects to what the construction of a dynamic, slender and tolerant personality is concerned. A good selection of the games of movement in the physical education lesson demonstrates that the latter can become an improving factor of the didactical process.

3. Since one has applied the games of movement in the physical education lesson, one has noticed that for all the researched indicators one has recorded significant results whereas the children from the witness group where the initiation and learning of the elements and methods regarding the basketball game have been based on other means than that of dynamic games.

4. Using some games of movement have ensured an emulative character under the conditions of a

required regime both as volume and intensity. The pupils' interest for the physical education lessons has increased, at the end of the school year one noticing the significant reduced number of absences for the physical education classes in the case of the experiment group.

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L'efficacité de l'utilisation des jeux de mouvement aux éléments techniques spécifiques du basketball dans les leçons d'éducation physique au niveau des classes primaires

Mots-clé: Jeux de mouvement, éléments techniques du basketball, leçons d'éducation physique, classes primaires

Résumé: L'article souligne le rôle prépondérant des jeux de mouvement aux éléments techniques dans le jeu de basketball.

Eficiența folosirii jocurilor de mișcare cu elemente tehnice din jocul de baschet în cadrul lecțiilor de educație fizică la ciclul primar

Cuvinte cheie: jocuri de mișcare, elemente tehnice ale jocului de baschet, lecția de educația fizică, ciclul primar

Rezumat: Cercetarea demonstrează rolul preponderent și deosebit al jocurilor de mișcare cu elemente tehnice din jocul de baschet, care prin conținutul lor specific influențează potențialul dezvoltării fizice generale și motrice al elevilor din ciclul primar în cadrul orelor de educație fizică.

DANCE AND GENDER IDENTITY THE TSIFT(E)-TELI DANCE IN FARASSA, KAPPADOKIA

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Summary

The tsift(e)-teli dance is an integral element of the modern Greek dance reality as, with its instantly recognizable and uplifting rhythm, it constitutes an essential component of contemporary Greek entertainment (Raftis, 1996). Although the tsift(e)teli dance (double-chord) today appears as being of neuter gender, practically it is, beyond doubt, of female gender.

Key Words: *dance, modern Greek dance, Greek entertainment*

1. Introduction

Tsift(e)-teli belongs to the special category of dances (Buchheld, 1996) in which certain movements prevail, such as those of upper body swaying or slinking, wavelike motions of the torso, arching of the body while simultaneously reversing the hands (Buchheld, 1996, and Tyrovola, 2002). Many terms have been used to describe this dance, which are derived either from its history, origins and symbolic properties, such as 'belly dance', 'oriental', 'Salomi's dance', 'harem dance', 'horos ton epta peplon' or from its manner of execution or its notional content, such as 'sensational', 'ecstatic', 'hieratic', 'hip dance', 'fertility dance' (Petrides, 1976; Buchheld, 1996; Raftis, 1996; Tyrovola, 1999, 2002). From the above, it could be concluded at a first glance that, despite its many names, the tsift(e)-teli dance concerns basically a certain kind of popular-traditional dance associated with fertility, which in the course of its history spawned various hybrids and was included in the musical and dance repertoire of urban tradition (Tyrovola, 2002), or was seen through the criteria of folklore and artistic dance (Shay & Sellers-Young, 2005). Additionally, reports from early post-Christian times (Suchs, 1963) as well as numerous illustrations confirm the immediate connection of this dance, and its various sub-forms, exclusively with the female sex, as «...the bouncing movement of the breast, the rocking of the hips and the bending of the torso and waist obtain meaning exclusively when employed in order to arouse and excite the male...» (Tyrovola, 2002: 46-47).

It could be concluded with relative certainty that the various forms of the tsift(e)teli dance have their origins in the common ethnological legacy of the people of the Mediterranean and Near East, while the first reports with the specific name date from the period of the development of urban centres in the Ottoman Empire (Tyrovola, 2002). Reports of the tsift(e)-teli dance have come from Greece, and in particular from islands of the northeastern Aegean such as Chios (Tyrovola, 2002) and Lesbos (Tyrovola, 2010), from the Macedonian region such as Irakleia, Serres (Papakostas,

2007), but also from regions such as the mainland of Minor Asia as well as from the musical and dance tradition of non-Christian Turkish-speaking and orthodox Greek-speaking populations of Kappadokia, such as the area of Farassa, or Misti and others. Interestingly, although according to common Western perception the tsift(e)-teli is representative of an exclusively female dance, in the traditions of the East, the dance is a matter of both men and women, the only distinction lying in whether it is danced in public (men) or in private (women) as well as in the form of the dance. A similar situation can be observed in the orthodox Greek-speaking community of Farassa, where the tsift(e)-teli concerns both sexes and reflects the social organization of the particular community as it highlights the gender-related relationships among the community members through its dance movements.

From the review of relevant literature, it is clear that most of the information concerning dance examples of the tsift(e)-teli is ethnographic or folklore-descriptive (Margariti, 1987 and Lambropoulos, 1994). Research which is an exception to this includes the work of: Tyrovola (1992), in which the dance tradition of the Greeks of Kappadokia is presented through the use of ethnographic data as well as with reference to rhythms; Kotsia & Charitonidis (1998), which uses a structural-morphological analysis to document the tsift(e)teli of the Kappadokian Greeks as a special dance category which included various forms of the basic dance (hetero-morphies); and Tyrovola (2002), who investigates the problems arising between popular culture and social development, using the example of tsift(e)-teli dance. From the above, it is clear that there is an absence of studies approaching the tsift(e)-teli dance as a means of managing and highlighting the gender-related identity through analysis of its structure and form.

1.2. Aim

The aim of this study is the investigation of the forms of the "ta kousokka" and "i paigni mo ta houliere" dances from Farassa of Kappadokia, as regional variations of

the tsift(e)-teli dance and as used by each sex. In particular, the present study aims at highlighting the gender relationships in the context of the traditional society of Farassa by utilising the dance form as a tool for the analysis of the structure and form of the aforementioned dances, the latter being representative of each sex.

1.3. Methodology

Data was collected using the ethnographic method based on primary and secondary sources (Buckland, 1999; Giurchescu 1999; Koutsouba, 1999; Tyrovola, 2008). The primary sources concern data collected through field research in the form of interview (Thompson, 2002) and participative observation (Gefou-Madianou, 1999; Lydaki, 2001; Petronoti, 2002). In particular, the field research was conducted in February 1987 (preliminary) and was completed in May 2003, and constitutes part of a wider research on the cultural identity of Kappadokian refugees. The research focused on the community of Plati of Imathia, Macedonia, inhabited mainly by refugees from Farassa, Kappadokia. The secondary sources concern data collected through ethnographic research (Stocking, 1983; Gefou-Madianou, 1999; Tyrovola, 2008). The structural-morphological and typological analysis as applied in Ethnochoreology (Tyrovola, 1994, 2001; Tyrovola, 2008) was used for the analysis of the dance forms, while the comparative method was used for the comparison of dance forms (Holt & Turner, 1972; Vallier, 1973²; Tyrovola, 2008). For the interpretation of the data, anthropological thought on the gender identity was used, as it appears in anthropological views of dance and particularly in Hanna (1987, 1988). This is a theoretical model which views the perception of sex as a field of negotiation, cultural symbol or social relationship (Strathern, 1976, 1988; Papataxiarchis, 1992), as well as a criterion for the analysis of the local population (Papataxiarchis, 1992).

2. Data Analysis

Farassa, or Varassos (Greek name that is used in the area since ancient times), is a major town with Greek population (Loukopoulos & Petropoulos, 1949; Merlier, 1974; Tyrovola, 1990; Kikisoglou, 1997) in south-eastern Kappadokia, among gorges and Turkish villages and at an altitude of 1050 metres. According to Merlier, «...in 1923, the Greeks of Kappadokia (...) arrived in Greece abandoning their homeland for good...»(1974:30). The refugees from Farassa settled on the fringes of urban centres in central Macedonia and Thessalia, but the majority settled in the region of Katerini (Plati, Imathia). The dance tradition of the population of Farassa includes circle and 'antikristoi' dances (Lambropoulos, 1994:79), which are performed

at four-beat and nine-beat rhythms (Tyrovola, 1996)¹. The nine-beat 'antikristoi' dances ('zeibekiko' with knives) are danced exclusively by men, while the four-beat 'antikristoi' dances are distinguished in all-male and all-female, since rarely would a man dance with a woman – and that, only if they were close relatives. The four-beat 'antikristoi' dances are characterized by the accompaniment of idiophone instruments, such as 'rattles' or spoons, held by the dancers and are danced in public. On the other hand, the female 'antikristoi' dances were never accompanied by such idiophone instruments (rattles, spoons, 'zilia') as it would be enormously inappropriate for a woman to dance in public holding these instruments (Tyrovola, 1992; Lambropoulos, 1994).

In their place of origin, Kappadokia, these dances were accompanied by songs in the dialect of Farassa as well as in Turkish, while the Farassian celebrations were an attraction for Armenians, Turks, converted Greeks and crypto-Christians from neighbouring villages. This gathering of people required a common means of communication in entertainment, a role fulfilled by the song and, mainly, the song language (Lambropoulos, 1994). The dances "ta kousokka" and "i paigni mo ta houliere" are 'antikristoi' dances with a four-beat measure. "Ta kousokka" (or 'skafidakia', which means 'little holes') is a female 'antikristos' dance and owes its name to the oval hole that is formed when the tip of the thumb touches the tip of the index finger (Lambropoulos, 1994) or when the tips of the three first fingers come in contact. "I paigni mo ta houliere" is a male 'antikristos' dance and its name means "the dance with the spoons". Despite the fact that these dances are not referred to as 'tsift(e)teli' by the locals, their structural-morphological analysis classifies them, according to their technical components, in this category. It is quite a common practice in the coastal areas of Minor Asia as well as in the mainland (Kappadokia) for the dancers to accompany the 'antikristoi' dances with idiophone instruments such as wooden spoons, 'zilia', wine glasses, etc. with which they maintain dance rhythm. But while in the coastal areas this practice is observed in both male and female dances, both in private and public dancing instances, in the Greek-speaking region of Kappadokia, it is exclusively seen among men.

2.1. Observations

From the structural-morphological analysis of the above dances, it is observed that both ("ta kousokka" and "i paigni mo ta houliere") are 'antikristoi' dances characterized by free use of space and free

¹'Antikristos' in Greek means 'opposite the other'. The term 'antikristoi' for dances, freely translated, means that the participants perform the dance facing each other.

choreographic structure. However, women have less improvisational freedom with little variations on the basic dance phrase. The women perform small, simple and shuffling movements of the lower limbs while supporting body weight on the whole area of the sole. The hands are at face level, as if in an attempt to obscure it, and execute semi-circular movements in a relatively free manner, while the two or three first fingers are constantly in contact at the tips (absence of finger snapping). The torso is straight and does not perform any sort of slinking or swaying movement. The manner of execution of this dance, with unelaborated and restrained movements, reflects introversion, humbleness and implies "shame". On the contrary, the dance of men exhibits a greater degree of improvisation with characteristic peaks during the dance performance, such as slinking the torso and hips while in half-squat position. The men are free to move the upper body, bend and arch at the waist at will, and even rock the hips. Their hands move freely, open at each side with characteristic circular movements while simultaneously holding the dance rhythm pattern with the use of a pair of spoons ('houliere'), thus establishing a dual identity of dancer-musician. When they do not hold spoons, the men dance holding 'zilia' or rattles or just snap their fingers. Their dance is more quickly-paced than that of the women and more vigorous, resulting in shorter and more abrupt leg movements. Very often, the feet stomp the rhythm on the ground. This manner of lively execution of the dance, with loud and vigorous movements, reflects extroversion and highlights the dominance of men over women.

3. Discussion - Conclusions

Analysis of the form showed differences between the two dances in terms of their morpho-syntactic elements as well as their function and semantic content. The dance "i paigni mo ta houliere", a form of tsift(e)teli, within the cultural context of Farassa, emerges as a public dance practice exclusive to men. The "kousokka" dance, also a form of tsift(e)teli but with different semiology, assumes the identity of a private dance practice of women that occurs within the boundaries of the home. A similar practice, with different semiology but confined to the boundaries of a private space, can be encountered in the harems of the wealthy lords and officers of the East, where women would perform the 'belly dance' as a part of their duty to entertain the men. In the community of Farassa, just like in every kind of society, the sex, and the actions or functions that derive from it, organizes the social relationships of the group and strengthens and 'legitimises' the hierarchy of these

relationships. Therefore, the sex organizes the social groups of the 'men' and the 'women', establishes the boundaries as well as the communication rules between them, and determines the content of their relationship (Strathern, 1976). The 'natural' hierarchy of sexes as a criterion by which values organize relationships establishes the community of Farassa as an example of a patriarch society, in which pivotal points of reference are religion, marriage and kinship (with heavy emphasis on relations on the side of the father) and in which the man holds the symbolic centre. Thus, the women appear as weak and passive objects in this particular social system while the men are the primary driving force and decision makers. This type of behaviour establishes the 'dominating ability' of men over women. In this context, femininity is a 'liability' which must be controlled by no other than the woman by suppressing her self (see Papataxiarchis, 1992). Purity, modesty and reserve render the woman 'shy' and, thus, are associated with the idea of 'shyness' in an undercurrent way. Purity, as an attitude and stance, is appropriate for "moral women" - the women who adopt self-restraint so as to contribute to the protection of family honour, in which, of course, they play a secondary role since the primary role belongs to men.

In conclusion, in the context of the Christian, monogamous and patriarch community of Farassa, the dance "i paigni mo ta houliere", a form of tsift(e)-teli, with the use of idiophone musical instruments, was identified with the dominance of men. It would be greatly inappropriate for a woman to perform this dance holding spoons and shaking her shoulders, torso or hips. The strict customs would not even allow snapping her fingers. However, with the passing of time, the new social structures, which established the relationship of the two sexes on a different basis and had the women claiming an unofficial but generalized 'institutional equality', gradually allowed the woman's participation in dance using idiophone musical instruments, initially starting from the secluded family circle and always indoors and progressing to performing in public, such as in the village square. However, even today and despite the crossover of dance repertoire, the population of Farassa, men and women, persist in participating in dance in strictly male or female pairs. Therefore, the sexes organize the society of Farassa and condone the continuation of the elements that highlight the social particularities of each sex and the corresponding social group - elements which are reflected in the dance forms and the participation of the two sexes in the aforementioned dances.

TABLE I: COMPREHENSIVE AND COMPARATIVE TABLE OF THE FORM ELEMENTS OF THE 'TSIFT(E)-TELI' DANCE OF FARASSA, KAPPADOKIA

Area	Farassa, or Varasos, Kappadokia	
Name of dance	"ta kousokka"	"i paigni mo ta houliere"
Dancers	Pair of women	Pair of men
Use of space	<ul style="list-style-type: none"> • 'antikristos' dance • free use of space (trading positions – full revolutions around body axis) 	<ul style="list-style-type: none"> • 'antikristos' dance • free use of space (trading positions – full revolutions around body axis)
Choreography	Free choreographic structure	Free choreographic structure
Form pattern/model	Relative improvisation based on small variations of the basic dance phrase	improvisation based on various alterations the basic dance phrase
Acoustic elements	<ul style="list-style-type: none"> • instrumental accompaniment with lyre ('kemane'), tamboura-mpoulgari (stringed instruments), daire (defi) • songs in the dialect of Farassa (earlier times) or in Turkish 	<ul style="list-style-type: none"> • instrumental accompaniment with lyre ('kemane'), tamboura-mpoulgari (stringed instruments), daire (defi) • songs in the dialect of Farassa (earlier times) or in Turkish • idiophone musical instruments (spoons, 'zilia', rattles)
Rhythm	4/4 (♩.♩♩♩) or (♩.♩ ♩♩ ♩♩)	2/4 or 4/4 (♩.♩ ♩♩) or (♩.♩♩♩)
Tempo	slow – medium and steady	medium – fast
Dance motif	<p>a. Basic dance phrase: [T₁(δ^{1/4}+α^{1/4}+δ^{1/4}+α^{1/4})]</p> <p>b. Heteromorphy: [T₁(δ^{1/4}+α^{1/4}+δ^{1/4}+α^{1/4})+(δ)α₁^{1/4}] + T₂(α^{1/4}+δ^{1/4}+α^{1/4}+α^{1/4})+(α)δ₁^{1/4}]</p> <p>c. Improvisation (limited)</p>	<p>a. Basic dance phrase: [F₁(δ^{1/8}+α^{1/8}+δ^{1/8}+α^{1/8})]</p> <p>b. Heteromorphy: [F₁(δ^{1/8}+α^{1/8}+δ^{1/8}+α^{1/8})+(δ)α₁^{1/8}] + F₂(α^{1/8}+δ^{1/8}+α^{1/8}+α^{1/8})+(α)δ₁^{1/8}]</p> <p>c. Improvisation</p>
Lower limbs	<ul style="list-style-type: none"> • small, simple and shuffling movements • extension of the right (usually) foot • body weight supported by whole area of the sole of the foot • low leg lifts 	<ul style="list-style-type: none"> • small, abrupt movements • frequent stomping of the rhythm on the ground • extension of the right (usually) foot • body weight supported by whole area of the sole of the foot • low leg lifts • pauses
Upper limbs	<ul style="list-style-type: none"> • limited semi-circular movements at head level (as if in an attempt to hide it) with the 2 or 3 first fingers touching at the tips [forming an oval hole ('skafida', or 'kousokka')] 	<ul style="list-style-type: none"> • free movement with characteristic turns • rhythmic striking of spoons
Torso	<ul style="list-style-type: none"> • unelaborated transverse movements 	<ul style="list-style-type: none"> • transverse movements • slinking/shaking of the upper torso (very often with simultaneous pause of movement of lower limbs in half-squat position) • bending at the waist
Interpretation	<ul style="list-style-type: none"> • simple, restrained movements implying modesty and morality • attention to details • coordination of upper and lower limb movements • alternating movement 	<ul style="list-style-type: none"> • relatively restrained movements with short improvisational peaks (without exaggerations) during the dance performance • attention to details • coordination of upper and lower limb movements • alternating movement

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Danse et identité de genre

le tsift(e)-teli dance en Farassa, Kappadokia

Mots-clé: la danse, la danse moderne grecque, de divertissement grecque

Résumé: Le tsift(e)-teli dance fait partie intégrante de la réalité danse grecque moderne, avec son rythme immédiatement reconnaissable et exaltante, elle constitue une composante essentielle du divertissement grecque contemporaine. Bien que le tsift (e) teli danse (double-corde) apparaît aujourd'hui comme étant du genre neutre, pratique, il est hors de doute, de sexe féminin.

Dansul și identitatea de gen

Tsift (e) teli-dance în Farassa, Kappadokia

Cuvinte cheie: Dansul, dansul modern grec, divertismentul grecesc

Rezumat: Tsift (e) teli dance este un element integrant al realității dansului modern grec și constituie o componentă esențială a divertisment grec contemporan. Deși tsift(e) teli dance astăzi apare ca fiind de genul neutru, practic este, dincolo de orice îndoială, de sex feminin.

IMPROVEMENT OF THE PHYSICAL TRAINING LESSONS IN THE HIGHER EDUCATION BY USING THE DANCE AND THE MUSIC

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Abstract

In the physical training activity, dancing becomes a specific way which presents the perfect combination of appearance, actuating execution, musical background, affective feelings and ability of rendering the movements, joining other sports disciplines in order to accomplish the various training objectives and to improve the performers' biological traits. The predilection for rhythm, for movement of the young generation, made that the physical practice in the form of dance to be loved and used in the physical training lessons, at the level of all the education cycles, enriching the inner their life.

Key words: dance, improvement, music, physical education lessons

Introduction

At present, the concerns for the growth, the harmonious and mental development of the young generation, for health strengthening and for fighting against sedentariness are combined in the interest stimulation for practicing various movement activities at any age.

Platon considered that "Gods gave humans two arts: *dance* and *music* in order to educate their energy and mind under the harmony sign".

The dance is a general phenomenon, spread in time and space, which conquered all the countries, all the social classes, under various forms: serious or happy, chaste or voluptuary, elegant, sensual or vulgar, expressing wishes, passions, hopes, etc. Through all time, the dance had taken various forms, approaching different genres which have a various "language" and which take shape in: the classical dance or jazz-dance, inspired from the jazz music, the character dance, company dance, folk dance and ballroom dance etc.

In the physical training activity, dancing becomes a specific way which presents the perfect combination of appearance, actuating execution, musical background, affective feelings and ability of rendering the movements, joining other sports disciplines in order to accomplish the various training objectives and to improve the performers' biological traits. The predilection for rhythm, for movement of the young generation, made that the physical practice in the form of dance to be loved and used in the physical training lessons, at the level of all the education cycles, enriching the inner their life.

In the dancing art, the main role is occupied by *music* due to the organic connections between the artistic and actuating actions and musical background characteristics.

Music represents a special form of sound. It is not only pleasant to hear but it comprises a system of

rhythms, connections, proportions and harmonies which exist all over the natural world and in the world created by man, from the movement of the plants around the sun to the growth of the cells and plants, to numbers and sacred proportions of ancient religions and myths, to architecture and mathematics. Music can avoid the logical and analytic filters of the mind in order to establish direct contacts with the profound feelings and passions from the bottom of the memory and imagination. This leads to the apparition of physical reactions, of expression through movement, through dancing.

In dancing, the true musicality consists not only in the sense of rhythm expressing but, in the profound understanding of the music play, of the song, harmony, dynamic, style and its emotional content. The movements coordination with music imposes the complete and conscious subordination of the movement act to the shape and content characteristics of the used songs. Thus, in dancing the presence of the musical background can not be understood as a common "background" but as a methodical, aesthetic specific way, which assures precision orientation in space and time, artistic expressiveness, elegance, easiness in execution etc.

In order to improve the teaching process the physical training lessons in higher education, especially for enriching the dance and music knowledge there have been proposed specific themes, and for finding out the students' opinions regarding the usage of these means an inquiry has been made, distributing questionnaires with specific questions.

At the basis of the work **hypothesis of the hereby work** supposes that if in the students' training process appropriate methods and means are used corresponding to their options and desires, superior results can be achieved in the process preparing the physical training lessons, but they can also stimulate the

interest of independent practicing the workout in the form of dance accompanied by appropriate musical background.

The examination methods were: the study of the bibliographical material, observation, questionnaire-type inquiry and the method of graphic and tables representation.

The scientific intercession – the examination has been made during the academic year, between 15th October – 15th March 2010, with the students in the 1st

year (girls and boys) from

the Economic and Administration Science Faculty (72 students – 14 boys and 58 girls) from the Law Faculty and from the Arts Faculty in “Dunărea de Jos” University from Galați.

The questionnaire-type inquiry has been made with 142 students and it comprised 8 questions with 3, 4, 5 or 6 answer variants, responders having to choose only one answer and having the opportunity to express their own opinions – table 1 – for the first 4 questions:

Table 1

1. Importance of the options		2.The favorites discipline		3. Dance effects		4. Music's role	
no. resp.	%	no.resp.	%	no.resp.	%	no.resp.	%
127	89.4%	106	74.6%	32	22.5%	136	95.7%
3	2.1%	8	5.6%	64	45%	0	0
12	8.4%	5	3.5%	28	19.7%	6	4.2%
		4	2.8%	18	12.6%		
		5	3.5%				
		14	9.8%				

At question no.1, regarding the importance of students' opinions referring to sport disciplines which they want to be practiced in the physical training lessons, 127 among them chose variant “a”, meaning

89,4% accepting the possibility of choosing what they want to learning the physical training lessons, 2,1% chose variant “b” and 8,4% had other opinions – fig. 1.

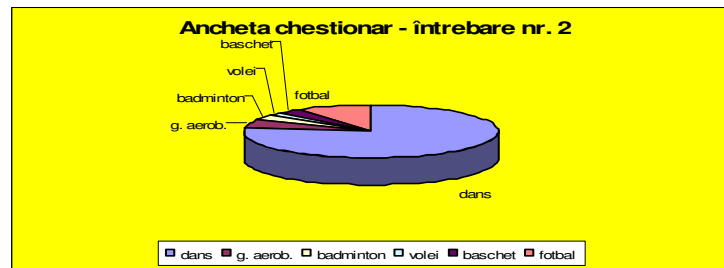


Fig. 1. The options of the students for the favorites discipline used in the physical education

Regarding question no. 2, concerning the sport disciplines which they want to practice in the physical training lessons, 106 students (74,6%) chose dancing, 5,56% - aerobics and 28 students (19,7%) chose sport games.

At question no.3 concerning the effects of lessons with dancing means, 22,5% chose variant “a”, dance provokes to them high spirits, 45% consider that dance assures them a harmonious development, 19,7% think that dancing has a major contribution in forming a aesthetic appearance and 26% forms musical culture.

At question no. 4 – “if music has a major role

in the lessons with dancing means”, 136 students (95, 7%) answered positively and 6 students had other opinions.

After the analysis of the answers received at question no.5, about the effects of music in dancing lessons, the answers have been selected as follows: 37 students (26%) consider that music creates a “pleasant ambience”, 23,2% think that “it averts the fatigue”, 17,6% consider that the presence of music “contributes to assuming skills more quickly”, 19% say that music “develops the creative ability”, 14% think that music “awakens emotions and feeling” – table 2:

Table 2

5. Importance of the music		6. The favorites dance type		7. The favorites music type		8. The utility of the dance	
no. resp.	%	no. resp.	%	no. resp.	%	no. resp.	%
37	26%	38	26.7%	40	28.1%	124	87.3%
33	23.2%	42	29.5%	29	20.4%	12	8.4%
25	17.6%	25	17.6%	30	21.1%	6	4.2%
27	19%	37	26%	31	21.8%		
20	14%			12	8.4%		

In order to find out "the favorite dancing genre" for the physical training lessons at the 6th question the majority of students chose latino and modern dancing, but there is a part that chose folk dancing (26%).

Question no.7 is important because it verifies the students' opinions regarding the favorite music genres in order to be used in the dancing lessons, in this way it is carried forth the fact that beside the latino music (28,1%), disco (20,4%), hip-hop (21,8%) students have preferences regarding the usage of folk music, 21,1 % among the respondents choosing the music genre.

Concerning the "usefulness of the dancing steps" outside the physical training lessons at question no. 8 124 students (87,3%) answered positively, 12 answered negatively and 6 had different opinions.

As a consequence of the inquiry the following conclusions have been **observed**:

1. Dance and music are means which can contribute to improving the physical training lessons at the level of all education cycles, thus at the level of higher education. A part of these assertions are confirmed by the special literature, but also by the answers received in the hereby inquiry.

2. The survey made with the students shows that in proportion of almost 90% they prefer having a word in choosing the disciplines and the means used in the physical training lessons, but 80% from the respondents prefer dancing lessons and aerobics against lessons with sports games.

3. 95,7% from the respondents think that music has a major role in the dancing lessons because it creates a pleasant ambience, it assures high spirits, awakens emotions and feelings, it contributes to the formation and to the improvement of some specific skills and last but not least it advert the fatigue.

4. Concerning the answers regarding the favorite dancing and music genres, which can be made in the physical training lessons, many of the respondents chose the modern dance the ballroom dance and disco and latino music, surprisingly more than a quarter (26%) have chosen the folk music.

5. The registered results show that dancing and music are means which can be successfully used in the students' physical training lessons, being agreed by both

boys and girls.

After the analysis of the present inquiry it is highlighted that dance and music are means which can contribute at the improvement of the physical training lessons in higher education, reason for which we **propose** the popularization and the usage of these means at the level of all education cycles, especially that they do not need a very fastidious material basis.

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L'optimisation des leçons d'éducation physique dans l'enseignement supérieur par la danse et la musique

Mots-clé: Danse, musique, optimization, leçon d'éducation physique

Résumé: Dans l'activité d'éducation physique la danse devient un moyen spécifique qui présente la combinaison parfait entre tenue, l'exécution motrique, l'accompagnement musical, affectivité et capacité de représentation plastique des mouvements, complétant les autres disciplines sportives pour atteindre les divers objectifs d'instruction et améliorer les caractéristiques biologiques des exécutants.

Optimizarea lecțiilor de educație fizică în învățământul superior prin folosirea dansului și muzicii

Cuvinte cheie: Dans, muzică, optimizare, lecție de educație fizică

Rezumat: În activitatea de educație fizică, dansul devine un mijloc specific care prezintă îmbinarea reușită între ținută, execuție motrică, acompaniament muzical, trăire afectivă și capacitate de redare plastică a mișcărilor, alăturându-se altor discipline sportive

pentru îndeplinirea diferitelor obiective de instruire și îmbunătățirea caracteristicilor biologice ale executanților. Predilecția pentru ritm, pentru mișcare a tinerei generații, a făcut ca exercițiul fizic sub formă de

dans să fie îndrăgit și folosit în lecțiile de educație fizică, la nivelul tuturor ciclurilor de învățământ, îmbogățind viața interioară a acestora.

THE PSYCHO-SOCIAL MOTIVATION AS A MODALITY TO INCREASE THE SPORTIVE AND PROFESSIONAL PERFORMANCES OF THE NAVIGATORS

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Summary

This work expose some of the investigation targets of the psycho-social and motivational conditionsof the naval students and navigators activities which are performed aboard ships. Not classified in a "classic" way of presentation, this material shows directly the results and the conclusions got out from the experiments aboard the school-ships, as well as some suggestions to improve the motivation and the efficiency of all members of the crew aboard ship.

Key words: *motivation, professional and sportive performance, the crew psychology, improving intervention, etc.*

I. Introduction

The psychological and psycho social motivation means a lot of interpretations in order to fulfill the absolute desire of every man to reach success as a professional and as social, as well. In sports, the same motivation is present, following the same goal: to get the victory fighting with the others, but mostly with yourself!

The general idea of this wishes could be the ststus of the health, in order to create a basis for the next developping movements in shaping the navigator's profile. He has as a rule, the need to obtain a level in an organized and calculated system to face the specific situations, the life aboard ships creates. More than that, the psycho social mootivation involves the duty feeling to agree with some laws in the field of the sportive or professional act.

II. The motivation in the psycho-social action and the sportive competition

The psychological research has a good tradition in the motivation field, providing intpretations of various kind, most of them being useful applied in some social activities, granted by a high level psycho- physical askings. As everyone knows, the motivation of the sportive supreme target is a title and it not away from involving motivtion.

We can appreciate the life and the activity aboard ships as a social-professional competition even severe. The salvation and the rescue in the open sea

involves sometimes special qualities as for an „*extreme challenge*” event. We even may say the complete expression of the *sportive motivation*, represents a complex of the differrent elements of the navigator's personality and of the factors of the „consuming act”. These elements are forming the main decision in this behaviour. [1]

III. The access and the direct participation of the research team in the life and the professional activities of the navigators and of the naval students aboard school- ships

In the actions,organized to a larger research, the most important happened to be the one to permit the accesso the school ships, to accceed to the real activities of the navigators, to take part to the excises ordered by the commanders, to be involved in solving the ship's needs: "fire on board", „man off board", „a hole in the water", "abbandon ship", etc. A lot of knowledge resulted, meaning *specific practical experience*, which helped us in developping the applied research.

IV. The objectives of the applied researches and the conclusions in the branches

1. The determination of the specific psychomotric efforts in normal conditions aboard the ship

Knowing the particularities of the psycho-social and professional activity aboard ships meant a good reason to apply the general psycho- pedagogical science and pure reality principles, according to the specific physical, intelectual, and psychological

conditions of the naval activity.

We reached to the **conclusion** the involvement in the navy, and the supposed tasks of the navigators modified by the way they project and build the ships. We also wrote about *The universalization* and *The specialization* in projecting, building and the management of the ships: the first term means a trend of the specialists to build ships able to be used in many necessary ways forming the crews the way they need; the second term nominating the type of the ship working in some special field.

As the specialists in the field mention², the psycho-physiological effects of this very first group of particular features are directed and the requests of *the specific psycho-motional and psycho-physiological systems* the navigator have to face along their trips, which are very many and at a high intensity level. Thus a special training is needed before the departure in order the navigators to be able to face all these challenges.

2. To determine the types of functional relationship between the members of the crew

According to the *psycho-sociology of the crew*, we concluded it is not at all a closed group, limited as number, but it builds inside the group a long lasting feeling, a strong link between all the members of the crew. The relationship inside the group can make progresses reaching a better mutual knowledge, a *higher spirit* in the group. Therefore inside the team it develops a complete relationship, able to increase even the technical level the sailors are prepared from professional point of view. All these in the same time inside the group it can appear misunderstandings, conflicts, of psycho-social source, a lack of tolerance, a special nervous atmosphere which can spoil the welfare of the social group, etc.

3. The study of the particular psychological and motivational issues linked to the specific natural area of the naval activity

The ship instability in the open sea has an effect to make more difficult all the activities aboard, concerning all navigators. The levels are different just because the inter personal differences, the experience and the training level, as well. The moving aboard is positively more difficult, the work or training activities are also diminished in effectiveness. Everything is developing under some special stress and the intellectual and moving activities are under the medium normal level.

The behavior and the psycho-physiological status of the navigators aboard is also influenced by *the hydro-meteorological conditions*, which are responsible of an important effect over the psychical status.³

4. The study and the determination of the ergonomic conditions of the life and professional activities aboard ships.

The Conclusion was, the ship is a restricted area to develop activities, meaning it restricts the navigators' mobility. Aboard ships, the distances a man walks cannot overpass 400-800 meters a day, even less. In this case a *hypokinesia* appears, they call *hypokinesia* because of the dynamic factor missing (*hypodynamics*). It means the psychical and motivational, as well as the attentions is lowering, the time to react, too. They also increase the errors in the navigators' actions the men get more often nervous and the general capabilities are diminished. So, the negative effect of the *hypodynamic action* and the stimulation of the motivating action aboard, the action of inducing the compensatory physical and psycho-motional, is not just a social, humanitarian recommendation, but it really has to become a professional action, positively adopted aboard ships, as well as the schedule of the physical training applied also to the spacemen in the outer space.⁴

5. The study of the psycho-motional stress caused by the tempests in the open sea

The stress characterized by the scientists as „*a non-specific reaction to any kind of challenge*” or as „*a general syndrome of adaptation*”, or a „*mobilization alert to answer or to act to askings or threats*” is always present in the navigators' life.

The operational applied research, showed us the stress is always escorted by the specific medium of the navigation activity (*the ship is in the open sea in unstable conditions almost all the time*). More than that, we meet the uncomfortable psycho-physical and motivational feeling, due to the long term stressing conditions. The adaptation capacity of the navigators is also affected. They are no more able to get off routine, and some simple changing of their tasks can become unbearable, unacceptable, and difficult to be carried out.

The conclusion was that from this point of view the training of the people for the life and sea activities has to be done, maintaining the ergonomic output, meaning the reproduction of the capacity to react correctly to the challenges out of the energetic and psycho-physical limits of the human being.

The period a navigator enters „*the distress status*” is different from any individual, according to his psycho-motional capability, which has to be built during the period the man is preparing to step aboard the ship, during the courses and the training he has to do it all

well as some visual and hearing illusions. And all these affect the psychical balance of the navigators, too.

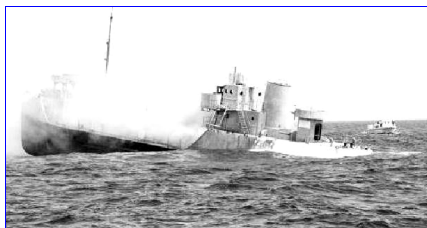
⁴ These compensatory actions induced aboard, as well as their effective value are the sense of our *fundamental methodical- scientific experiments*, included in some other distinctively separated works.

² Sition Filaret - 1980.

³ For example during the foggy periods some tensions may appear, some psychological stress was reported, as

along his life.⁵ The specialists in side matters as the sportive activity recommend in order to improve the resistance to stress and to diminish the fatigue level, as a measure to adapt the body: „*the general and specific physical training*”⁶

1. The Study of the motivational and psychomotional behavior of the navigators in extreme situations of naval wreckage or catastrophe



This research and study is a very large one and needs a special distinct attention. It is an important subject for some other important works.

V. Specific ways to react in order to realize the psycho-social motivation and to apply it at highest level in the navigators activity

The self control and the general capability to react and act, of the navigators can be used by the influence of many factors as: *the surprise, the lack of the information, the isolation in a special place to work, some specific images and noises*. In some extreme cases

they appear images of former wreckages, crushed ships sinking, a lot of huge waves, the specific noise of the sea storm, all these inducing a serious uncomfortable status to the individual, in his fight to survive, not only him, but all the crew !

In order to optimize the stress effect in the navigation; To maintain a continuous occupation of the students (or members of the crew) aboard; To form and maintain the trust in the salvation equipment of the ship; To realize by training of routine status, etc. Just a few of our suggestions.

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STUDIES AND RESEARCHES

1. University Doctor Professor DRAGU Anca - *The emotional Intelligence and the personality*, (2007-2008).
2. University lecturer Doctor SINTION Filaret - *Phenomenons and social processes in the international maritime crews*, (2007-2008).

La motivation psycho-sociale comme modalité d' accroître les performances professionnelles et sportives des marins

Mots-clé: *Motivation, performance professionnelle et sportive, psychologie de l'équipage, intervention améliorative*

Résumé: *L'article se donne pour but d'investiguer les conditions psychosociales et motivationnelles de vie et de travail des étudiants marins pratiquants et les membres du personnel navigant au bord des naves.*

Motivația psiho-socială ca modalitate de creștere a performanțelor profesionale și sportive ale marinarilor

Cuvinte cheie: *Motivație, performanță profesională și sportivă, psihologia echipajului, intervenție ameliorativă, etc.*

Rezumat: *Această prezentare expune unele din direcțiile*

⁵ From this point of view, the specific physical and motivational training lasts not only during the school time but also during the rest of all professional life.

⁶ Sintion Filaret - „*The tiredness image*”- „*Introducing the Military Navy Psychology- first volume*”, I.M.M.B Publishing House, Constanta, 1980, page 46.

de investigare a condițiilor psiho-sociale și motivaționale în care trăiesc și își desfășoară activitatea profesională studenții marinari practicanți și membrii personalului navigant la bordul navelor. Neîncadrându-se în modul clasic de prezentare, acest material arată direct rezultatele și concluziile reieșite

din fiecare direcție de investigație efectuate la bordul navelor școlară, precum și unele recomandări și direcții de acționare ameliorativă în scopul de a mări starea motivațională și randamentul de activitate a tuturor membrilor personalului îmbarcat.

STUDY ON DEVELOPMENT MOTOR QUALITIES IN THE LESSONS OF PHYSICAL EDUCATION IN PRIMARY EDUCATION

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Abstract

The research aims to develop motor qualities of students in class I. Tests were performed at 3 athletic events provided in the curriculum, aiming at the 3 basic driving skills.

In the end of research it was noted that students have finally achieved higher values in all indices studied both girls and boys.

Key words: motor qualities, jumping, throwing, lesson

Introduction

School athletics as a basic discipline contained in the syllabus recommended by the precision with which it can determine the volume and quality of effort and resources to adapt to the specific age and gender (Neder F, 2008).

School curriculum of physical education for primary education reflects the concept underlying the reform of Romanian education system, in pursuit of the aims set out in the Education Law, on the complex development of personality of children. The specific objectives set, are pursued in particular: strengthening the health status of children, their harmonious physical development, psycho-motor skills development and education of good behavior traits in team activities (www.edu.ro).

Also, physical education is achieved by balancing the demands of the intellectual nature of psycho-motor and entertaining, particularly important for organizing teaching with students aged 6-10 years (Scarlat E., 1981).

Athletics has an important motor component, the implementation models and gestures that relate to driving sport which involves the action of one or more conditional or the coordinative capabilities (Ardelean T., 1990).

Research goal is to determine the most effective ways and means to increase operating efficiency in developing the motor qualities of the children of Class I.

Research hypothesis

It is assumed that there are ways of developing quality motor lessons in physical education but in the

specific age, gender and opportunities of the school.

Research tasks

- Study bibliography on helping to increase efficiency by optimizing the preparation process of developing motor qualities.

- Selection of methodical processes of development of quality driven by means of athletics, to be effective, in keeping with the particularities of gender, age, physiological and mental fitness of students.

- Finding solutions to optimize the development of effective means of driving qualities in athletics physical education lessons to students of Class I.

In the research took part 21 students (12 boys and 9 girls) of class I from School no. 86 from Bucharest. The research took place from September 20, 2009 to November 20, 2009.

Methods used in research: bibliographic study method, observation method, testing method, the graphical representation method, mathematical statistic method.

Anthropometric tests used in research were: height and weight subjects. Physical test: running the 25 meters, long jump from place and throwing and catching the ball bounced off the wall.

After anthropometric measurements: height, weight, and the 3 motor test: Running speed by 25 meters, long jump from place and throwing and catching small ball bounced off the wall, both girls and boys, the two moments the study - the initial and final results were collected and recorded in the summary tables.

Following mathematical statistic methods were applied: arithmetic average, standard deviation and coefficient of variation for each test were done and then

some graphical representation of all results obtained both girls and boys.

Results obtained

Anthropometric measurements – Girls

No. crt.	Name and surnamed	Initial height (m)	Final height (m)	Initial weight (kg)	Final weight (kg)
1.	Aritmetical average	1.23	1.25	20	20.61
2.	Standard deviation	0.02	0.12	3.17	3.35
3.	Coefficient of variation	1.62	9.6	15.85	16.25

Arithmetic average height parameter is the baseline of 1.23 m and 1.25 m at the end and standard deviation have values close to the two tests performed.

Coefficient of variation is 1.62% in baseline and 9.6% at the end; homogeneity is high in both times tested.

On average girls weight of 20 kg initial and

final of 20.61 kg, thus an increase of only 600 grams. Standard deviation has a value of 3.17 to 3.35 at baseline and at the end, so approximately identical values in both tests.

Coefficient of variation, close to two times the value falls within 0-10% of which show high homogeneity of group.

The results obtained in the two time girls: initial and final - motor tests

No crt.	Name and surnamed	25 m (seconds)		Long jump from place (m)		throwing and catching small ball bounced off the wall (no.)	
		T1	T2	T1	T2	T1	T2
1.	Aritmetical average	6"07	5"87	1.22	1.27	2.56	4.67
2.	Standard deviation	0.52	0.47	0.16	0.08	0.47	0.38
3.	Coefficient of variation	8.56	8.01	13.11	6.30	18.35	8.14

Girls

When running the speed test on 25 meters is the arithmetic mean of girls 6"07 seconds from initial testing and the final 5" 87, thus improving the final results by about 2 tenths. Standard deviation is 0.47 to 0.52 in T1 and T2.

Coefficient of variability indicates greater homogeneity of the group by about the same values obtained from both tests.

Long jump from place shows: 1.22 m at baseline and 1.27 at the end, so a final performance increase by 5 cm. Standard deviation is approximately

identical values in both tests.

Coefficient of variability is the baseline value of 13.11 indicating a homogeneous group average, in the final the value of 6.30 indicates high homogeneity of the group.

Throwing and catching the small ball bounced off the wall has a value of 2.56 repetitions at baseline and 4.67 at the end. Standard deviation values are similar in the two times tested.

Homogeneity of variance coefficient shows the average group at baseline (18.35) and high at the end of (8.14).

Anthropometric measurements – boys

No. crt.	Name and surnamed	Initial height (m)	Final height (m)	Initial weight (kg)	Final weight (kg)
1.	Aritmetical average	1.23	1.25	22.7	23.34
2.	Standard deviation	0.22	0.14	3.15	4.48
3.	Coefficient of variation	17.88	11.2	13.87	19.19

Arithmetic averages of the height of boys at baseline has a value of 1.23 m and 1.25 m at the end, so an increase of 2 cm, as well as girls. Standard deviation is low and similar in both times tested.

Coefficient of variation is within the range 10-20%, so average group of boy's homogeneity in both tests.

The values obtained were boys weighed 22.7 kg and 23.34 kg beginning to end, so an increase in average weight 640 grams. Standard deviation has the following values: 3.15 to 4.48 in T1 and T2.

The coefficient of variation is 13.87 and 19.19 at baseline to end its apparent homogeneity where the average group in both moments.

The results obtained in the two time boys: initial and final - motor tests

No crt.	Name and surnamed	25 m (seconds)		Long jump from place (m)		throwing and catching small ball bounced off the wall (no.)	
		T1	T2	T1	T2	T1	T2
1.	Aritmetical average	5"63	5"47	1.24	1.27	2.42	4.34
2.	Standard deviation	0.41	0.33	0.18	0.16	0.22	0.30
3.	Coefficient of variation	7.28	6.03	14.51	12.6	9.09	6.91

Boys

Arithmetic average at 25 m speed is 5 "63 seconds at baseline and 5"47 seconds at the end, so performance has improved by 1.6 tenths in the final. Standard deviation values have approximately the same values in the two tests.

Coefficient of variation indicates a high homogeneity of the group in both tests performed (7.28 to 6.03 in T1 and T2).

In long jump from place boys managed an increase of 4 cm at the end of the study, less than 1 cm in girls. Standard deviation values are 0.18 and 0.16 in the two times tested.

Coefficient of variation has values of 15.51 to 12.6 at the initial testing and final, where the apparent homogeneity of the group average.

Undertaking testing and throwing small ball bounced off the wall to an average of 2.42 initial and final repetitions of 4.34 repetitions, then increase by about 2 repeats the end of the study. Standard deviation values are 0.22 and 0.30 times in the two subject tests.

Coefficient of variation has values falling within 0-10% in both tests so high homogeneity of the group of boys.

Following the study on students of class I have reached the following **conclusions**:

1. The physical education lesson will teach components of organizational capacity (returns from place, column gymnastics training and raising) of the basic motor skills (walking squat, lunge movements by step, by step mattress running with knees up, the heels of the seat, jumping with one foot away from the successive, alternatives or both feet, in long jump, in the depth or height, throwing thrown, launched with two hands, catching with two hands at chest from place, etc.).
2. Physical education programs for grade 1 will develop basic motor skills, including forms of manifestation (age-appropriate children) of speed, skill, strength, endurance, joint mobility and stability, basic motor skills including variants of walking, running, jumping and throwing and catching.

3. Students subjects were finally obtained higher values in all indices studied both girls and boys.
4. Testing has shown that physical events obtained at the end of research fits very well in qualifying both girls and boys.
5. Subject study confirmed the hypothesis. Following the study noted that there are ways of developing motor quality in physical education lessons but in the specific age, gender and opportunities of the school.

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Étude sur le développement des qualités motriques dans les leçons d'éducation phisique de l'enseignement primaire

Mots-clé: *Qualités motriques, saut, lancement, leçon*

Résumé: *La recherche porte sur le déeveloppement es qualités motriques chez les élèves de la première classe de l'école primaire.*

Studiu privind dezvoltarea calităților motrice in lectiile de educatie fizica din invatamantul primar
Cuvinte cheie: *calitate motrică, săritură, aruncare, lecție*

Rezumat: *Cercetarea urmărește dezvoltarea calităților motrice la elevii de clasa I. S-au realizat testări la 3 probe atletice prevăzute în programa școlară, urmărindu-se cele 3 calități motrice de bază. În finalul cercetării s-a observat că elevii au obținut în final valori mai mari la toți indicatorii studiați atât la fete cât și la băieți.*

PEDAGOGICAL INNOVATION AND SCHOOL CHANGE: RECOMMENDATIONS FOR THE PROMOTION OF EFFECTIVE THINKING IN PORTUGUESE PRIMARY CLASSROOMS.

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Summary

Educational reforms focused on raising school performance have been distinctively proliferating in Portugal for the past decade. This increase is followed by changes in the way schools are being administered and managed. Governmental policies have revealed this increasing pressure for change and the implementation of the Bologna Process in Portugal may have highlighted this pressure for change and for raising school performance. The development of scholarship of teaching and learning is paramount to tackle issues that emerge from the diversity in students' population and the challenges institutions are facing when implementing the Bologna Process, such as lack of human and material resources and adequate training.

Key words : *Pedagogical innovation, school change, teachers' training*

Introduction

It seems imperative that the international research movement, focused on programmes and improvement projects, continues its efforts to extend and redefine strategies for school improvement. One major facet of school improvement is teachers' continuing professional development, understood by Darling-Hammond (1994: 10) as "a process of enhancing teaching's professional status by expanding the knowledge base upon which the profession draws and increasing teachers' epistemological awareness".

School change and school improvement are concepts that are intrinsically associated and implementations introduced into schools should hopefully change and improve them. Yet, literature reveals that the impact those changes have will depend a great deal on the people involved and their attitude towards change. In order to understand the dynamics of executing a new policy locally, two aspects need to be taken into account: the perspective of the organization as an *implementing organization*, seen as an instrument for the implementation of a new educational programme (Beyer *et al.*, 1983); and the perspective of the *individual teacher* involved in implementation work, whose teaching competences are challenged by new demands and performance standards stemming from the new programme. The combination of organizational issues and individual concerns are inherently involved in the implementation of comprehensive educational change (Van der Vegt *et al.*, 2001).

In-service education and training for teachers are increasingly gaining more attention, which mirror the speed of change in school organisation, management and curricula. Due to the fact that those rapid changes

expose our need to acquire new knowledge, it has been acknowledged as an "updating" or "awareness raising" valuable element in teacher education (Glover *et al.*, 1996: 11). In an ideal world, governments would understand that this represents a permanent professional necessity and thus, would provide educational institutions with adequate training and updated material and human resources. Indeed, this means professional training is a *sine qua non* condition of educational success when considering pedagogical innovation and implementation of new teaching strategies aimed at enhancing students' learning experience.

Theoretical perspectives

Training to teach thinking

In the fast pace of today's world, it is vital to prepare children and youngsters for a competitive, ever changing and increasingly demanding work place. In a society clearly dominated by technology created to facilitate innumerable aspects of life, there is a greater risk of lethargy of thinking, where the natural thinking process may become atrophied under the weightiness of fast processing electronic equipment. Hence, the importance of promoting both the skills of knowledge and the skills of action (De Bono, 1997), in order to form individuals that are both knowledgeable and proactive, idealistic and sensible.

The teaching of thinking is currently perceived as a powerful vehicle for efficiently accessing school curricula. Individuals equipped with better Thinking Skills (TS) are more likely to succeed in dealing with the high volume of information available to them (Nickerson, 1987).

Schools must advocate the development of independent thinking, in order to promote successful learning experiences (Costa, 1991; Fogarty, 1997).

McGuinness (1999) suggested that the development of pupils' thinking required open-minded teachers that were able to understand the nature of knowledge and thinking and capable of establishing an educational atmosphere where prediction, questioning, challenging and arguing are actively pursued. Hence, it is imperative to prepare teachers for the tremendous responsibility of successfully developing pupils' knowledge and skills, and to prepare them for a brighter, yet more challenging, future.

TS interventions developed in community are particularly beneficial as they encourage the development of knowledge and social skills through interaction and collaborative learning, the sharing of ideas and discussing in order to achieve understanding (Baumfield *et al.*, 1995). Pupils may be assisted by adults or more able peers, as suggested by Vygotsky's concept of *Zone of Proximal Development* (Allal *et al.*, 2000; Feuerstein, 1980; Vygotsky, 1978). Similarly, Philosophy for Children (Lipman *et al.*, 1980) stresses the creation of key environment conditions to foment cooperative learning by promoting a democratic community of enquiry within the class and making use of explicit norms. Modelling is a powerful way of learning and through discussion and exchange of ideas, children's progress can be rapid (Fisher, 1995).

Moreover, TS programmes encourage pupils to think about thinking, a process called *metacognition* (Duell, 1986; Flavell, 1976; Forrest-Pressly *et al.*, 1985; Garner, 1987), by which pupils are asked to solve problems and to describe and explain the process they used to reach a solution. This is a vital factor of the programmes since it is through metacognition that pupils have the potential to regulate their own learning. In addition, the chances to establish understanding of core concepts and skills as well as transferring them to others contexts are deeply dependent on metacognition.

There is still some debate on what each intervention specifically develops but, on the whole, the fundamental claim is that TS interventions aim to help pupils to become better thinkers, by supporting them to exploit their strengths, to repair their weaknesses in thinking and assists them to recognise and develop their potential (Sternberg, 1987a).

The teaching of thinking is also intimately intertwined with teachers' professional development as specific training received to implement TS interventions in the classroom may prompt improvement of practice (Adhami *et al.*, 1997). There is a relationship between pupils' work style during these lessons and teachers' professional development as the teaching of thinking leads to reflection, which subsequently generates improvements in teachers' practice. Reflection on action brings to light teachers' achievements and limitations, by submitting their practice to analysis and subsequent improvement (Burden, 1996).

By teaching pupils to think, it has been

suggested that teachers become more perceptive of the circumstances that promote thinking in the classroom and turn into more powerful thinkers themselves, which further enhances their professional development (Costa, 1991).

Two models for delivering TS interventions have been proposed (McGuinness, 1999): a *discrete intervention*, where general TS are exclusively improved through an additional programme slotted in the curriculum and an *infused approach*, where interventions for the development of thinking are infused across the normal curriculum. The implementation and application of TS interventions are said to be time consuming and, because teachers are mainly concerned with the delivery of the programme, they may not have the time to deliver extra subjects and activities. Hence, the latter model seems to be a sensible solution to the impasse, facilitating the delivery of the curriculum and the implementation of these interventions in the classroom and avoiding resistance of teachers who may be sceptical about its teaching and learning benefits.

Teachers' beliefs effectively influence their classroom performances (Fang, 1996). In order to achieve teaching and learning improvement, it is important that teachers undoubtedly believe that their practice can be improved (Richardson, 1996). Moreover, a teacher's attitude towards a topic may affect his/her attitude towards the teaching of that topic in the classroom, impacting on the classroom's atmosphere and school's ethos (Ernest, 1989). Hence, teachers' reflectivity concerning the teaching and learning of a subject is vital, which, consequently, contributes to the implementation of change in the classroom.

Adequate training and the acquisition of practical, useful strategies to deliver TS interventions are paramount parameters that can further foment teachers' understanding and professional development. It is imperative that teachers continuously endeavour to perfect their teaching skills, so that teaching and learning become permanent successful experiences. It is also crucial that all teachers feel confident about how they can help their pupils to become better thinkers (Swartz & Parks, 1994).

According to De Bono (2003) to learn to think is the most fundamental human necessity and competence and he prophesies that the world is condemned unless people start to think. He explained that our existing thinking habits were laid down by the Greek Gang of Three (Socrates, Plato and Aristotle) and introduced into Europe at the Renaissance. Even though these are excellent thinking habits, he argued that they are not enough. These skills focus mainly on 'recognition', where an individual analyzes a situation, identifies standard elements and then applies standard answers, a very successful type of thinking applied to

Science and technology but rather deficient in human affairs. De Bono argues people's thinking is about the past and they have never developed the creative thinking needed to 'design the way forward'.

Personal approaches

Teaching thinking in Portugal

Unlike in England, the development of children's thinking in primary schools, specifically through TS interventions is still a faint reality in Portugal. However, since the late 1980s' a number of projects have been developed in order to uncover new educational approaches that may improve the quality of education offered in Portuguese schools. One of the most relevant studies conducted thus far in Portugal is the *DIANOIA* Project "Learning to Think". It was mainly conducted with teachers and students from secondary schools and developed a number of important educational projects related to teaching and learning to think (Valente, 1989). It was structured as an intervention directed towards the teaching of thinking, recommending strategies and mechanisms that were supposedly able to promote some level of modifiability for the efficiency of thinking. It was grounded on theories of intelligence developed in cognitive psychology (Gardner, 1983; Perkins, 1981; Sternberg, 1987b) and focused on the use of metacognitive strategies in some curriculum teaching areas.

Yet, there is still scope for further studies. The author conducted research into the implementation of TS programmes in Portugal, after gathering information about the impact training and the actual implementation of the interventions had in primary schools in England. Data collected from the 14 English primary teachers and seven head teachers showed that there was an overall feeling of satisfaction and efforts to further implement innovative pedagogical strategies were successful due to good quality training available to teachers. On the other hand, the data comparison revealed that the 10 Portuguese primary school teachers questioned neither possessed explicit knowledge about the existence of the TS interventions, nor knew anything about its implementation in Portuguese schools, in particular at primary school level. It also emerged that teachers were eager to learn more about innovative teaching strategies, even though they all admitted they would need training in order to put theory into practice effectively. It also became clear that the in-service training available to them was rather repetitive and pointless and did not contemplate pedagogical innovation strategies.

Conclusions

It would appear that past educational initiatives and projects attempted to hit the right balance between teachers' professional needs and students' learning needs, which would come one step nearer to achieving an extensive implementation of TS interventions in Portugal. However, this issue would require a more serious and committed engagement from the Portuguese

government so that all teachers have access to vital training and ongoing support in schools and all children and youngsters can benefit from the well-documented advantages that spring from an active involvement and exposure to the interventions in the classroom.

Having trained as a teacher in Portugal and after conducting comparative research between England and Portugal, the author believes that TS interventions are neither researched nor promoted enough in Portugal. This represents a major gap between these two countries and there are evident benefits for those who are promoting and delivering the interventions and disadvantages for those who are not engaged with the interventions. Hopefully, lessons can be learnt from the English teachers' experience so that Portuguese teachers may have a new impetus for professional growth and educational innovation.

Directions for further research

Although evidence from past studies indicates that it is possible to become better thinkers, it is also a fact that those changes do not occur immediately. The development of effective TS requires perseverance and time. Furthermore, some authors argued that the change process should start as early as possible, while children's individual physical, cognitive and social patterns are still being formed (Brierley, 1987; Fisher, 1990; Gardner, 1983, 1993; Halpern, 1997; McGuiness, 1999; Sternberg, 1985a, 1985b). For these reasons, more research into the impact and success of TS programmes in Portugal should be made, particularly at primary education level. New projects should study experienced primary teachers' reactions to a continuing professional development programme in TS interventions, evaluating their personal experiences and feedback, identifying issues and problems, measuring their attitudes towards change in their own practice and examining possible barriers to change. This could represent the perfect opportunity to analyse the impact of TS interventions on teachers and pupils, their attitudes and perceptions of training needs, and its pedagogical and professional implications.

Furthermore, longitudinal large-scale studies would allow a more conclusive investigation. Even though some aspects are noticed almost immediately after the beginning of the implementation of TS interventions in the classroom (behaviour, motivation and participation), other aspects need more time to develop and will be more visible after a two-year period (improved attainment and well develop critical thinking) (Feuerstein *et al.*, 1981). This would facilitate the provision of more training for participating teachers, creation of supporting materials, and preparation of pre- and post- evaluation tests for pupils.

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Innovation pédagogique et changement scolaire: recommandations pour la promotion du raisonnement efficace dans les classes primaires portugaises

Mots-clé: Innovation pédagogique, changement scolaire, préparation didactique

Résumé: La réforme éducationnelle centre sur la performance scolaire a connu un grand développement en Portugal. Cela a entraîné des changements dans la manière d'administration et de management scolaires.

Inovare pedagogică și schimbările din școală: Recomandări pentru promovarea raționamentelor eficiente în clasele primare portugheze

Cuvinte cheie: Inovare pedagogică, schimbările școlare, pregătire didactică.

Rezumat: Reforma educațională centrată pe performanța școlară a cunoscut o dezvoltare importantă în Portugalia. Aceasta a antrenat schimbări în modul de administrare a școlii precum și a managementului acesteia.

A STUDY ON THE ATTITUDE OF STUDENTS TOWARDS THE GYMNASTICS ELEMENTS REQUIRED IN THE 8TH GRADE

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Summary

In this papers we wanted to show that, teaching resources in physical education lessons with units of learning gymnastics, creates different attitudes at the students. These attitudes are mainly geared to understanding what teacher explained and the individual practicing. These kinds of attitudes are manifested differently and lead to different levels of student academic success.

Keywords: *attitudes, elements of gymnastics, physical education, school success*

Introduction

The school is the institution are treated most theoretical knowledge and formed the majority of skills and practical skills that man has.

Having regard all this, during the school, students show different attitudes.

Attitude, like aspect of human behavior, is "a mental orientation" which directs the individual reactions. This brings together intellectual, emotional, volitional and cognitive elements, on which the individual is oriented, adapt and self-regulating preferential, growing.

The attitudes are manifested in behavior through character traits. These can be defined as sets of behavioral acts which are part of personality structure, are essential for humans, were associated with a moral value and are unique because it governs man lifelong.

Hypothesis

Given these aspects of attitudes in general, we tried to realize a study on the attitudes of secondary schools students, that class VIII, toward gymnastics contents of the physical education lessons.

Research methods

To highlight the attitudes of pupils have used bibliographic study method, observation method and mathematical statistic method. Observation method was done by careful and systematic monitoring of psychological reactions in order to seize the key issues, which have led to external observations.

These observations have focused body attitudes, gestures, mimics, reflexive behavior, verbal behavior and autonomic changes.

For observation fully serve the purpose of research, we composed an observation records that we saw the results observed. These observations were conducted during the first semester of school year lesson in physical education learning units of gymnastics. For this we chose two classes, whose total number of students was 59 subjects.

Content and results

Studying specialized literature can appreciate that most experts agree the scope that human attitudes are moving in 3 main directions, each with specific events, witch are presented in table no. 1.

Table no 1

Attitude towards self	Attitude toward others	Attitude toward work
<ul style="list-style-type: none"> • motivation, • dignity, • take decisions, • determination to act 	<ul style="list-style-type: none"> • altruism, • fair-play, • cooperations • communications 	<ul style="list-style-type: none"> • dedications, • perseverance, • emotional events, • passion

Whatever is direction of manifestation, there are common elements sharing attitudes in two orientations synthetically presented in table no 2.

Table no 2

Attitudes of acceptance	Attitude of rejection
Favorable attitudes	Unfavorable attitudes
Tolerant attitudes	Intolerant attitudes
Constructive attitudes	Destructive attitudes
Positive attitudes	Negative attitudes

Of these directions, we wanted to shift in our study to the attitude toward work, meaning the practical

work, with actual data, that students performed at the classroom.

Students' attitude towards physical education, in generally, may be influenced by a number of objective and subjective factors such as: existence of material base, fitting material, teacher professionalism and personality, knowledge students to practice physical exercise.

For student attitudes towards physical education lesson to emerge positively is necessary to act on issues that custom may lead to the formation of beliefs and behaviors which will ultimately lead to the adoption of favorable attitudes.

Customizing training attitudes to discipline problem "Gymnastics", we appreciate that they must be expressed positively, because of the large specific character skills they propose specialized curriculum that purpose to the educational process, but also due to requirements for driving skills as the foundation of success in their training.

From this perspective, level of expression of appropriating motor qualities required basic driving skills, they force students to have a certain behavior to the way the teacher organizes the training process, means, methods, forms of organization and assessment.

We chose the end of the secondary cycle, that class VIII, because here is practicing most items specific acrobatic gymnastics. Which were acquired in previous years and the question arises as to strengthen their and also, linking them in acrobatic lines.

Observation sheet realised, have the advantage that gives us a concrete picture, intuitive, expressive of psychological variables tracked and studied during the time specified, for each student.

In the observation sheet, level of each feature was marked by a point intersection of row feature with the alphabetical order of students involved in research.

Uniting intersection points recorded for the individual attitudes made it possible to highlight a variety of intellectual characteristics, affective and volitional in each student.

After inserting the number of students in research, based data collection, we went to the classification of similar attitudes or yield the same level.

By counting and in the interest of accurate measurement, we made a subjective attitude to the whole report, like unit (total group = 100)

We set then a report, that counted and a percentage value within its, at the constituent value.

Watching "the response of students to the means proposed", observation sheet provided information on how to do this. Reactions were observed was understanding manifested by receptivity and interest, opposition and indifference, or misunderstanding embodied in receptive students, students reluctant and indifferent students.

Thus, 42 students in total of students, representing 71,18%, mean teacher guidance while only 17 subjects, representing 28,82% of students do not understand these instructions

For those who understand the indications are receptive and interested in 52,38%, 40.48% are opponents, and only 7,14% have an attitude of indifference, while of those who did not understand the teacher's instructions, 41,17% are not responsive, 23,52% are refractory and only 35,51% are indifferent to recommendations for activity to be conducted (figure 1).

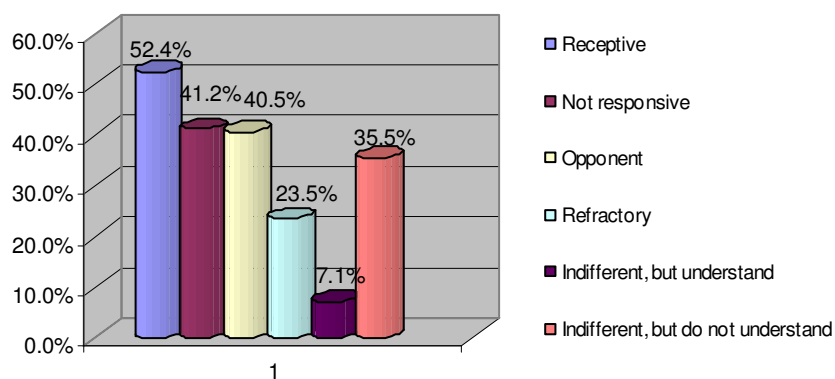


Figure 1. The response of students to the means proposed

Following the observation made and presented graphically in figure 1, show that most students study subjects showed positive reactions to the means (exercises) required for teacher because the methods and forms of exercises used to address the objectives of gymnastics themes.

Another direction that we wanted to observe attitudes towards work in the classroom learning units in gymnastics was "how the student practice the driving action". For this we analyzed different how the exercise is performed by those who understood specified indications, on the sidelines, and for those whose

understanding was not adequate.

Thus, of the 42 students who understand what to do in specific activity, 19 subjects, representing 45,23% is held carefully in practicing and 15 subjects, representing 35,71% practicing based deliberation. This led to the idea that most of those who understand what it wants to have practical work and exercises a very good attitude, looking so close to working model recommended.

Also, although it is understood that the request for action by practicing, a number of 8 students,

representing 19,06%, of total showed a hasty attitude, which led to the task proposed.

From the perspective of those who did not understand the means proposed by the teacher, centralized results were somewhat reasonable and fully consistent with the events recorded at that attitude.

Therefore, if the attitude and exercises we noticed that 52,94% were precipitated, 41,17% were inattentive and only a small percentage, of 5,89% of them occurred deliberately, showing a negative attitude about practice (figure 2).

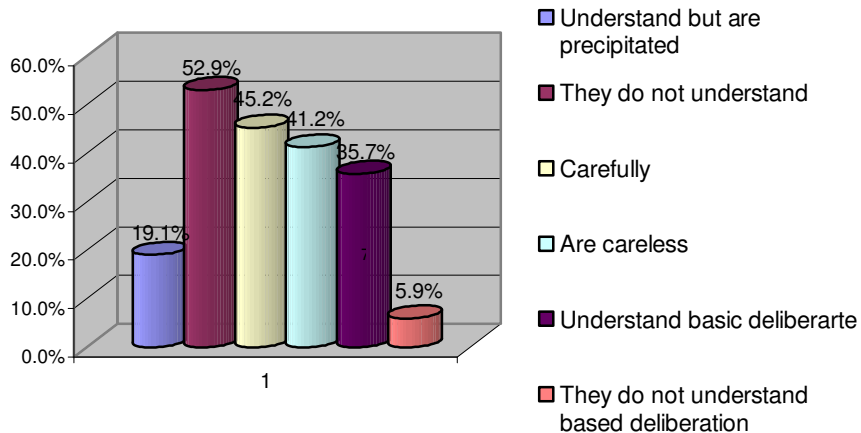


Figure 2. How the student practice the motor action

In analyzing the observation form, shown in figure 2 highlights how students organize their actions. Thus, it highlights the weaknesses in their own organization to those who do not understand the teacher's instructions and practice driving the wrong action. However, that is involved in practicing can be considered a positive factor. This assumption may be attracting these students in other activities where we show more interest.

Given means understanding the attitude towards proposed in practical work, on the sidelines, and observed behavior to personal practice, in second

way, I aim to highlight the degree of ownership of the items proposed in the system acrobatic lesson, which was done in the final evaluation.

Following the assessment of student reactions we have seen attitudes about the assignment of success or, where appropriate, to failure.

From figure 3, is apparent that students are represented by the most successful records staff, with a rate of 71,5%, while 28,5% of students work overshadowed by failure because of practical non-involvement or theoretical misunderstanding of the actions proposed driving.

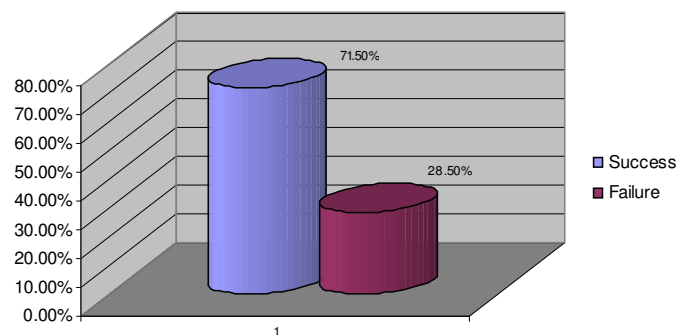


Figure 3. The award of success or failure

Conclusions

Upon completion of the study, it can be

concluded that the attitude of students in physical education classes with topics gymnastics have

significantly influenced both time participation in and the final result obtained. This is particularly so since the specificity of the elements of gymnastics requires a higher power of understanding from pupils and a more active involvement in practicing.

Therefore, the ability of teachers to select media opportunities available to students, both the understanding and the difficulty, and exposure and working methods used, in other way, lead to the formation of positive attitudes that help to attract students to teaching.

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Étude sur l'attitude des élèves pour les éléments de gymnastique de la huitième

Mots-clé: Attitudes, éléments de gymnastique, éducation physique, succès scolaire

Résumé: L'article se donne pour but de montrer comment les moyens d'enseignement dans les leçons d'éducation physique aux unités d'apprentissage en gymnastique créent dans les étudiants des attitudes différentes.

Studiu privind atitudinea elevilor față de elementele de gimnastică solicitate în clasa a VIII-a

Cuvinte cheie: Atitudini, elemente de gimnastică, educație fizică, reușita școlară

Rezumat: În lucrarea de față am dorit să arătăm că, mijloacele de predare în cadrul lecțiilor de educație fizică cu unități de învățare din gimnastică creează la elevi atitudini diferite. Aceste atitudini sunt orientate în principal spre înțelegerea explicațiilor profesorului și asupra exersării individuale. Aceste tipuri de atitudini se manifestă diferit și conduc elevul spre diferite niveluri ale reușitei școlare.

MODERNISM AND QUALITY IN PSYCHOMETRIC PREPARATION

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Summary

The process of teaching represents the educational-instructive activity performed by students and academics in an organizational and systematic way; thanks to this activity the students are endowed with a system of knowledge, skills, capacities, competences, intellectual and moving acquirements according to which they acquire scientific knowledge of the reality, they form their worldview, their moral beliefs, their features as well as their knowledge, researching and creation skills.

Education means conscious acts of the individual having as purpose the qualitative transformation of his entire personality, these acts are performed by others in the case of the educational system and by oneself in the case of self-education.

The concept of psychic preparation cannot be limited only to the moral and volitional factors because they implicate in a certain measure also the intellectual and attitudinal factors, all these factors represent manifestations of the human psychic. So, the psychic preparation can be considered a component of the entire educational and training process of the student.

Key words: students, psychometrics, volleyball.

Introduction

The content of psychic preparation consists in developing those sides of the psycho-behavioral activities of the student that impose on him an efficient conduct in the didactic activities, both regarding the

entire adaptation to requests and stress and regarding his best improvement from technical tactic point of view in a certain sportive branch.

Therefore the sides of this preparation are: intellectual preparation, psycho-moving preparation,

affective preparation, volitional preparation, forming components of the personality.

The purpose of the research

The main goal of our didactic experiment was to draft a methodological system of actions and its implement in the didactic sportive activities with medicine students and not only in order to develop the psychometric skills with instruments specific to volleyball.

The hypothesis of the research

The development of psychometric skills at medicine students can be achieved more efficiently, faster and nicer with instruments specific to volleyball.

Research methods used

1. The system of methods in collection of research data: method of self observation, method of observation, the psycho-pedagogic experiment, the method of enquiry, the method of discussions, the method of documents research, the test method.

2. The system of methods for mathematic-statistic and interpretation of the research data: organization and presentation, graphic representation, determination of statistic indexes, classification/order, comparison/rapport.

3. Checking and evaluation methods for the research results: current observation, questioning and oral examination.

Contents of the experiment

The pedagogic experiment was performed between October 2008 and May 2009 with the following phases:

- October 2008- **the constatative phase**, at the end of this period the pre-testing phase took place.
- November 2008-April 2009- it was performed **the pedagogic experiment itself**, at the end of this period it was performed the **post-test**.

In the selection of the subjects used for the experimental study we took into consideration the evaluation of the equivalence degree of the experimental and control groups so that we can reduce the possibility that the final results of the experiment can be influenced by uncontrolled factors within the experiment, connected in the structure and in the characteristics of the lots. In order to establish the evidence degree between groups we used data regarding the general level of the performance at the end of the anterior study period (the anterior year of the intervention) and the results of the probe used in the pre-test. (within the constatative experiment).

We analyzed also the structure and composition elements of the groups with a series of specific variables considered to be relevant for the present research: age, sex and the fact if the subjects are studying for the first time or for the second time at the university.

Hence we introduced a number of six experimental groups (N=44) and 8 control groups (N=51). As far as the *composition of the experimental and the control groups* is concerned in terms of age, sex and anterior studies of the subjects, we ensured a significant homogeneity because the two groups are formed only of students studying at university for the first time with ages between 19 and 21. Therefore, taking also into account the results of the pre test, we can conclude that the two groups, the experimental and the control one, do not present significant differences and they can form the subjects for the experimental research.

For the experimental groups, the development of the didactic activities was characterized by the introduction within the training of instruments and of technical procedures specific to the volleyball game. Hence, the action technology in the training process includes complex techniques: main position in passing the ball with the two hands from upsides and from downsides; organization of the three touches in the own court; up rally; rally overtaking with both hands; attack ball; lifting the ball for attack; learning the blocking; learning the plunge backwards and lateral; doubling and placement.

For the control groups, the development of the moving qualities and especially of the psychometrics was performed only with specific means for the sportive branches, others than volleyball.

Pre-testing, in which we involved all subjects, allowed us the initial checking of the qualitative level of the psychometric skills and the collecting of the starting data. The probes were performed by the teachers working with the student groups in the 1st and 2nd year that is by: Lector Dr. B. I., Postgraduate Assist. C. L., Postgraduate Assist. S. B. as well as by Postgraduate Ț. F. The probes were preceded, after being introduced, by a brief instruction and were attentively watched and registered under the form of *Observance minutes* kept by the undersigned.

The phase of research post-testing was meant in the first place for the emphasis of the effects of the pedagogic intervention at the level of the experimental groups in comparison with the control groups. The second comparative measurement of the results for this phase was performed by comparing the obtained scores in the experimental group, respective the global scores at the final examination, with the scores obtained in the initial evaluation phase. The role of this phase was to check if and how the experimental group can detach itself significantly from the control group. We can state that the post testing was to check the subjects after the pre-testing phase, when on the experimental group was interfered with specific procedures for the volleyball game and regarding the development of the psychometric skills. The testing means were identical to those used in the pre-testing phase:

1. For the measurement of the dynamic equilibrium: we used the BASS test

2. For force measurement – explosive power: we used the standing long jump

3. Kinesthetic measurement: we used the kinesiometers

Research results and their interpretation

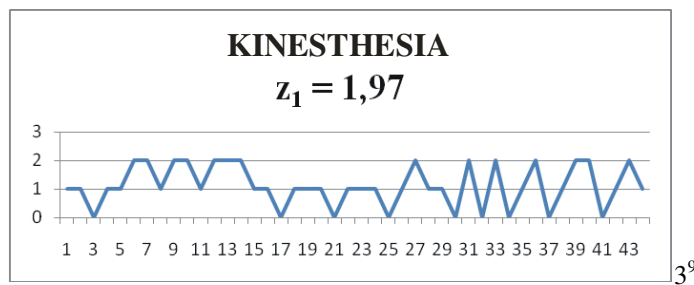
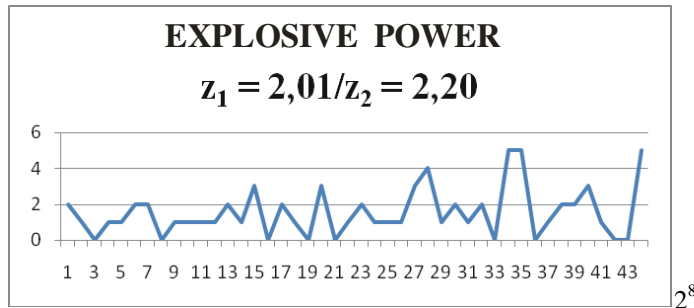
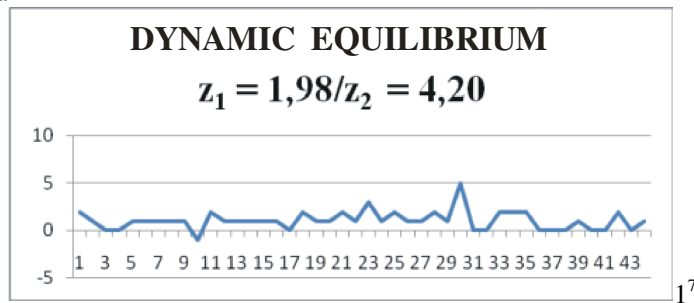
In our study we used the *comparison test* "z",

corresponding to the post-test for the experimental group (z_1) and the comparison test (z_2) between the experimental and control group. Therefore we interpreted the results according to three parameters: z_1 , z_2 and graphic representation. The formula of the comparison test "z" was the following:

$$z = \frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}} \quad m_1, m_2 = \text{averages} = \frac{T}{N}$$

T = total values on the entire sample / N = sample individuals

$$\sigma_{1,2} = \text{dispersions} = \frac{\sum(x-m)^2}{N-1}$$



⁷ 1=Dynamic equilibrium
⁸ Explosive power
⁹ Kinesthesia

As a consequence of the experimental intervention, the values of the psychometric skills increased progressively in comparison with the performed pre-testing phase at the beginning of the 1st semester of the university year 2008/2009. This statement is sustained by the value of the comparison test z_1 , from the post-testing phase for the experimental group and z_2 between the experimental group and the witness group to the frequencies of the post-testing phase that were higher than 1,96. Therefore it results that the difference between the two averages is statistic significant at the level of significance of $P < 0,05$ (Bocoș, M., 2003). Meanwhile the graphic representations show us the ascendant line of the skills, observing the progress of the 44 subjects.

Conclusions and proposals

The experimental intervention was performed on a sample of subjects, resulted from the initiation of the constatative experiment according to the pre-testing phase, the difference between the two averages is statistic significant at the level of $P < 0,05$.

According to this study we can conclude that the development of the psychometric skills at medicine students can be achieved more efficiently, faster and nicer with means specific to the volleyball game. The new element of the study is the structure of these means and methods specific to the volleyball game that can be used in the development of the psychometric main skills. The innovation of this experiment is also the graphic interpretation of the obtained results according to the initial, intermediary or final tests. These graphics offer a very suggestive image of the progress achieved with the experimental intervention. Meanwhile the present study represents for the academics and teachers as well as for the trainers with different specializations a didactic reference of the action means and their importance in the development of the psychometric skills within the educational instructive process.

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Modernisme et qualité dans la préparation psychomotricité

Mots-clé: Étudiants, psychomotricité, volleyball

Résumé: Le processus d'enseignement représente l'activité éducationnelle déployée d'une manière organisée et systématique grâce à laquelle les étudiants sont doués d'un système de connaissances, compétences, habiletés, etc. Le concept de préparation psychique peut bien être considérée comme composante de base du processus d'instruction.

Modernism și calitate în pregătirea psihomotrică

Cuvinte cheie: Studenți, psihomotricitate, volei

Rezumat: Procesul de învățământ reprezintă activitatea instructiv-educativă, desfășurată în mod organizat și sistematic de studenți și cadre didactice în universități, activitate grație căreia, studenții sunt înzestrați cu un sistem de cunoștințe, priceperi, deprinderi, capacități, competențe, achiziții intelectuale și motrice, pe baza cărora ei dobândesc cunoașterea științifică a realității, își formează concepția despre lume, convingerile morale, trăsăturile de caracter, precum și aptitudinile de cunoaștere, de cercetare și creație.

Educația se referă la acțiunile conștiente ale individului ce au ca scop transformarea calitativă a întregii sale personalități, acțiuni desfășurate prin alții în cazul educației și prin sine, în cazul autoeducației.

Conceptul de pregătire psihică nu poate fi limitat doar la sfera factorilor morali și volitivi, deoarece îi angrenează în oarecare măsură și pe cei intelectuali și atitudinali, toți alcătuind manifestări ale psihicului uman. Deci, pregătirea psihică, o putem considera o componentă a întregului proces de educație și instruire a studentului.

STUDY REGARDING THE DEGREE OF CORRELATION BETWEEN THE CAPACITY OF EFFORT AND THE VALUES OF MUSCLE STRENGTH MEASURED ON THE MAIN DIRECTIONS OF THE TORSO'S MOVEMENT AT YOUNG HANDBALL PLAYERS

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Summary

This study aims to highlight the possible existing correlation between capacity of effort and muscular force of the handball player's torso measured on the main directions of movement (sitting down and standing). Athletes were evaluated before and after the centralized training conducted in the mountains. During this, increases of the parameters' capacity of effort and muscle strength, but also some correlation reports between these indices were observed.

Thus, it has been revealed a correlation between vital capacity and muscle groups that respond to the movements of the torso from sitting down, between Sargent test values and measured muscular strength on the movements of flexion from sitting down and lumbar or between maximum expiratory volume per second and the force measured on the movements of lateral bending from sitting down.

Keywords: *training, capacity of effort, muscle strength, handball, physical training*

Introduction

The continuing desire to be first or to win as many sportive competitions, generated changes in the coach's consciousness, too. He had to revise his thinking, elaboration, planning and conducting the training process.

The large number of competitions, the increasingly better opponents, the increased rhythm of development, the force of penetration and throwing, made from handball a game practiced by athletes with a good physical condition (Baștiurea E., 2005; Baștiurea E., Stan Z., Andronic F., 2009).

Physical training, a sports training important factor, involves the development of movement qualities, the acquiring of a large number of movement skills and the improving the morpho-functional indices of the body in relation to specific requirements of the handball game (Manole V., 2008).

Handball's current level has multiple actions of game developed in time and space limit. This is why the athletes are required an intensive effort which, as it is known, has multiple effects on some systems, functions, muscle groups or the whole body. Adjusting the body's reaction to this kind of effort is the basic foundation in increasing the capacity of effort, a basic component of sports performance (Bota C., 2000).

The correct estimation of the physical effort of performance athletes is based on a diagnosis of „observation” and forecast of „prediction” of the

biological factor state, but also, on the optimal activity of the „dynamic correlation” feed-back (Ploșteanu C., 2009).

Conscious and active participation of athletes in the training program leads to a prompt and rapid response of the body. This conducts to shortening the time of assimilation, consolidation and improvement of the movement skills necessary for the execution of the techniques that are within the structure of the game. The training process is beneficial for athletes as long as the body is forced to adapt to the physical work stress (Bompa T.O., Carrera M.C., 2006).

The execution of any technical element or method requires a minimum level of force and therefore the coach must be careful when selecting the means and methods for processing such movement quality. Inappropriate development of this force makes training and especially strengthening the movement skills impossible (Roman C. 2009).

The need to develop strength is conditioned by sports performance, while the muscular system, through the approximately 650 of its muscles, is the one helping to solve all tasks successfully all the tasks received. Any uncontrolled motion made by sportsman can lead to the installation of a muscle imbalance, which can then influence the quality of the movement action and so to the sports result.

In addition to developing specific systems for strength training it is also necessary to apply specific

evaluation systems for quality. The usual tests to measure levels of strength are based on generic movements, establishing a correlation with specific movements of handball. Among the more specific assessment methods are those that measure the strength levels of playing, a typical gesture for the specialty. To measure the force on a shot of handball the radar or the „Atlas” test can be used (Gutierrez et al., 2006). The combination of both systems gives a complete analysis of the capabilities of the player.

Determining on time these muscle imbalances with specialized equipment comes to support the athlete to perform at optimal parameters all movements imposed on by this beautiful and enjoyable sports game called „handball”.

Hypothesis

It is assumed that there is a degree of correlation between vital capacity, Sargent test and muscular force of the handball player's torso measured on the main directions of movement.

Research methods

For a smooth ongoing of the conducted experimental study and for performing the proposed objectives, the following research methods have been used:

- *the method of the bibliographic study* - the selected information allowed us to separate the issues outlined by the removal of doubt and to find the most effective ways and means to conduct the research;
- *method of tests* - used to highlight the capacity of effort and to determine muscle imbalances;
- *method of exploratory experiment* - which led to the formulation of hypotheses and their verification;
- *statistical-mathematical method*;
- *graphical method*.

Experiment content

The sample of subjects consisted of 15 athletes

from the handball team (Junior II) of the School Sports Club Galati, professor Andronic Florin. They have completed a centralized training program, where the emphasis was on improving the physical training.

With the occasion of the two tests carried out (initial and final), the following parameters were measured: *vital lung capacity* (CV), *maximum expiratory volume per second* (VEMS) and the *Sargent test* was applied (TS).

The Sargent test was chosen (anaerobic capacity of effort) because it represents a movement manifestation which is performed in a small amount of time due to the aggregation of several factors involving muscle work: the quality control of muscle contraction command with an explosive character, joint mobility, the level of involvement of the antagonistic muscles and muscle elasticity (Hillerin of P.J., 2006).

The method and apparatus for determining muscle imbalances were used to measure the torso muscular force on the main directions of movement (Marcu V., Stan Z., Baştireua E., Chiculiță C., 2008; Marcu V., Chiriac M., Stan Z., 2009).

When applying this method, tests for measuring muscle strength from the two basic positions (sitting down and standing) are run and the classic test of lumbar muscle strength is included.

Results

The study revealed increased values of the capacity of effort with the development of the global and segmental muscle strength (at torso level). Significant correlations still exist for the present study between parameters of the capacity of effort and certain muscle groups that participate at the torso's movements.

Most measured parameters increased, after the conduction of the physical training planned between the two tests (T.I. and T.F.) and the obtained results, except the values of T9 index (Figure 1). The Sargent test had low values in both tests, which represents an unsatisfactory level.

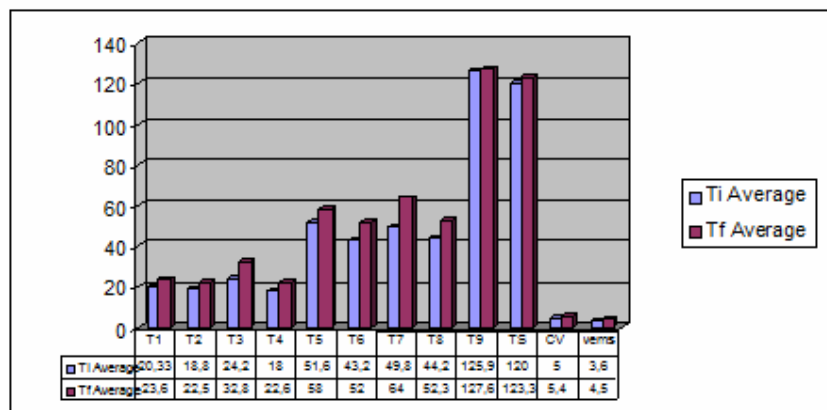


Figure 1. Average values of the measured parameters (CV, VEMS)

Figure 2 graphically represents the correlation degree between the vital lung capacity (CV) and the values of the torso muscle strength events on the parameters tested in initial and final state (T1-T9). At final testing, the degree of correlation has increased

between CV and T1 and T3 indices, but the degree of correlation with T6 and T9 indices has decreased.

Closer bounded correlations are between CV and the muscle force that participates in the flexion and extension of the torso measured when sitting down.

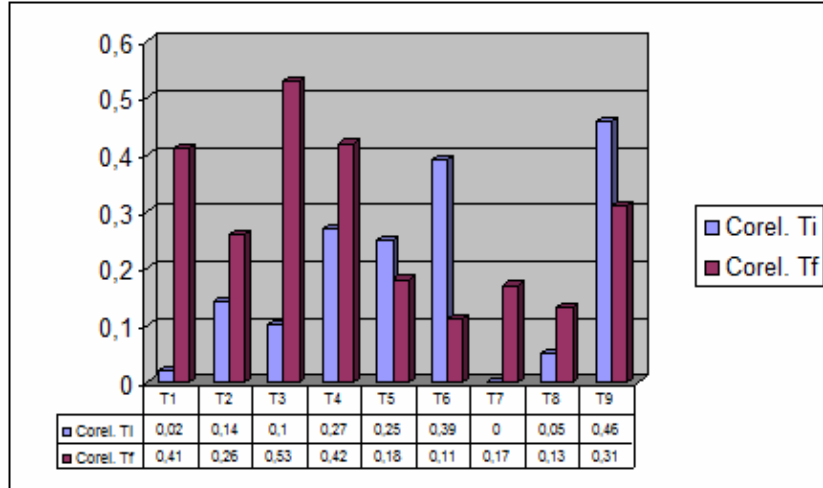


Figure 2. Level of correlation between vital capacity (CV) and muscular force (T1-T9)

Figure 3 graphically represents the correlation degree between maximum expiratory volume per second (VEMS) and the values of the torso muscle strength events (T1-T9) for the two tests made (initial

and final). Closer bounded correlations are between VEMS and T2 and T4 indices, i.e. the muscles involved in lateral movements (muscles: iliocostal, longissimus, semispinalis, multifidus).

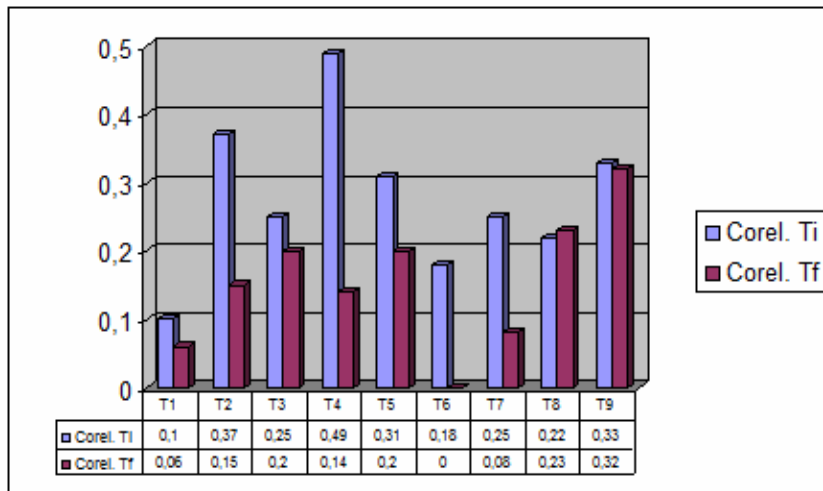


Figure 3. Degree of correlation between maximum expiratory volume per second (VEMS) and muscular force (T1-T9)

Figure 4 graphically represents the correlations at initial and final testing between the values of the Sargent test (TS) and the values of the torso muscle strength events (T1-T9). Closer bounded correlations are between the muscles that participate in the torso's

flexion measured when sitting down (T1) and the ones that participate in lateral movements (T2 and T4). The correlation for the measurements made from standing (T5-T8) decreases, except the lumbar force test (T9).

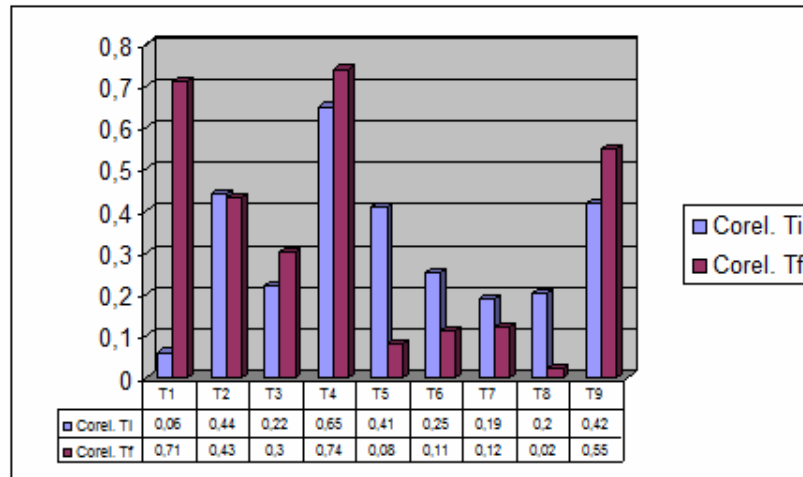


Figure 4. Level of correlation between the values of the Sargent test (TS) and muscular force (T1-T9)

Abbreviations

T1 – testing the torso strength on flexion, from sitting down;

T2 – testing the torso strength on lateral bending to the left, from sitting down;

T3 – testing the torso strength on extension, from sitting down;

T4 – testing the torso strength on lateral bending to the right, from sitting down;

T5 – testing the torso strength on flexion, from standing;

T6 – testing the torso strength on lateral bending to the left, from standing;

T7 – testing the torso strength on extension, from standing;

T8 – testing the torso strength on lateral bending to the right, from standing;

T9 – lumbar strength testing (classic test).

Conclusions

All measured parameters increased – the ones of the capacity of effort and the ones of developing the muscle strength – after the conduction of the physical training.

An insignificant increase of the value of the lumbar muscle strength regarding the parameters of the muscle strength is observed. The values of the Sargent test increased at all athletes, but they were framed at the „unsatisfactory” level. Therefore it is recommended to increase training intensity to 70-100% of maximal anaerobic possibilities of the subject.

The followings were also observed:

- closer bounded correlations of CV with the muscle force that participates in the flexion and extension of the torso measured when sitting down;
- closer bounded correlations between VEMS and the muscles involved in lateral movements (iliocostal, longissimus, semispinalis, multifidus);

- closer bounded correlations between the muscles that participate in the torso’s flexion measured when sitting down (T1) and the ones that participate in lateral movements (T2 and T4);
- a decreased correlation for the measurements made from standing (T5-T8), except the lumbar force test (T9).

In the study made, there were highlighted a number of correlations between the capacity of effort and the muscular force of the handball player’s torso as a first step in triggering further research.

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Etude sur le degré de corrélation entre la capacité d'effort et les valeurs de la force musculaire mesurées sur les directions principales de mouvement du tronc chez les jeunes handballistes

Mots-clé: *Entraînement, capacité d'effort, force musculaire, handball, entraînement physique*

Résumé: *L'article se donne pour but de mettre en évidence les corrélations entre la capacité d'effort et la force musculaire dans le tronc du joueur de handball. On a ainsi découvert qu'il y a une corrélation entre la capacité vitale et les groupes musculaires responsables pour les mouvements du tronc en position assise.*

Studiu privind gradul de corelație dintre capacitatea de efort și valorile forței musculare măsurate pe

direcțiile principale de mișcare ale trunchiului la tinerii handbaliști

Cuvinte cheie: *Antrenament, capacitate de efort, forță musculară, handbal, pregătire fizică*

Rezumat: *Acest studiu dorește să evidențieze posibilele corelații existente între capacitatea de efort și forța musculară a trunchiului jucătorului de handbal măsurate pe principalele direcții de mișcare (așezat și ortostatism). Sportivii au fost evaluați înainte și după perioada de pregătire centralizată efectuată la munte, ocazie cu care au fost observate creșteri ale parametrilor capacității de efort și a forței musculare, dar și unele raporturi de corelație între acești indici.*

Astfel, s-a evidențiat o corelație între capacitatea vitală și grupele musculare ce răspund de mișcările trunchiului din așezat, între valorile testului Sargent și forța musculară măsurată pe mișcările de flexie din așezat și cea lombară sau între volumul expirator maxim pe secundă și forța măsurată pe mișcările de îndoire laterală din așezat.

FREQUENCY AND EFFICIENCY OF TACTICS INDIVIDUAL AND COLLECTIVE ACTIONS, WITHIN THE HANDBALL GAME (ECHELON, JUNIORS III)

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Summary

In present paper, are presented and experiencedes, the most important issues, ideas and hypotesies, related to the use of an optimal frequency, of individual and collective tactical actions within the handball game, for its effectiv, and means to the accomplishment of most important objectifs, reffering to tenure an individual and collective actions, namely the continuous growing of the share of this actions, at the juniors III level.

Keywords: *game, handball, bilaterally game, individual tactics, collective tactics*

This paper aims to propose cast anchor and demonstrate that, by using some means and methods, can occur both qualitative and quantitative increase of frequency and efficiency of individual and collective tactics actions in the game, of the performance children echelon, Juniors III.

Therefore, have made two assumptions, namely if the means proposed can achieve an increase in the specific tactical and technical baggage, materialized in technical and tactical elements and proceedings, specific of the game, verified and certified by specific control samples, and reported to the values determined by federation, sustained by athletes and if the applications of the means and the proposed actions, will result an increase of frequency and efficiency, of the individual and collective tactical actions of the

game.

The purpose of this paper is to present and demonstrate, one of the effects of interdependence between sports training factors, namely that, against a superior physical and technical training and rigorous realized, creates the premises to increase proportion of the tactical combination, thus improve tactical factor, both individually and collectively, in a bilateral game, and that to contribute to the enrichment of research activity in this area.

Objectives followed to be achieved, consisted in the check and demonstrate of the proposed hypotheses.

Handball game takes place a background of intense physical demands, which a highly educational and formative character.

As a sport, handball game, witnessed a great development, reaching now to organize competitions for all ages, from table handball to high performance.

We observe a rigorous scientific organization tendency of the training process, and linked to development of qualitative trends toward a quickly game and which using a bag of techniques and tactical actions as varied and complex.

For the purpose, it was developed one game conception what corresponding of the increasing demands of the game, in elite world and that is continuously and periodically updated and perfected, at the highest level, taking account and reference to the evolution trends of the game on the internationally plane.

As a scientific discipline, studying the content of the game in terms technical and tactical development trends, physical training, theoretical and psychological, generalizing the practice of the best teams, studying history and evolution of the game, linking with other sports games, that borrow from ways and means of training, techniques and tactical actions, adapting them to its specific, and link with other related scientific disciplines, that are directly involved in the practice of the game, such as hygiene, sport physiology, anatomy and biomechanics, biochemistry, pedagogy, psychology, etc.

Refers to teacher-trainer work for preparing children-juniors to various performance echelon (III, II, I), a very important action is to know, to develop and apply the most appropriate actions, methods and means, to achieve the expected results, the default action entails, a scientific periodization training process of juniors-child performance.

In terms of driving quality, handball is characterized by speed under power, strength and skill, a special force for the throwing, a force necessary to carry out specific movements in attack and defense, general and specific skills, and aerobic and anaerobic resistance, specific labor performed by the players.

An important feature of contemporary training in handball, is the widening requirement of technical, tactical, physical and mental specialization.

Learning and perfecting technique and tactics are performed mainly on account of increased workload and the effort to adapt the body, is particularly on account of intensity.

Complexity of method used judiciously vary the intensity and volume, ensure the preparation to close by the requests to the effort of the game.

One of this methods used in the experiment consisted in periodization of training, what representing operating methodologies which training process, over a year, is divided into periods and stages of preparation which differs from performance handball where it is carried with according by the competitive schedule.

Of the children and juniors level, periodization

pursue the gradual improvement of the training objectives, for each period are set instructive and educational objectives intermediate, whose fulfillment is first, the premises for future work, and on the other hand, gradual achievement, step by step, the final objectives planned for the year (Ghermănescu-Kunst I., Gogâltan V., Jianu E., Negulescu I., 1983, pag. 256).

Scheduled training is a methodical conception activity, which coach establish component approach of the training, setting them some share in current and the future preparation (Ghermănescu-Kunst I., Gogâltan V., Jianu E., Negulescu I., 1983, pag. 257).

Scheduled training, assumes that in any field of learning and training, witnessing a steady stream of information, generated by an efficient deployment process, which requires the exercise management and control act to monitor and adjustment them, by means of inverse connection called feed-back.

Programming stems from the model, what in his turn, is achieved only through the mechanisms and ways of expressing them.

Basic or fundamental rules of programming, are simple, accessible, but compliance constitutes a condition of its application, accurate and efficient.

These rules are:

-- rule checking an enhancing effects or traces left by previous lessons, in the biological substrate, in the central nervous system, at which level are formed and improving dynamic stereotypes;

-- rule of the individual beat of learning, which emphasizes the role and importance of the individualization principle in sports training, which based on observation and values and norms of control samples, revealing the degree of ownership and perfection of the athlete, to compete with himself and obviously, with other athletes, both employed in an attempt to win sporting glory, victory, title or record;

-- rule of the active participation, conscious and deliberate, the "small steps" and gradually progress.

By planning sports training, means to scientific provide of increasing indices provide training of athletes, according to the targets of training and performance, set to be made from time to time.

Planning, refers to the design and development training plans of sportsmen, for different time, plans that are elaborate by coaches, and by content elements, seeking to ensure growth training indices, of the sportsmen, on a continuous upward line.

Including the most effective ways and means of achieving the objectives of training and performance, preparedness plans ensure the continuity, while rhythm conduct educational process.

The methods used in the experiments was heuristic method, observation method, experimental method, mathematics and graphics method.

Whole somatic measurements and technical testing and driving test, used to check assumptions were

composed of:

A. Somatic measurements:

1. Weight.
2. Anvergure.
3. Length of hand.

B. Technical testing and driving:

1. The long jump of standing position.
2. Speed run of 30m distance.
3. The trough of handball ball at distance with free steps impetus.
4. Run of resistance of 1000m distance.
5. Ten-steps jump.

We chose a set of measurement and tests, that reflect the real possibilities of athletes, and I have appeared as the most eloquent, to verify assumptions, and that they could experiment to assess the qualitative level of appropriating the fundamental elements of the handballgame, and that could make a comparison with somatic and motor model for this ages, developed and established by F.R.H.

--Height, is measured between vertex and plants plan. The subject will be positioned in standing back on a wall, vertex will be marked with a square, one cathetus is apply at the vertex, and the right angle to the wall.

--Hand length was measured with metric tape between stylion and dactilion.

--Anvergure was measured between digital points, the subject adopting the standing position, with superior members in abduction at 90 degrees of shoulders, elbows extended, palms an intermediate position.

Selected samples and tests performed, were reported in Samples determined by Romanian Handball Federation, for children, echelon of performance Juniors III.

Means used in the experiment, were moving games and exercises for learning-training.

Moving games from skills and cortical processes development:

- a. bilateral and movement games for skill development:
 - bilateral handball game on land covered with water or snow.
- b. movement games for coordination develop:
 - "harvest";

-- "rod".

c. bilateral and movement games for balnce develop:

- bilateral game with shooting to gate, from simple dive, from dive and jump, from dive with back and screw in the air;

- bilateral game at two gates, moving in the field only by jumpin on one leg;

- bilateral game at two gates, on ice.

d. movement games for stimulation cortical processes:

- games of attention: "reverse order", "be careful ball";

- changing game conditions;

- bilateral games in rooms and less lands or more, or more or less gates dimensions, wear than regular dimensions.

B. Bilateral games and movement games for speed development

a. bilateral games for driving development and coordination with emphasis on speed:

-- "crabs and shrimps";

b. bilateral and moving games for all forms of manifestation of speed:

-- bilateral games for development of reaction speed:

-- "football" with a rugby ball;

c. bilateral games with hard objects: basketball ball, soccer ball, etc.

d. exercises for quickly start and speed running:

-- from move with ankles game, speed run 6-8 m;

-- passes in two of speed run;

-- sprinting of short distances 5-10-15m, with start at free or signal;

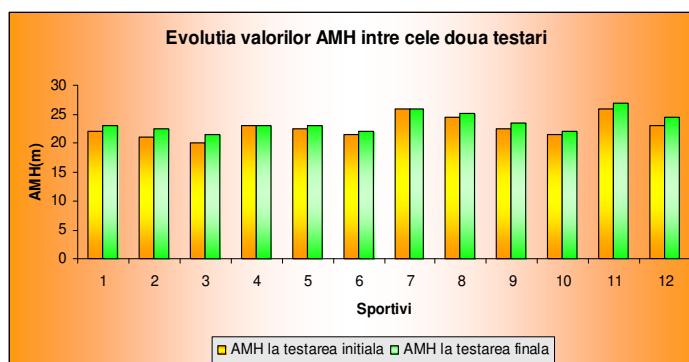
-- passes in three players of movement in high speed;

-- moving to dribble in high speed;

-- starting in high speed counterattack, at the signal the goalkeeper throws the ball as far, the player left on the counterattack, trying to catch them.

In conclusion, we can say that the study hypotheses were verified, whereas juniors III level training was increasing, the results obtained that the control samples, prove this fact, the tasks research have been completed for reason of good documentation, was chose a representative sample, the samples were good because they were the officials, and the results was analyzed, interpreted and graphically represented.

Grafic nr.1



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La fréquence et l'efficacité des actions tactiques individuelles et collectives dans le jeu de handball (l'échelon juniors III)

Mots-clé: Jeu, handball, jeu bilatéral, tactique

individuelle, tactique collective

Résumé: L'article porte sur les problèmes les plus importants liés à l'utilisation optimale des actions tactiques individuelles et collectives dans le jeu de handball, tout comme les moyens d'atteindre des objectifs importants visant la maîtrise de ces actions.

Frecvența și eficiența acțiunilor tactice, individuale și colective, în cadrul jocului de handbal (eșalonul juniori III)

Cuvinte cheie: Handbal, eficiență, joc bilateral, tactică individuală, tactică colectivă

Rezumat: În prezenta lucrare sunt prezentate și experimentate cele mai importante aspecte, idei și ipoteze, legate de utilizarea cu o frecvență optimă a acțiunilor tactice individuale și colective în timpul jocului de handbal, pentru eficientizarea acestuia, precum și mijloacele îndeplinirii unor obiective importante referitoare la stăpânirea acțiunilor tactice individuale și colective, și anume de creștere continuă a ponderii acestor acțiuni, la nivel de juniori III.

INVESTIGATION OF THE REACTION TIME IN FENCING

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Abstract

The reaction time to visual stimuli is highly important in fencing, as the athlete has to adopt, as soon as possible, the adequate motor response to body movements and/or the adversary's segments. In the study we started from the hypothesis that these athletes manifest lower values of the complex reaction time, as neuromuscular adaptive response to competition requirements. We included in the study eight male athletes, aged between 18 and 33, members of the Romanian national fencing group. After the tests, we observed that these athletes didn't have as defining feature a neuromuscular adaptive response manifested in a shorter complex response time.

Keywords: computer-based test, fighting sports, speed, training.

Introduction

The reaction time to visual stimuli is highly important in fencing, as in all fighting sports, as the athlete has to adopt, as soon as possible, the adequate motor response to body movements and/or the adversary's segments. In the selection for the performance activity, as well as during the training process, we should investigate both the simple reaction time (SRT), and choice reaction time (CRT).

From the physiological perspective, in controlling the reaction time to visual stimuli, the main roles are executed by the retina (Hubel and Wiessel,

1979; Tomita, 1986), the intracerebral visual pathways (Schiller and Malpeli, 1978; Geisert, 1980), the motor cortex and the cerebellum (Guyton, 1996).

The values of the reaction time are rather different, depending on the age, training stage, and central or peripheral fatigue (when values are significantly increased). Normal values of the simple reaction time are around 200 ms (Alexe, 1993), while the lowest value may descend to 150-160 ms (Manno, 1996), half of it being consumed at central level. As regards the CRT, the value of central conducting time is considerably longer and it also grows as the

neuromuscular fatigue appears.

As regards the SRT, it does not show significant differences between athletes and non-athletes, and researches suggest that it cannot be trained (Mori et. al., 2002). On the other side, there is data showing that the choice reaction time (CRT) may be improved through specific training (Johnson et. al., 1991).

The purpose of the research is identifying the values of simple and choice reaction time to visual stimuli, for the upper limbs, for the athletes within the Romanian national fencing group.

In the study we started from the **hypothesis** that these athletes manifest lower values of the choice reaction time, as neuromuscular adaptive response to competition requirements.

Material and method

Subjects and research organization

We included in the study eight male athletes, aged between 18 and 33, members of the Romanian national fencing group. We registered the reaction time during the morning, from 10⁰⁰ to 12⁰⁰. We chose these hours because we wanted the subjects to be fresh, as it is well-known that the values of the reaction time are severely altered by muscular and nervous fatigue.

Within the research, we measured the following parameters for the upper limbs:

- Simple reaction time.
- Choice reaction time only for the dominant hand.
- Choice reaction time only for the nondominant hand.
- Choice reaction time when using both hands.

Program for the indirect measurement of simple and choice reaction time

For this research we used a method of our own, based upon the indirect measurement of the reaction time. To this purpose we used a computer and an adapted keyboard (fig. 1).

The keyboard has four closely disposed keys, forming a square. We also used a form of software we created, which allows registering and memorising the reaction times, shows the arithmetic means, maximal and minimal value for a sequence of determinations.



Fig. 1 – Software and adapted keyboard, in order to measure the reaction time

In order to register the reaction time we used four tests, each of them described below.

Test 1. Measuring the simple reaction time

When a big coloured circle appears on the screen (on a white background), the subject must press a certain key immediately, using his index, which is in contact with that key. There are 30 executions per subject (fig. 10).

Test 2. Measuring the choice reaction time for the dominant hand

The program is designed to allow the random appearance of a coloured circle in one of the four corners of the screen, and that's when the subject, regarding the screen and using the same group of fingers held closely together of the dominant hand, must press immediately the corresponding key on the keyboard. There are 30 executions per subject

Test 3. Measuring the choice reaction time for the nondominant hand

The program is designed to allow the random appearance of a coloured circle in one of the four corners of the screen, and that's when the subject, regarding the screen and using the same group of fingers held closely together of the nondominant hand, must press immediately the corresponding key on the keyboard. There are 30 executions per subject

Test 4. Measuring the choice reaction time when using both hands

As in the previous tests, the program is designed to allow the random appearance of a coloured circle in one of the four corners of the screen. The subjects must press immediately the corresponding key (fig.11), as follows:

- if the circle appears in the upper left or lower left side, he will use his left hand, pressing the right key on the keyboard;
- if the circle appears in the upper right or lower right side, he will use his right hand, pressing the right key on the keyboard.

Results and discussions

The results obtained by the athletes within the research are presented in Table 1.

Table 1

The results obtained by the research subjects (athletes within the national fencing group) to the reaction time test

TEST	Arithmetic means	Standard deviation	Average st. error	Variation coefficient
Test 1	221.5	29.1	13.05	13.1
Test 2 dom.	413.4	49.9	22.3	12.08
Test 3 nondom.	414.1	39.08	17.4	9.4
Test 4 dom.	385.02	38.7	17.3	10.05
Test 4 nondom.	431.2	99.5	44.5	23.07

In order to compare the data, we used similar data from a group of subjects formed of 17 students in sports and physical education, which we previously

tested using the same method, with the mention that they do not practice performance sports (Cojocariu, 2008). The comparative values are presented in table 2.

Table 2

Comparison between athletes within the national fencing group and students in sports and physical education (Cojocariu, 2008), for the reaction time test

	Group	Arithmetic means	Standard deviation	Average st. error	Variation coefficient
Test 1	Fencing	221.5	29.1	13.05	13.1
	SPE stud.	241.3	32.6	7,9	13.5
Test 2 dom.	Fencing	413.4	49.9	22.3	12.08
	SPE stud.	419.6	45.8	11.1	10,9
Test 3 nondom.	Fencing	414.1	39.08	17.4	9.4
	SPE stud.	425.9	49.4	12.0	11.5
Test 4 dom.	Fencing	385.02	38.7	17.3	10.05
	SPE stud.	407.01	38.5	9.3	9.4
Test 4 nondom.	Fencing	431.2	99.5	44.5	23.07
	SPE stud.	411.2	75.6	18.3	18.3

We can see that the results obtained by the athletes within this research, for the reaction time test, are comparable with those of students in sports and physical education. Practically, the differences are insignificant ($p > 0.05$) for all four tests.

We also notice the rather high values of standard deviation and of the variation coefficient, indicated an average homogeneity for all tests. We believe it was to be expected for students in sports and physical education, as they are heterogeneous concerning the reaction time. But we find it interesting that fencing athletes have the same heterogeneity, as it is well-known that the choice reaction speed is essential in situation sports, and mostly in fighting sports.

Conclusions

After interpreting the results obtained by the 8 athletes within the national fencing group and comparing them with those of students in sports and physical education, we may state that the values of the reaction time to visual stimuli is not significantly different ($p > 0.05$).

As consequence, these athletes do not have as defining feature a neuromuscular adaptive response

manifested in a more rapid complex response time. In this situation, we may assume that, in order to achieve high performances, some fencers manage to compensate the lower complex response speed through a higher capacity of anticipation, a higher execution speed, or other elements specific to his sport.

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Investigation du temps de reaction en escrime

Mots-clé: Test assisté par l'ordinateur, sport de combat, vitesse, entraînement

Résumé: Le temps de réaction aux stimulus visuels est très important en escrime, car l'athlète doit adopter le plus rapidement possible la réponse motric convenable aux mouvements du corps et/ou les segments de l'adversaire. A la suite des tests effectués, on a trouvé que les athlètes qui pratiquent ce sport—8 membres de l'équipe nationale de la Roumanie entre 18 et 33 ans—ne manifestent pas comme trait définitoire

une réponse adaptative neuromusculaire concrétisée dans un temps de réaction complexe plus court.

Investigarea timpului de reacție în scrimă

Cuvinte cheie: Antrenament, computer-based test, sporturi de luptă, viteză

Rezumat: Timpul de reacție la stimuli vizuali este deosebit de important în scrimă, deoarece sportivul trebuie să adopte în cel mai scurt timp răspunsul motric adecvat la mișcările corpului și/sau segmentelor adversarului.

În realizarea studiului s-a pornit de la ipoteza că acești sportivi manifestă valori mai reduse ale timpului de reacție complex, ca răspuns adaptativ neuromuscular la solicitările competiționale. În cadrul studiului am inclus opt sportivi de sex masculin, cu vârste între 18 și 33 ani, componenți ai lotului național de scrimă al României.

În urma testelor efectuate, am constatat că acești sportivi nu manifestă drept trăsătură definitorie un răspuns adaptativ neuromuscular concretizat în scurtarea timpului de reacție complex.

STUDY ON SIDE PREFERENTIAL AND PERFORMANCE ENFORCEMENT SERVICE TO PLAY VOLLEYBALL

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Abstract

The main cause is targeting athletes using just a part of body exaggerated by the unilateral right arm during training for beginners, and coaches chase after immediate results. So, because of specialization unilateral side is part of the same preference. Morphological and functional side existence makes its presence felt in many moments of the game: the service, to attack the fundamental position on the field performance of the execution diving.

Tests were carried out side for the game of volleyball specific processes, in terms of training and game official, the tests were performed by 10 subjects right arm and the other 2 with the left arm.

Testing on side the performance of the service were made at the end of training before the 10 minutes to finish it. He pursued:

Therefore, research so far has proved that depends performance the side preferred hand and the degree of these exercises, some spatial characteristics of tasks performed, but yet the game of volleyball is not known whether the side performance dependent and extent, the position which has the player in carrying out service attack or coup.

Key words: side, performance, game, volleyball.

Introduce

Side phenomenon was first approached from the perspective of morphological and functional perspectives, eventually giving them almost exclusive attention over time, interest was limited side most of the time only the functional manifestations, with priority to

those extremity and particularly of the hand..

Concerns for this phenomenon is restricted to playing volleyball and development approaches.

The main cause is targeting athletes using just a part of body exaggerated by the unilateral right arm during training for beginners, and coaches chase after

immediate results. So, because of specialization unilateral side is part of the same preference. Morphological and functional side existence makes its presence felt in many moments of the game: the service, to attack the fundamental position on the field performance of the execution diving.

Therefore, research so far has proved that depends performance side preferred hand and the degree of these exercises, some spatial characteristics of tasks performed, but yet the game of volleyball is not known whether the side performance dependent and extent, the position which has the player in carrying out service or kick attack..

Hypothesis research

1. What is a preference for areas of line II of the performance of the service in different positions (right side, middle, left side) and whether performance for each area depends on the position of which serves.

Methods and Techniques

Subjects were evaluated in terms of preferential side define three indices: Hand, foot, eye, using test HARRIS, indicating that there were actions to establish dominance as the foot, like this: instead of hopscotch sample subjects were interviewed on foot which beat out for the high jump. Ocular dominance was established by amending the two actions: the place of proof "and take the cardboard through the hole!" Has brought the question "What eyes look through the view finder door?" And sample "Aim with a toy gun" has been replaced the question "What eyes look through a microscope?". The test was implemented in the form of questionnaire.

Tests were carried out side for the game of volleyball specific processes, in terms of training and game official, the tests were performed by 10 subjects right arm and the other 2 with the left arm.

Subjects covered in this study were 12 seniors, aged 23.8 ± 7.11 years (minimum age being 17.6 years

and a maximum 43.5 years) with an average height of 195.25 ± 6.08 cm and a weight of 82.41 ± 5.47 kg, a scale of 198.45 ± 7.74 cm, with an average age of practicing volleyball from 12.9 to 7.10 years, which came from Division A team that is: *Steaua Bucharest*, preferential side three indices: Hand, foot and eye revealed that 10 players were right handed and 2 of them had a side cross.

Testing the performance of the service were made at the end of training before the 10 minutes to finish it. He pursued:

A. Identification of preference for one of three areas in the second line with required service;

- the position required I, ten successful service line II in one of three zones (1, 6, 5), indicating where the subject will serve;

- idem for position II and III.

B. Identification of preference for one of three areas in line II, the position of service to choose from successful execution of the ten services with prior indication of the area in which the subject wishes to serve;

C. Preferred service position, ten required services in the proper direction of the trunk orientation.

Populations were characterized by estimating the values of central tendency and variability, in this respect using the formulas for calculating the average and standard deviation.

Was calculated for traits recorded in the tests of training and match records of significance difference between the average. To this end we used the test "t" for arithmetic comparisons.

Was calculated for traits recorded in the tests of training and match records of significance difference between the average. It was also used to calculate correlations between parameters of training and match Pearson correlation coefficient.

Interpretation and presentation of conclusions

*Table nr.1
Preference for areas of service required positions*

Service position required	Preference for areas of service		
	Area I (%)	Area 5 (%)	Area 6 (%)
I	39.16±13.79	38.33±11.14	22.50±18.50
II	40.83±16.76	36.66±19.69	22.50±22.61
III	32.50±10.55	48.33±15.27	20.00±17.05

*Table nr. 2
Performance of service positions required in training*

Service position required	Services acquired		
	Area 1 (%)	Area 5 (%)	Area 6 (%)
I	30.83±13.78	37.50±11.38	31.66±18.99
II	36.66±19.22	36.66±19.22	26.66±21.03
III	33.33±10.73	39.16±18.33	27.50±17.22

Table nr. 3

Preference for areas of service training preferred position

Service position preferred	Preference for areas of service			
	Area 1 (%)	Area 5 (%)	Area 6 (%)	Successful (%)
I	45.00±10.00	37.50±9.57	17.50±9.57	90.00±0
II	42.50±5.00	40.00±8.16	17.50±9.57	87.50±12.58
III	45.00±5.77	45.00±.90	10.00±14.14	85.00±5.77

Table nr. 4

Performance in service training preferred position

Service position preferred	Line services in areas marked II			
	Area (%)	Area 5 (%)	Area 6 (%)	Successful in all (%)
I	40.00±11.54	40.00±8.16	20.00±14.14	90.00±0
II	40.00±8.16	40.00±14.14	20.00±18.25	87.50±12.58
III	45.00±5.77	40.00±0.0	15.00±5.77	85.00±5.77

Table nr.5

Preferences for areas of service positions and preferred training requirements

Service position	Preference for areas of service		
	Area 1 (%)	Area 5 (%)	Area 6 (%)
required position I	39.16±13.79	38.33±11.14	22.50±18.50
required position II	40.83±16.76	36.66±19.69	22.50±22.61
required position III	32.50±10.55	48.33±15.27	20.00±17.05
Preferred position	44.16±6.68	40.83±9.96	15.00±10.87

Table nr. 6

Performance of the service required and preferred position in training

Service position	Services indicated			
	Area 1	Area 5	Area 6	Successful in all (%)
required position I	30.83±13.78	37.50±11.38	31.66±18.99	89.16±9.96
required position II	36.66±17.75	36.66±19.22	26.66±21.03	87.50±7.53
required position III	33.33±10.73	39.16±18.31	27.50±17.12	85.83±13.78
Preferred position	41.66±8.34	40.00±8.52	18.33±12.67	82.50±11.38

Table nr.7

Service performance and deviations from the preferred position in training in areas appropriate directions "rightly"

Service position preferred	Services indicated		
	Rightly (%)	Deviation to the left (%)	Deviation to the right (%)
I	65.00±10.00	17.50±9.57	17.50±12.58
II	72.50±12.58	17.50±5.00	10.00±15.00
III	82.50±9.57	12.50±5.00	5.00±5.77

Data analysis obtained the following issues were highlighted:

⇒ players' preferences for service areas in line II when the players serve the required and preferred position in terms of training and match official;

⇒ Performance of players in each area of service execution II line (zone 1, zone 5, zone 6) and their overall positions and preferred conditions required training and official match;

These data show that when used in terms of training positions required, preference is manifested as

follows: when players used the lateral position (right - the position I left - heading III) prefer most areas located on the diagonal and then law, ie Zones 1 and 5, significantly more than zone 6, which is located in the middle line II.

When used in preferred positions on lots of training in terms of all three preferred positions, preferences for zones 1 and 5 were significantly higher than preference for the service 6. Thus, as shown in Table. 3 and Chart 2, when used:

When comparing the preferences of the three groups I,

II and III did not find any significant difference between them, $p < 0.05$.

Therefore, when service positions are preferred, preference for areas of service are independent of the positions of all three most preferring to zone 1, zone 5 to zone 6 and then at least in terms of training.

Required and preferred positions overall I found only two significant differences, namely preference for zone 1 is significantly higher when each player serves from the preferred position than when served the required positions II and III at $p < 0.005$, respectively $p < 0.005$. These differences can be explained, in our opinion, the fact that the players prefer III position required significantly more compared with the 5 in 1 area, the position required preferences do not differ significantly, and all three wanted to serve the preferred position more than 1 area.

In terms of training, wherever it is used, preference for areas of service remains unchanged, is the lateral position and three service areas located on the preferred direction, right 'and areas located on the diagonal rather than located in zone 6 Second line center.

So, in practice preference for areas of the second line is the same whether the service position is preferred or required, or whatever part of the free zone is the preferred position (left, in the middle or right). Extreme areas are preferred more than the middle.

Judging by the average (%) when used in lots of positions preferred subjects tend to prefer all three lots at more than 1 zone, then zone 5 .

Although it is required to serve in positions 1 and 5 preferred areas rather than zone 6, between the preferences of subjects in the two tests required position and preferred position, identify a significantly greater difference in terms of preference for zone 1 Preferred subjects serving in positions, which serve to the subject positions II and III required.

When used in preferred positions in match conditions, subjects preferred significantly more group 1 compared with the 5 subjects of group 2 and 3, and when used in the preferred position 2 and 3 significantly preferred service area 6 than those of group 1.

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Étude sur la latéralité préférentielle et performantielle dans le service en volleyball

Mots-clé: Latéralité, performance, jeu, volleyball

Résumé: La cause principale de la latéralité des athlètes est l'orientation exagérée et unilatérale vers le bras droit dans la période d'instruction des débutants, et le désir des entraîneurs d'obtenir des résultats immédiats. Pour le moment, on ne sait pas si la latéralité performantielle dépend de la position du joueur au moment du service ou de l'attaque.

Studiu asupra lateralității preferențiale și performanțiale în jocul de volei la executarea serviciului

Cuvinte cheie: Lateralitate, performanță, joc, volei

Rezumat: Cauza principală a lateralității sportivilor este orientarea exagerată, unilaterală către brațul drept în perioada de instruire a începătorilor, și goana antrenorilor după rezultate imediate. Deci, datorită specializării unilaterale, lătaralitatea performanțială este de aceeași parte cu cea preferențială. Existența lateralității morfofuncționale își face simțită prezența în foarte multe momente ale jocului: la serviciu, la atac, la executarea poziției fundamentale în teren, la executarea plonjoanelor.

Au mai fost efectuate teste de lateralitate pentru procedee specifice jocului de volei, în condiții de antrenament și joc oficial, testele au fost efectuate cu brațul drept de către 10 subiecții, iar de către ceilalți 2 cu brațul stâng.

Testările asupra lateralității la executarea serviciului au fost făcute la sfârșitul antrenamentului, înainte cu 10 minute ca acesta să se termine.

Prin urmare, cercetările de până acum au dovedit că lateralitatea performanțială depinde de mâna preferată și de gradul de exersare al acesteia, de anumite caracteristici spațiale ale sarcinilor executate, însă, deocamdată, în jocul de volei nu se știe dacă lateralitatea performanțială depinde, și în ce măsură, de poziția pe care o are jucătorul în momentul executării serviciului sau a loviturii de atac.

MODEL AND MODELING IN ARTISTIC GYMNASTICS

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Abstract

By the "model" notion from inside the actual highly performance sport it is to be understood the totality of the qualitative and quantitative indices of the level of physical training, expressed with a predictive purpose with regard to some expected, planned sport results. (Grigore V., 2001).

Between the model and the proposed objective there must be a certain connection and similarity of the important and significant characteristics. Numerous ways have been tried and with success in order to describe and mathematically identify measurable, evaluative components for putting together various models that may reproduce as accurately as possible the characteristics of the phenomena to be modeled. These models become functionally performance-bringing only in what concerns the degree of correspondence with the real situation to be modeled, constituted as an object of study (Akaev, I., I., Suchilin N.G., 2004).

Keywords: model, gymnastics, preparation model, contest model

Introduction

In the special field literature form the performance sport, the models are realized with both a scientific and a practical purpose, the major disadvantage of these approaches being the fact that such forms of modeling call for highly qualified specialists and interdisciplinary team work (mathematicians, physicians, programmers, coaches and many others), a team which is most of the times not at hand for the performer, and in all locations where performance is worked on.

The role of the coach from the Gymnastics field is that of describing as precisely as possible the object of study, movement, its phases together with its important moments, mechanisms and corporal actions, but especially the general and specific conditions imposed to the system by normative rules or requisite demands, by anatomic limitations and the specific gymnastics execution style with regard to the position of the body and its parts during the movement (Bibire M, Dumitru R., 2001).

In gymnastics as well as in all other sport branches, models can be quantitative, based on important measurable indices, but they can also be qualitative, descriptive of some important qualities forming the content of such models. These performance attributes constitute the basic aspect of the training activity.

As a result of the training process organized as a specialized pedagogical activity, the model repeats the parameters of the competition as psycho-physio-physico analogical. This is the reason why we may ascertain that the specific competitive activity has been modeled.

By training it is only tried to artificially and as closely and detailed as possible create the real contest

conditions (as a model contest), under the shape of its most important aspects, constituted in the basic parameters.

The main methods used in putting together the models and their characteristics while sport is concerned and especially in Gymnastics are (Akaev, I., I., Suchilin N.G., 2004):

- mathematical modeling;
- modeling through imitation;
- statistico-mathematical modeling;
- phenomenological modeling.

The first two methods are of great novelty and promise to bring around important developments, through the scientific unexplored potential, but these methods also have important limitations.

The statistic modeling uses methods with a regressive and correlative construction and at their turn, they also present limitations in fully characterizing phenomena from inside the field of the motric and sport activity.

The phenomenological modeling is connected to a concrete taking into account of high performance Gymnastics of a world class and also of the specific phenomena developed by it. Thus, we do have:

- high performance Gymnastics characteristics;
- contest exercises, or parts of them;
- technical performances;
- technical and physical training indicators, taken as a model.

This closeness is far from being a wrong one inside the scientific research, first of all from a methodological point of view. The phenomenological modeling is very often used in practice due to its character strictly lucrative and practical, contrasted to

the other modeling models which are more precise, strictly scientific, but barely accessible in practice.

The models' characteristics are determined on the basis of the experimental data, after a great enough number of observations and testings. These data are accurately processed through statistic methods, without taking into account the development tendencies (Carrasco R., 1979).

In establishing the models from the artistic Gymnastics one thing to be taken into consideration is the fact that a high level of technical preparation in Gymnastics is always based on an *optimal surplus* of special physical training.

Considering the many years of observation effectuated by the great specialists leading the different national groups, who have also formed and observed most of the international level gymnasts, it may be affirmed that the optimum surplus for the special physical preparation (PFS) is dependant of very many factors, but the most important one is the force level depending in its turn on the muscular force.

It is difficult if not impossible to measure the force on different muscular groups specific at a real person. This is why, following the experience and numerous investigations finalized, a set of exercises were developed, in correspondence with PFS and with a high level of correlation in both senses, that is, **the force of specific muscular groups and results from sport**. With the help of these tests on the very own teams, a number of deviations from the basic strategic indicators are underlined. In the sport training from the actual Gymnastics we use the stimulation of all characteristics of the model with the purpose of a specialized development as a physical attribute of the *optimum surplus*.

It is to be noticed that after each Olympic cycle the composition and structure of the characteristics of the physical preparation model suffer usual corrections as a consequence of the changes and tendencies of development and rules (Akaev, I.,I., Suchilin N.G., 2004).

The contest model

The competitive activity is the main subject as purpose of modeling and general research inside the sport science. Inside Gymnastics, during the sport preparation elements of the competitive activities are used as a preparation model. This aspect is well known as a means of training, by repeating the contest conditions. By proceeding this way only some aspects leading to a plus in preparation are modeled, but only in what concerns some isolated parameters. On the other hand, if we proceed otherwise than traditionally, that is, if the training is modeled by a system of basic parameters, coming from the study of the important aspects of the competitive activity, we obtain a training model (Ukran M. 1971).

The basic parameters of the competitive

activities can be determined, but their application inside training is done on an individualized basis, with a view to optimizing these indicators. The applicative part shows that when the creation of a complex surplus of psycho-physical-technical preparation is sought, many times overpassing the competition conditions, the modern model of preparation inside the high performance Gymnastics is realized.

The modeling of the competitive activity takes into consideration activities regarding the following:

- the difficulty content of the contest exercises on all apparatus;
- the technical competence regarding performance;
- the competitive safety coefficient.

These basic indicators together represent the major factor in describing the level of preparation.

The characteristics of the Olympic championship model: this model is structured on the model of the winning team, of the absolute Olympic championship, and the model of the apparatus champion for the masculine and feminine trials.

The models of technical, physical, functional, psychological preparation are models proposing the basic parameters from the point of view of the training purpose and the correspondence with the last Olympic level known on these components.

There are also **models of selection for the national teams, models of pre-competition preparation, models of competition preparation** effectuated during the unfolding of the contest and during the break days.

In the specific field literature one can also find **models of target exercises** that include biomechanical models for elements and connections, as well as **pedagogical models** of specialized action. To these models we attribute the name of **biomechanical-pedagogical models** which encompass geometrical levels of time and concrete cinematic parameters, but also the pedagogical consequences resulting from the system of means used during instruction (Akaev, I., Suchilin N.G., 2004).

Technical preparation model/ parameters of technical preparation:

- excellent execution technique for the technical elements and for the connections from the technical, international program;
- excellent execution technique for the basic elements and series on different levels from the initial to the highest one;
- self-confidence and constancy in the execution of some super "E" elements, difficult ones, of three "E" elements and five "D" elements at every apparatus;
- self-confidence and constancy in the execution of some connections between complex elements that seek to attract a

- maximum reward and a constant efficiency in reducing penalizations;
- the existence of a **technical surplus** underlined through the capacity of not committing errors, but also the technical capacity necessary to rapidly increase the difficulty and complexity of the contest technical program;
 - The existence of the ability to modify the technical program and reduce penalizations in the case of the apparition of technical unsuccesses, substituting some elements, choosing variants instead

- or executing some original solutions under stress and unexpected conditions, as a version of the original exercise;
- Resistance to stress and to specific effort, capacity of maintaining a high level contest.

The model for the special physical preparation

The model for the special physical preparation is put together on the basis of some tests and characteristics of the special physical preparation (PFS), important to high level gymnasts:

MEN

Table no 1

The model for the special physical preparation, MASCULINE

Model characteristics of SPP (Special Physical Preparation) Top – class Gymnasts (Arkaev, Suchilin, 2004, pag 110)

No	Test	Parameter	Unit of measure	Model characteristics
1	Running	20 m	Seconds	3,0 – 3,1
2	Speed	Speed in the last 5 m	m/s	7,8 – 8,2
3	Vertical jump	From the spot swinging arms	cm	60 – 65
4	Rope climb	4 m without leg help	Seconds	5,0 – 5,5
5	Round off, flic flac, back somersault	Flight Time	Seconds	0,95 – 1,0
6	Cross on rings	Holding time	Seconds	5,0 – 6,0
7	Front horizontal hang	Holding time	Seconds	5,0 – 6,0
8	Horizontal support (planche)	Holding time	Seconds	5,0 – 6,0
9	Inverted cross	Holding time	Seconds	5,0 – 6,0

WOMEN

Table no 2

The model for the special physical preparation, FEMALE (Arkaev, Suchilin, 2004)

Model characteristics of SPP (Special Physical Preparation) Top – class Gymnasts

No	Test	Parameter	Unit of measure	Model characteristics
1	Running	20 m	Seconds	3,2 – 3,3
2	Speed	Speed in the last 5 m	m/s	7,4 – 7,6
3	Vertical jump	From the spot swinging arms	cm	52 – 56
4	Vertical jump	From the spot no arms swing	cm	42 – 43
5	Standing long jump	From spot	cm	220 – 225
6	Depth jump	With jump off	cm	61 – 62
7	Rope climb	3 m without leg help	Seconds	5,6 – 5,8
8	Round off, flic flac, back somersault	Flight Time	Seconds	0,85 – 0,9
9	Support half level	Holding time	Seconds	28 – 30
10	Back horizontal hang	Holding time	Seconds	28 – 32
11	Front horizontal hang	Holding time	Seconds	20 – 23
12	Handstands	Holding time		90
13	From support half level, lift to handstand with straight arms bent body	Number of repetitions		8 – 10
14	From swing on low bar upstart to handstand and repeat	Number of repetitions		10 – 12

14	Flexibility test	Deduction	Points	0,5 – 0,6
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Conclusions

The competitive activity is the main object of study and modeling inside the scientific sport research in general. The high level gymnasts' competition preparation uses elements of competitive modeling through modeling the basic parameters and reproducing the conditions and expected requests, but out of respect towards the model and pedagogical models used it must be underlined that it is hard or almost impossible to reproduce the conditions of stress and the psychological context to which the subject is exposed when in competition.

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Modèle et modélisation dans la gymnastique artistique

Mots-clé: *Modèle, gymnastique, modèle de préparation, modèle de concours*

Résumé: *Le concept de modèle dans la natation de performance dénote la totalité des indicateurs qualitatifs et quantitatifs du niveau de la préparation sportive pour obtenir des résultats attendus.*

Model și modelare în gimnastica artistică

Cuvinte cheie: *model, gimnastică, model de pregătire, model de concurs*

Rezumat: *Prin model în sportul de performanță actual se înțelege totalitatea indicatorilor calitativi și cantitativi ai nivelului de pregătire sportivă, exprimați în scop predictiv al unor rezultate sportive așteptate, planificate (Grigore V., 2001).*

Între model și obiectivul propus trebuie să existe o conexiune și similitudine a caracteristicilor importante și semnificative. S-a încercat și reușit nenumărate modalități de a descrie și identifica matematic componentele măsurabile și evaluabile pentru a alcătui modele diverse, ce pot reproduce cât mai fidel caracteristicile fenomenelor ce se doresc a fi modelate. Aceste modele devin performante funcțional numai în măsura în care oferă un grad mare de corespondență cu situația modelabilă reală constituită ca obiect de studiu (Akaev, I.I., Suchilin N.G., 2004).

THE ESTIMATION OF THE LEVEL FOR THE TECHNICAL PREPARATION CONCERNING THE FOOTBALLERS WITH THE AGE OF 17-18 YEARS

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Summary

For to reflect the level of the technical preparation in the frame of the teams F.C. Oțelul Galați and F.C. Salbero we used a series of technical indexes: the transmission of the ball with precision; leading, taking over, drawing at goal; jugglings; the complex trial; finalisation from 10 draws; rounding through stakes, draw at goal; 1 X 1 (successfuls from 10 actions); on couple, one-two with finalisations from out of the care.

Key words: technical preparation; modernization; methodic.

In the conditions of the progress of the present-day football, the technical factor is determinant and he influenced the others factors of the training with who it acheaves the adaptation at the needs of the game after the opinions of the next autors as: Bompă O, (2002); Cojocaru Viorel (2000) și Drăgan A (2007).

One of the indicators of base which appreciates the level of the sportiv skill of the footballers, it's the level of the technical preparation of them. For to appreciate the qualitativ level of accomplishment of the elements and the technical proceedings from the game of football in the frame of the research, all the younger footballers of 17-18 years include in experiment, were tested and them results were compared with the norms of F.R.F.

In this case, F.R.F. propose eight tests which represents the global level of the technical preparation for the younger footballers with the age of 17-18 years. If we look table table no. 1, we see that F.R.F. proposes tests which appreciate the qualitative level of execution of the transmissions, takings over, dribbling, draw at goal,

etc. The results which reflect the technical level of the preparation for the younger footballers are presented in the table no. 1 and the types 1 and 2.

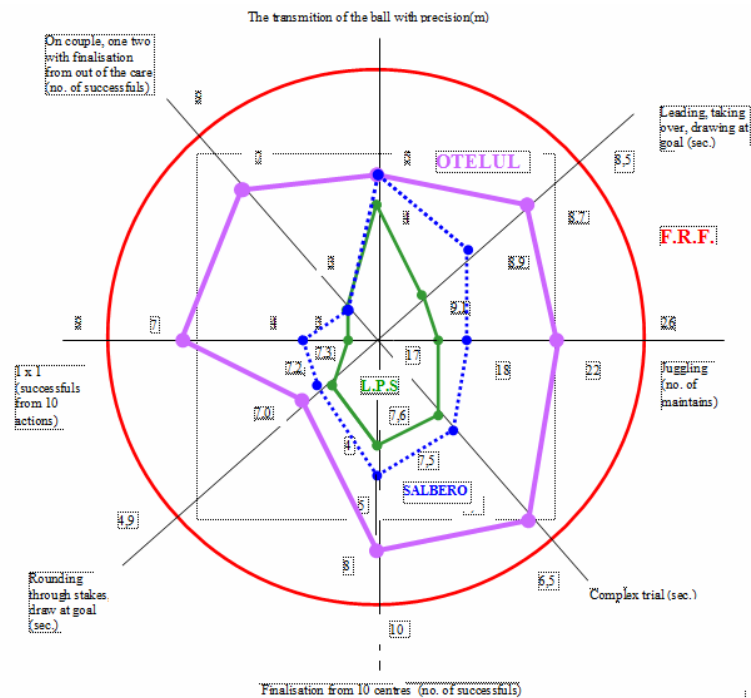
At the technical test *the transmission of the ball with precision*, we observe that the average level of the trial from F.C. Oțelul is more little that the norm of F.R.F. in absolute sizes with 3,0 m. and in relative sizes with 37,50 %, while face of the average level of the test on 10 L.P.S. from country, it's more great in absolute sizes with 1 m. and in relative sizes with 25,00 %. Also, the average level of the technical test from F.C. Salbero is more little face of the norm of F.R.F. in absolute sizes with 3,00 m. and in relative sizes with 37,50%.

Consequently, concerning the quality of the achievements for the transmissions, neither from the researched teams don't touched the proposed norms by F.R.F., this it will be a technical element of base in the game of football. So, it results the necessity of to modernize the methodical of the preparation for the players.

Table no. 1
The results of the technical tests for the younger footballers, age 17-18 years

No. crt.	INITIAL TECHNICAL TESTS	F.R.F.	F.C. OȚELUL	F.C. SALBERO	The average level for 10 L.P.S. from country	THE RHYTHM OF THE GROWTH FOR THE AVERAGE LEVEL OF THE TECHNICAL TESTS		
						$R_{Otelul/F.R.F.}^{\bar{x}}$ (%)	$R_{Salbero/F.R.}^{\bar{x}}$ (%)	$R_{Otelul/10LPS}^{\bar{x}}$ (%)
1.	The transmission of the ball with precision (m.)	8	5	5	4	-37,50 %	-37,50 %	25,00 %
2.	Leading, taking over, drawing at goal	8,5"	8,7"	8,9"	9,1"	2,35 %	4,70 %	- 4,39 %

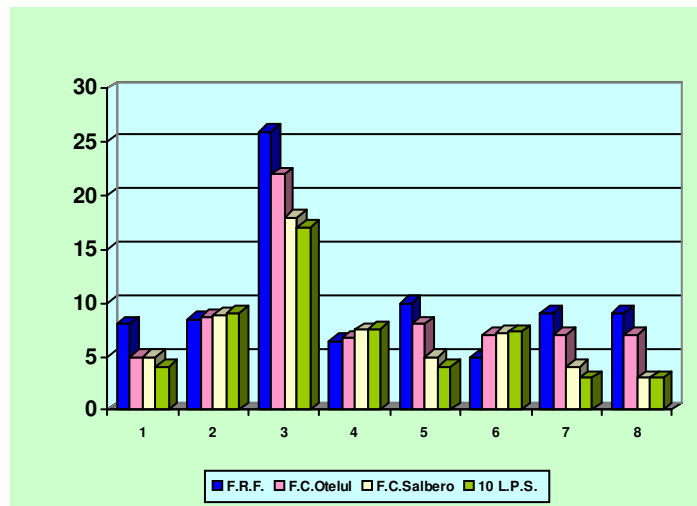
	(sec.)							
3.	Juggling (no.maintains)	26	22	18	17	-15,39 %	- 30,77 %	29,41 %
4.	Complex Trial (sec.)	6,5"	6,7"	7,5"	7,6"	3,07 %	15,38 %	-11,84%
5.	Finalisation from 10 centres (nr. of successfuls)	10	8	5	4	-20,00 %	-50,00 %	100,00%
6.	Rounding through stakes, draw at goal (sec.)	4,9"	7,0"	7,2"	7,3"	42,86 %	46,94 %	- 4,11 %
7.	1 X 1 (successfuls from 10 actions)	9	7	4	3	-22,23 %	-55,56%	133,33%
8.	On couple, one two with finalisation from out of the care (no. of successfuls)	9	7	3	3	-22,23 %	-66,67 %	133,33 %



— F.R.F. — F.C.Oțelul F.C. Salbero — 10 L.P.S.

Type no. 1. The technicogram of the technical parametres of the footballers from the frame of F.C. Oțelul and

F.C. Salbero face of the value of the technical tests elaborated by F.R.F. and the average level on 10 L.P.S. from country



Type no. 2. The histogram of the technical parameters of the footballers from the frame of F.C. Oțelul and F.C. Salbero face of the value of the technical tests elaborated by F.R.F. and the average level on 10 L.P.S. from country

In the frame of the technical test *leading, taking over, drawing at goal*, we observe that the average time of the trial from F.C. Oțelul is more great that the norm of F.R.F. in absolute sizes with 0,2" and in relative sizes with 2,35 %, while face of the average time of the test on 10 L.P.S. from country is more little in absolute sizes with - 0,4" and in relative sizes with - 4,39 %.

On the other side, the average time of the same technical test from F.C. Salbero is more great face of the norm of F.R.F. in absolute sizes with 0,4" and in relative sizes with 4,70 %.

Also, we observe the same tendency, where neither from the teams which make share from the experiment don't touched the average time which was proposed by F.R.F.. So, it imposed the modernization of the methodical of preparation for the younger footballers at this technical trial, for to perfect this capacity which has a fundamental role in the frame of the game of football.

Concerning the technical test *jugglings*, we observe that the average level of the trial from F.C. Oțelul is more little that the norm of F.R.F. in absolute sizes with 4 maintains and in relative sizes with 15,39 %, while face of the average level of the test on 10 L.P.S. from country is more great in absolute sizes with 5 maintains and in relative sizes with 29,4 %.

Also, the average level of the same technical test from the frame of F.C. Salbero is more little that the norm of F.R.F. in absolute sizes with 8 maintains and in relative sizes with 30,77 %.

We observe the same tendency and at this technical trial, where neither from the teams which make share from experiment don't touched the value of

the norm imposed by F.R.F. From methodical point of view we impose a new orientation of the attitude concerning the development of this technical capacity, which has an important role in the game of football.

At the technical test *complex trial* we observe that the average time of the trial from F.C. Oțelul is more great that the norm of F.R.F. in absolute sizes with 0,2" and in relative sizes with 3,07 %, while face of the average time of the test on 10 L.P.S. from country is more little in absolute sizes with - 0,9" and in relative sizes with - 11,84 %.

On the other side, the average time of the technical test from F.C. Salbero is more great that the norm of F.R.F. in absolute sizes with 1,0" and in relative sizes with 15,38 %.

Also, we observe that the technical test the complex trial neither from the teams which make part from the programme of recherche don't touched the norms of F.R.F.. So, it's necessary a new attitude from the methodical point of view concerning the development of this technical capacity of base in the game of football.

In the frame of the technical test *finalisation from 10 draws*, we observe that the average level of the trial from the frame of F.C. Oțelul is more little that the norm of F.R.F. in absolute sizes with 2 finalisations and in relative sizes with 20 %, while face of the average level of the test on 10 L.P.S. from country is more great in absolute sizes with 4 finalisations and in relative sizes with 100 %

Also, the average level of the technical test from the frame of F.C. Salbero is more little that the norm of F.R.F. in absolute sizes with 5 finalisations and in relative sizes with 50 %. Concerning the quality of

the achievement of the technical this technical test, neither from the researched teams don't touched the value of the norm imposed by F.R.F. for this trial, which it necessitates the modernization of the methodical preparation for the younger footballers.

Concerning the technical test *rounding through stakes, draw at goal*, we observe that the average time of the trial from F.C. Oțelul is more great that the norm of F.R.F. in absolute sizes with 2,1" and in relative sizes with 42,86 %, while face of the average time of the test on 10 L.P.S. from country is more little in absolute sizes with - 0,3" and in relative sizes with - 4,11 %.

Also, the average time of the technical test from F.C. Salbero is more great that the norm of F.R.F. in absolute sizes with 2,3" and in relative sizes with 46,94 %. So, neither from teams don't touched the norms of F.R.F. at this technical test. As effect, at this trial it requests a new attitude from the methodical point of view concerning the development of this technical capacity with a very important role in the game of football.

At the technical test *1 X 1 (successfuls from 10 actions)*, we observe that the average level of the trial from the frame of F.C. Oțelul is more little face of the norm of F.R.F. in absolute sizes with two successfuls and in relative sizes with 22,23%, while face of the average level of the test on 10 L.P.S. from country is more great in absolute sizes with 4 successfuls and in relative sizes with 133,33%.

Also, the average level of the technical test from the frame of F.C. Salbero is more little that the norm of F.R.F. in absolute sizes with 5 reușite and in relative sizes with 55,56 %. We observe that at the technical test neither from the researched teams don't touched the norm proposed by F.R.F., and as following it imposes the modernization of the methodical preparation for the younger footballers at this technical trial.

In the frame of the technical test *on couple, one-two with finalisations from out of the care*, we observe that the average level of the trial from F.C. Oțelul is more little that the norm of F.R.F. in absolute sizes with two finalisations and in relative sizes with 22,23 %, while face of the average level of the test on 10 L.P.S. from country is more great in absolute sizes with 4 finalisations and in relative sizes with 133,33 %.

The average level of the technical test from the frame of F.C. Salbero is more little face of the norm of F.R.F. in absolute sizes with 6 finalisations and in relative sizes with 66,67 %. From the analysis of the obtained informations, we observe that at this trial the results of all the teams are under the wants of F.R.F.

Conclusions

In conclusion, we can to specify that for the teams from this experiment, in the majority of the cases the indexes of the technical preparation are under the wants F.R.F. Consequently, it imposes a modernization

of the methodic for the technical preparation and the effect will be a qualitative jump in the game of football.

As following of the use of the experimental programme, the technical factor evolved through the optimisation of the means, number of repetitions, the methodical adaptation at the conditions of the play, the adaptation at the particularities of the sportives, through the combination with the others factors of the training (combined qualities).

So, we observed the significant changes in comparison with the dates from the research at the majority of the trials.

Recomandations

- The individualisation of the preparation through the growth of the number of hours of training for the technical factor.

- The individualisation on groups and compartments.

- The individualisation for the correction of the mistakes.

- The individualisation for the specific perfection of the post.

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L'estimation du niveau de préparation technique des joueurs de football âgés de 17-18 ans

Mots-clé: *préparation technique, modernisation, méthodologie, niveau moyen*

Résumé: *Pour présenter le niveau de la préparation physique dans les équipes F.C. Oțelul Galați et F.C. Salbero on a utilisé et analysé une série de facteurs spécifiques.*

Evaluarea nivelului pregătirii tehnice a fotbaliștilor cu vârsta de 17-18 ani

Cuvinte cheie: *Pregătire tehnică; modernizare; metodică*

Rezumat: *Pentru a reflecta nivelul pregătirii tehnice în*

cadrul echipelor F.C. Oțelul Galați și F.C. Salberu am utilizat o serie de indici tehnici: transmiterea mingii cu precizie; conducere, preluare, șut la poartă; jonglerii; proba complexă; finalizare din 10 centrări; ocolire

printre jaloane, șut la poartă; 1 X 1 (reșite din 10 acțiuni); pe cuplu, un-doi cu finalizare din afara careului.

ARE THERE GOOD OFFENSIVE GAME SYSTEMS UNDER THE SITUATIONAL CONTEXT OF NUMERICAL EQUALITY IN HIGH-LEVEL HANDBALL?

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Abstract

The aim of this study was to determine whether offensive game systems under the situational context of numerical equality in handball are more effective than others. The sample is made up of 37 handball games in top level competitions (World Championships and European Championships), in which applied three coefficients of efficiency to each of the offensive game systems and contrast processes of a two-sample test for binomial proportions were applied. The research results show that there are no offensive game systems better than others in the situational context of numerical equality in handball.

Keywords: *evaluation, tactics, performance, handball*

Introduction.

From the first analysis by Reep & Benjamin (1968) in the field of statistical analysis in team sports, which based its analysis model on the football game on quantifying the number of passes made, has changed the method of assessing the performance of the game to this day.

Recent studies in this field focused on finding discriminating values to determine the rates of game that characterize a winning team. In this line there are several studies that seek to find statistical differences between losing and winning teams in team sports, such as soccer (Hughes & Franks, 2005; Pollard & Pollard, 2005; Taylor et al. 2005; Pollard, 2008), basketball (Gomez et al., 2006; Ortega et al., 2007; Sampaio et al., 2006a & 2006b; Gomez et al., 2008; Gomez et al., 2009; Ibañez et al., 2008; Ibañez et al., 2009), field hockey (Sunderland et al., 2005) and volleyball (Jones, 2007; Marcelino et al., 2008; Marcelino et al., 2008).

In handball, the research carried out by Gutierrez, 2006, Gutierrez et al., 2007, 2008a; Ferez et al., 2008 and Garcia et al., 2008, focused on finding significant differences between winning and losing teams. All of these studies raise the use of efficacy coefficients to achieve the objectives, showing the validity of using efficacy coefficients to assess the

performance of the game. However, the research cited shows that one of the errors that arose played a key role - Keep and Larsen (2003): the use of obvious variables caused them to forget other, not so obvious variables. The studies cited posed a global analysis of situational frames without considering the existing differences in efficiency in the implementation of each gaming system within the same situational context. The study of Gutierrez et al. (2008b & 2009) expands on the tactical performance evaluation in handball and analyzes the effectiveness of game systems independently.

This research aims to determine the differences of effectiveness in implementing the offensive game systems in high-level handball.

Methods.

The study had an observational design, using a method of active and non-participant observation. The research is an extensive diachronic type.

We analyzed 36 games played in the European Championship of absolute male handball (Switzerland, 2006) and the World Handball Championship of absolute male handball (Germany, 2007). The unit of observation used was Time Analysis Unit (TAU) proposed by Gutierrez (2006) and covers the time period running from the moment the game starts with the ball until possession is lost without any modification

of the situational framework.

The matches were recorded for televised re-broadcasts, finally selecting only matches that were broadcast in full and did not end in a draw. For recording purposes we used a Sony KDL-32W5500 TV and recorder player LG RHT-497H.

The analysis of the matches reported a total of 5019 TAU, of which 1155 were for offensive actions in numerical equality. To determine differences in efficacy between the games, systems were used for hypothesis testing processes of two proportions typical of statistical inference, using the statistical package SPSSv16. We accepted the hypothesis of equality when the statistic T was out of the rejection region or when the P-value was

greater than the significance level of α (0.05).

Results.

Out of the 5019 TAU that were analyzed in 36 games, in numerical equality 1155 attacks were made. In 864 of these UAT 3:3 offensive systems were used, in 163 UAT offensive systems with two pivots 3:3 (3:3/2p) and at 128 ATU the system offensive was used 3:3 to transform to 2:4 (3:3/2:4). Analyzing the shots and goals made with each offensive system showed that of the 3:3 offensive system 594 shots were conducted, which resulted in 342 goals. With the offensive system 3:3/2p made 125 shots, scoring 62 goals and with offensive system 3:3/2:4 there were 91 shots scoring 46 goals.

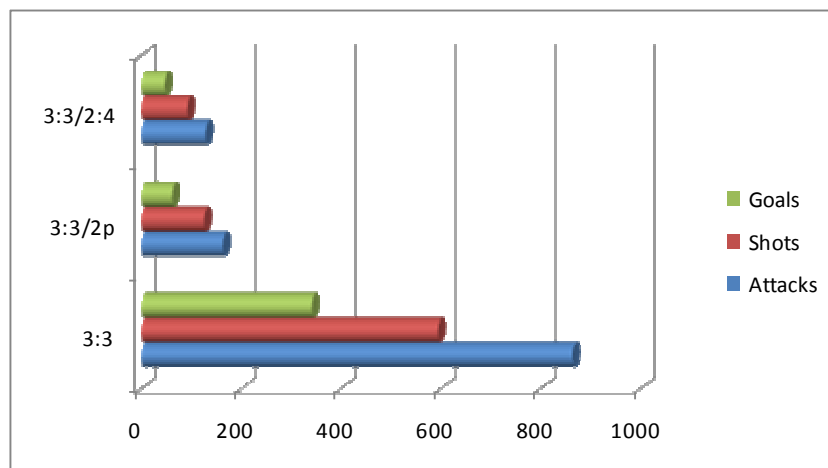


Fig1. Attacks, shots and goals by offensive system.

To obtain performance values of each offensive system three offensive efficacy coefficients were applied as proposed by Gutierrez (2006) and Gutierrez et al. (2007). With the values of efficacy of each offensive of the winning teams, they proceeded to make

the comparison between each of them to determine if there are offensive systems which are more effective than others. Table 1 reflects the degree of statistical significance obtained in each case.

Table 1.

Comparison of efficacy values using the offensive system.

Coefficients	Offensive system	Offensive system	p-value
Coefficient of attack efficacy in numerical equality N° goals scored x 100 / N° possessions	3:3	3:3/2p	0,709
	3:3	3:3/2:4	0,423
Coefficient of attack concretion in numerical equality (N° shots made – N° goals scored) x 100 / N° possessions	3:3/2p	3:3/2:4	0,712
	3:3	3:3/2p	0,021
Coefficient of attack solution in numerical equality N° goals scored x 100 / N° shots made	3:3	3:3/2:4	0,182
	3:3/2p	3:3/2:4	0,539
Coefficient of attack efficacy in numerical equality N° goals scored x 100 / N° possessions	3:3	3:3/2p	0,104
	3:3	3:3/2:4	0,211
	3:3/2p	3:3/2:4	0,890

Discussion and conclusions.

Out of all the offensive actions made under numerical equality, in most cases the 3:3 offensive system was used, as was used in 74.8% of the attacks,

while the offensive system 3:3/2p was used in 14.1% and 11.1% were attacks in 3:3/2:4. Similar proportions are maintained in the quantification of shots, since 73.3% of the shots were made with the offensive system

3:3, 15.4% of the total shots were made in attacks 3:3/2p and 11, 2% of the total shots were made in attacks 3:3/2:4.

Finally, the goals scored in each offensive system also maintain a similar proportion: 76% of the goals were scored in attacks in 3:3, 13.7 goals were attacks in 3:3/2p and 10, 2% of the goals were scored in attacks with 3:3/2:4. Comparing the performance values obtained by each offensive system degrees of significance of each pair were obtained, noting that only in the case of comparing the ratio of specificity offensive systems 3:3 with 3:3/2p, we obtained a significant difference, while the other two coefficients of efficacy are not significant differences. In all other cases, there were no significant differences. According to the results, we can't conclude that any offensive system is better than another in the situational context of numerical equality, as only by comparing the offensive system 3:3 compared to 3:3/2p, and only if the coefficient of concretion offensive, we obtain a significant difference.

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Y-a-t-il de bons systems de jeu offensive en cas d'égalité numérique dans le handball de performance?

Mots-clé: Evaluation, tactique, performance, handball
Résumé: L'article se concentre sur la détermination de l'efficacité des systèmes offensifs de jeu en situation d'égalité numérique en handball.

Putem vorbi de sisteme de joc ofensive în caz de egalitate numerică în handbalul de performanță?
Cuvinte cheie: Evaluare, tactică, performanță, handbal
Rezumat: Articolul se referă la determinarea eficacității sistemelor ofensive de jos în situația egalității numerice în jocul de handbal.

HANDBALL – METHODS OF DEVELOPING THE EXPLOSIVE FORCE

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U.N.E.F.S. București

Abstract

The present research try to bare the way in which the development of the maximum force, for the principals muscular groups of the inferior member concerned into specific effort of the handball game, manages to influence the development of the détente. In the same time, by our approach, we try to propose a method to develop the détente based on a combination of more methods of development of the maximum force and explosive force.

Keywords: maximal force, détente, plyomethry, methods, tests.

1. Introduction

The know-how of the process of developing the explosive force presume a very careful analysis of the adaptive process which impose the definition of the terms and concepts, the knowledge of the mechanic aspects, but also the structural characteristics.

The components of the physical preparation, the training for the developing the maximal force and speed and also for the developing the explosive force have a great contribution at the scientific substantiation of the sport science.

2. Assumptions, hypothesis, goals and tasks

2.1. Assumptions of the research

In this research we adopted as true the next assumption:

- All the tested athletes are representatives for the category in which they are involved;
- The experimental group is statistically homogeneous;
- The athletes cooperate 100%;
- During the experimental period the natural rate of progress is kept.

2.2. Hypothesis of the research

- Correct and appropriate application during the training lesson of some exercises and methods for the developing of the maximal force have an important contribution at the developing of the explosive force.

2.3. Goals of the research

- The established of the different exercises compared with the effort zone;
- The established of the tests;
- The established for the subjects of the research;

- The making of the tests.

2.4. The tasks of the research

- tracking dynamics of the develop of the maximal force of the main muscular groups of the inferior member involved in the specific handball effort;
- tracking dynamics of the develop of the explosive force of the main muscular groups of the inferior member involved in the specific handball effort;
- tracking the level of influence of the maximal force on the explosive force.

3. The organization of the research

The research was realized at the handball team "Marconi Jumpers" from Castelnuovo di Sotto, Reggio Emilia, Italy. This team play in the National Championship serie B Italy. All the research was realized in the championship 2008 / 2009.

4. Subjects and research methods

The subjects group is a small group (10 subjects), but very representative for the all athletes which performed handball game.

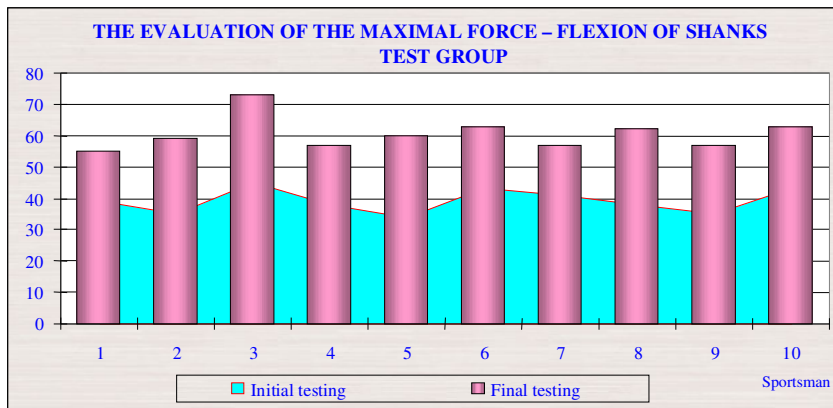
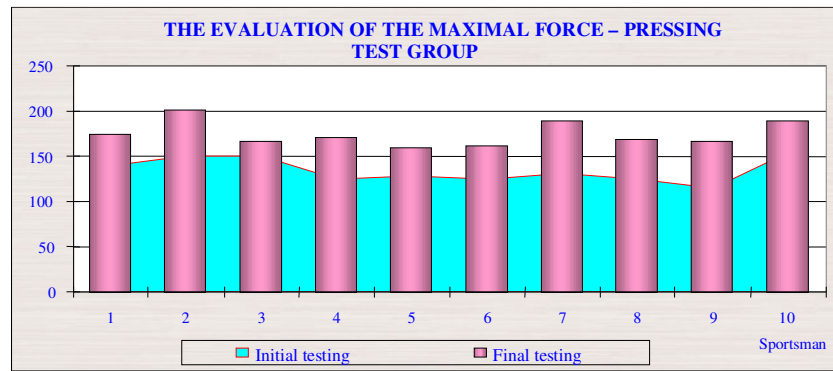
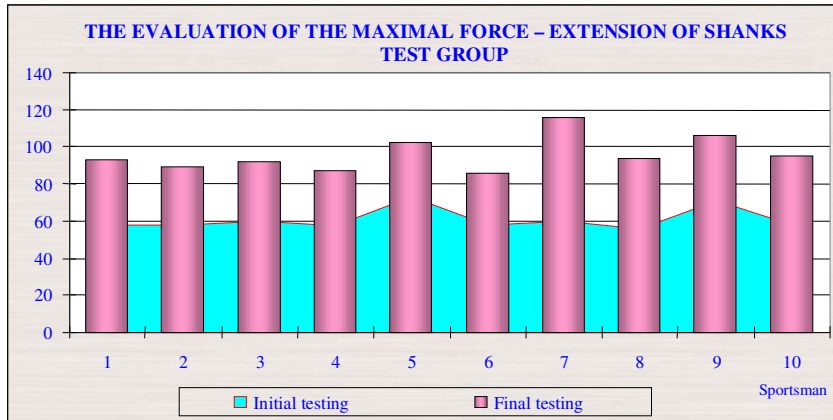
As working methods we used the undermaximal effort method durin the general preparation period, combined force training and the plyometric method during the competition period.

The tests that we used are: test for establishing the maximal force, the standing long jump, Sargent Test and Ablakov Test.

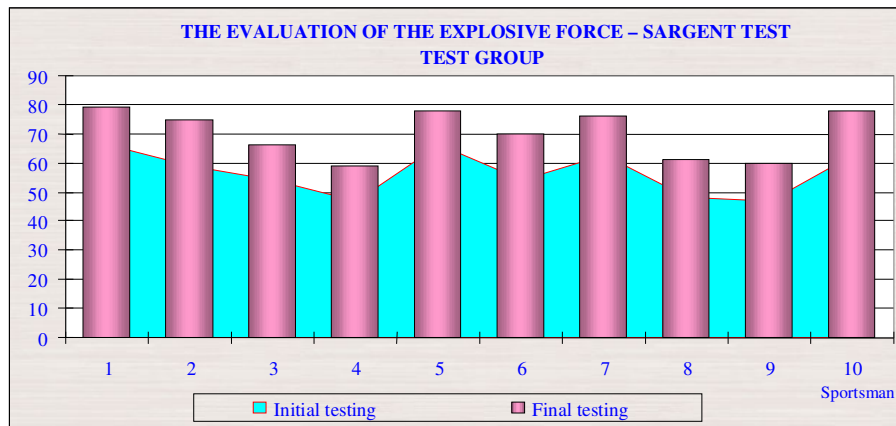
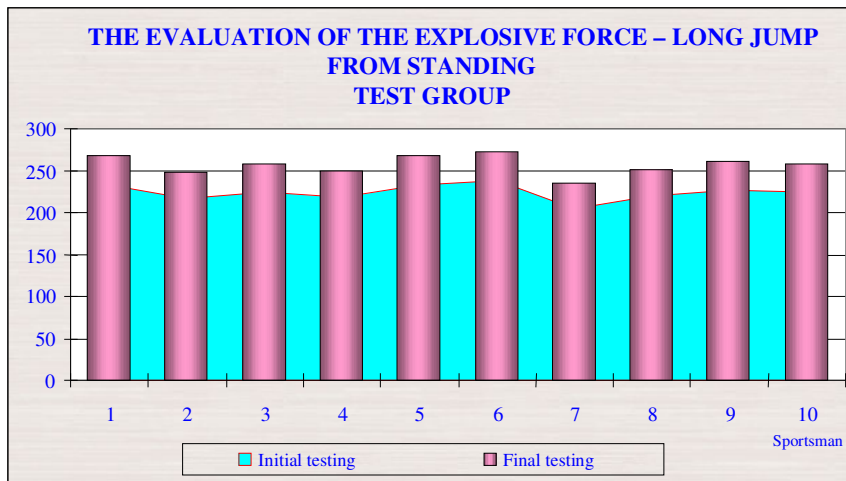
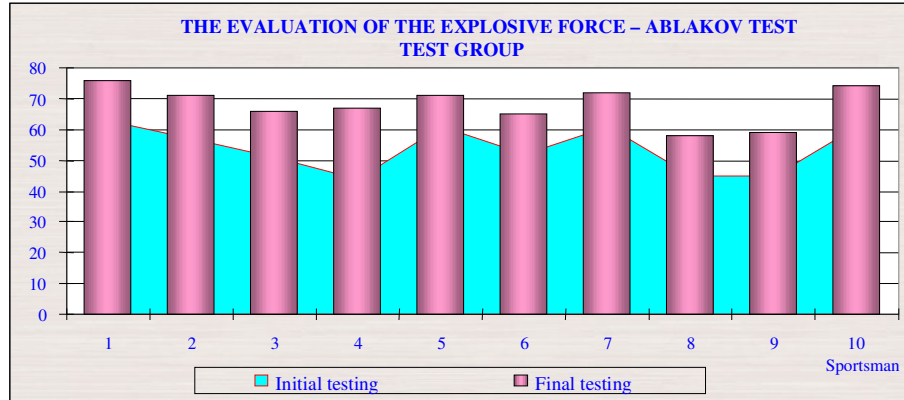
5. The results

- 5.1. The evolution of the maximal force for the

main muscular groups of the inferior member involved in the specific handball effort.



- 1.2. The evolution of the explosive force for the main muscular groups of the inferior member involved in the specific handball effort.



5.3. The correlation between the maximal force and the explosive force

TEST GROUP - CORRELATIONS

MAXIMAL FORCE	EXPLOSIVE FORCE		
	Sargent Test	Ablakov Test	Long jump from standing
Extension of shanks	0,05	0,05	-0,41
Pressing	0,44	0,49	-0,62
Flexion of shanks	-0,27	-0,22	0,13

6. Conclusion

By our research we wanted to demonstrate that the developing of the maximal force for the leg extension and flexion, as well as for the triple extension muscular chain have a great influence above the explosive force for this muscles.

From upper table we observe that the developing of the maximal force for the leg extension, as well as for the triple extension muscular chain is in positive correlation with the results obtained at the Sargent test and Ablakov test, and in a negative correlation with the results obtained at the standing long jump. The developing of the maximal force for the leg flexion is in negative correlation with the results obtained at the Sargent test and Ablakov test and positive correlation with the results obtained at the standing long jump.

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Handball—méthodes du développement de la force explosive

Mots-clé: Force maximale, détente, pliométrie, méthodes, tests

Résumé: L'étude porte sur l'influence sur le développement de la détente du développement de la force maximale des principaux groupes musculaires du train inférieur impliquées dans l'effort spécifique du jeu de handball.

Handbal – Metode de dezvoltare a detentei

Cuvinte cheie: Forță maximă, detentă, pliometrie, metode, teste.

Rezumat: Prezenta cercetare încearcă să descopere modul în care dezvoltarea forței maxime a principalelor grupe musculare ale trenului inferior implicate în efortul specific jocului de handbal reușește să influențeze dezvoltarea detentei. În același timp, prin demersul nostru, încercăm să propunem o metodă de dezvoltare a detentei bazată pe combinația mai multor metode de dezvoltare a forței maxime și a forței explozive.

DETERMINING THE EFFECTIVENESS OF THE DEFENSE PLAY IN THE NATIONAL LEAGUE WOMEN'S VOLLEYBALL TEAMS

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Abstract

This research materializes through the building of efficiency models of the defense actions with the help of which we can determine the general efficiency for the defense play in senior National League teams.

I tried, and, hopefully, succeeded, to determine and to elaborate models for the specific defense effectiveness, per set, for the two fundamental structures (serving and receiving) and for the specific defense game actions, the serve takeover, the block and the attack takeover.

The analysis of these models emphasizes the clear causes that can lead in most situations, to winning or losing points; if the coaches and players know about these causes, they can better eliminate them.

Keywords: volleyball, game actions, defense, model, effectiveness

Theoretical foundations

The defense represents a volleyball particularity that is very studied currently and intensely researched internationally. It fell behind considerably, in comparison with the attack, the Italians being the ones who contributed the most at its development.

A conception of the game and training model constitutes a basic demand of the volleyball performance, at any level (Ghenadi V. și colab, 2, 1994).

This research, regarding the study of the effectiveness of defense systems used by the National League senior teams, is perfectly matched with the general requirements of game knowledge and constitutes an issue of great importance regarding its development.

An analysis of the volleyball defense effectiveness, as encountered in the reality of the competition, can give us a large quantity of objective information regarding the defense play of the women's senior National League teams. These informations can be essential and absolutely necessary guidelines for training the female players in defense actions, and at the same time, can lead to accomplishing a game model based on new methods, in which the effectiveness of the defense would contribute to raising the general effectiveness of the game (Ghenadi V. și colab, 3, 1995).

Organizing and conducting research

Hypotheses and tasks

The hypotheses that were necessary to verify through this study are determined also by the necessity of knowing, for the practical instruction activity, of the specific defensive content and efficiency models in the National League women's volleyball teams.

In this study, we started from the following hypotheses:

1. *The study of play during competition could bring new methods regarding the defense model.*

2. *Knowing the efficiency of the second line defense game actions will allow us to better organize its training, thus a general increase in the team's play effectiveness.*

For this study we have set the following tasks:

- Collecting information and data regarding the effectiveness of defense actions, from the first four National League teams.
- Analyzing the information and emphasizing the most characteristic aspects regarding the effectiveness of attack actions.
- Making an objective analysis of the defense play effectiveness.
- A comparative study of data, interpreting the results and drawing the most important conclusions.

Methods. Subjects. Operation mode. Content.

In conducting this research, the following research methods were used: documentation, observation, inquiry, modeling, the statistical-mathematical method for analyzing and interpreting the data, and the graphical method for presenting the results.

The research studied the first four women's National League teams, participant at the 2009-2010 senior Nation Volleyball Championship: Metal Galați, Dinamo Bucharest, CS Volei 2004 Tomis Constanța and Știința Bacău. The necessary data for this research was collected during the play-offs for places I-IV, in Bacau, during 26-28.03.2010.

In order to obtain objective information that would lead us to the making of real models regarding the efficiency of the defense, as close to the reality of the competition play as possible, we used index cards comprising specific defense game actions, divided to the two fundamental structures (Mârza D, 5, 2006).

In order to emphasize the effectiveness, I have calculated the effectiveness coefficient using the formula:

$CE = (X + 0,5Y) : (X + Y + Z)$, in which:
CE = the effectiveness coefficient (index)
X = the won actions to which we attribute maximum value (100%);
Y = the indecisive (neutral) actions to which we attribute a value of 50%, equally distributed to the two extreme limits, a demand imposed by the specificity of volleyball;
Z = the lost (wrong) actions, which have no value (0%).
 The actions were recorded during sets, at the end

of the game being cumulated for the entire match, and, by dividing the results to the number of sets, we got the set average.

Analysis of the results

Analysis of the set defense effectiveness

Below, I will present the model of set defense effectiveness model, determined and elaborated after analyzing the data and informations we recorded, trying at the same time to do an analysis of the specific aspects.

Table 1
Comprising the data for the set defense efficiency model

Components of the model	Average act/set	%	Act +	%	Act 0	%	Act -	%	CE
Throw takeover	21.4	100%	13.1	62.2%	5	23.3%	3.3	15.5%	0.73
Attack takeover	18.7	100%	8.6	46%	2.4	12.8%	7.7	41.2%	0.52
Blocking	35.6	100%	6.6	18.5%	19.2	54%	9.8	27.5%	0.46
Total actions/set	75.7	100%	28.3	37.4%	26.6	35.1%	20.8	27.5%	0.55

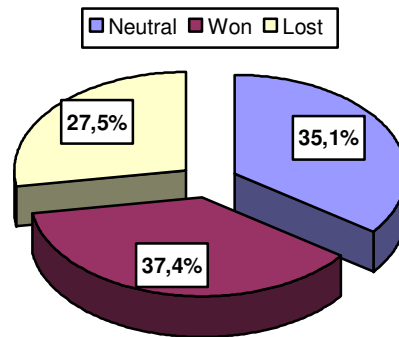


Chart 1 - The defense general effectiveness model

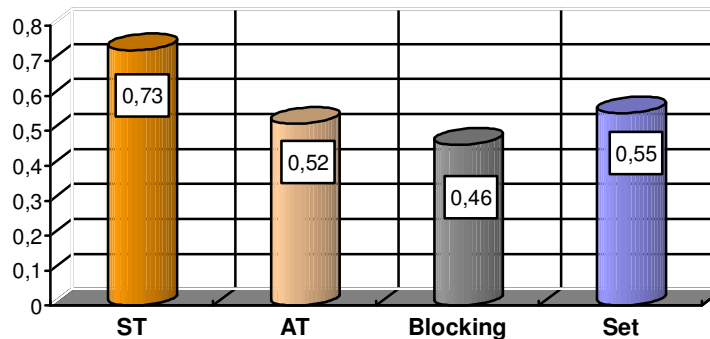


Chart 2 - The values for the effectiveness coefficient of the specific defense game actions, in comparison with its value for the set

The numbers comprised in Table 1 represent the average values of the defense effectiveness model during a set, values reported also to the efficiency coefficient (Charts 1 and 2).

Out of the presented data, we can conclude the following:

- in today's volleyball, the serve takeover has acquired a larger importance, its effectiveness being decisive for winning or losing the points;
- with the help of blocking, 18.5% of the points are won during a set;
- the general effectiveness of the attack takeover is higher than we expected, due to the libero player (in

three of the four teams, this position is occupied by foreign players);

- referring to the defense effectiveness model in a set, we can observe that although the number of positive actions is high (37.4%), still, their number does not correspond to the demands of professional volleyball at an international level;
- the value of the efficiency coefficient per set is low (0.55), due mainly to the low effectiveness of the blocking;
- only effectiveness of the serve takeover is close to the international values, and this is due mainly to the libero players (the effectiveness of the serve

takeover in these players is higher than the other players').

The analysis of the defense effectiveness applied to fundamental structures

The analysis of the fundamental structures' effectiveness (S1 - serve and S2 - at receiving) on game actions is based on the numerical models of effectiveness of the defense, and it comprises percentage values and effectiveness coefficients.

The defense effectiveness model in S1 - serve, presented in Table 2, comprises data which are representative for the specific game actions (Chart 3).

*Table 2
Comprising the data for the structure I defense efficiency model (serve)*

Components of the model	Average act/set	%	Act +	%	Act 0	%	Act -	%	CE
Blocking	27.3	100%	5	18.3%	14	51.3%	8.3	30.4%	0.44
Attack takeover	14	100%	6.3	45%	1.7	12.1%	6	42.9%	0.51
Total actions/set	41.3	100%	11.3	27.4	15.7	38%	14.3	34.6%	0.46

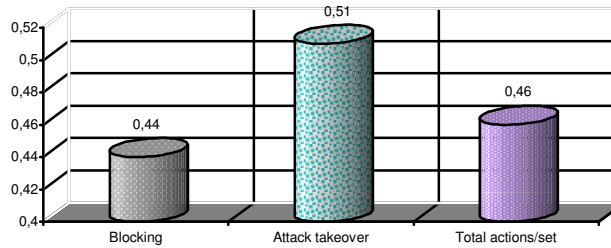


Chart 3 - The values for the effectiveness coefficient of the S1 game actions

In Table 3 we can find the data for the defense effectiveness model in S2 - for the serve takeover and it comprises the representative data regarding the specific game actions (Chart 4).

*Table 3
Comprising the data for the S2 defense efficiency model*

Components of the model	Total act/set	%	Act +	%	Act 0	%	Act -	%	CE
Serve takeover	21.4	100%	13.1	61.2%	5	23.4%	3.3	15.4%	0.73
Blocking	8.3	100%	1.6	19.3%	5.2	62.7%	1.5	18.1%	0.51
Attack takeover	4.7	100%	2.3	48.9%	0.7	14.9%	1.7	36.2%	0.56
Total actions/set	34.4	100%	17	49%	10.7	31.1%	6.5	18.9%	0.70

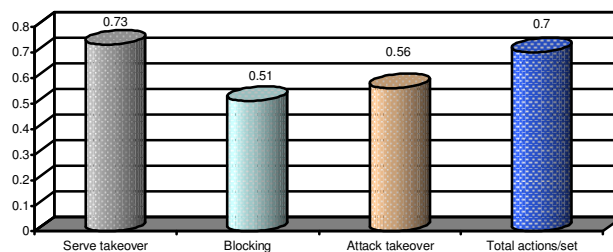


Chart 4 - The values for the effectiveness coefficient of the S2 game actions

Out of the data of these models, we can conclude the following:

- the value of the blocking and of the attack takeover is higher in S1, but with lower effectiveness coefficients, in comparison with S2;
- the effectiveness of the serve takeover is quite high, in comparison with international values.

The obtained results, which are the frequencies and percentages of defense actions and the values of the effectiveness coefficient, can be considered optimal and they reflect the average effectiveness of the defense game during official competitions, in top teams from the National League, inside the 2009-2010 National Senior Championship.

Conclusions

1. Knowing the content of the game and the efficiency of the specific defense game actions is necessary and mandatory, and constitutes an essential landmark for the quality of the training, in conformity with the current requirements of the high performance volleyball game.

2. The elaboration of all the efficiency models, the defense components, must have as a basis the competitive game, so it will be elaborated according to the data and information that the official game, the competition, offers.

3. The models and the parameters regarding the efficiency of the defense must constitute initial landmarks for the game and training, obtaining valuable results being conditioned by the constant overcoming of their level, a mandatory condition, if we take into account the always increasing value of the players and the permanent progress of the game.

4. The preparation of the defense play must be made for each position in the court, as precisely as possible, so that there would not be anything left to chance, each player having precise tasks to accomplish, in conformity with the content parameters and the efficiency of the defense actions that are specific for the position they play.

5. The full planning and programming of the training must respect the importance of the components of the content competition model and effectiveness regarding the specific defense game actions: blocking, throw takeover, attack takeover, with increased effectiveness indexes.

6. Even if for some of the results training is necessary, at the highest level, in all game actions, the concrete situation in the National senior Championship, A division, forces us to signal the necessity for an increased attention during training, for the blocking and attack takeover, game actions that are defective in several teams.

7. The existence of the libero contributes to an increase in the general effectiveness of the defense in the women's senior teams. The Romanian female players' training for this position is not, with a very few exceptions, at a top level, the teams having a higher budget employing more valuable, foreign, players.

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La détermination de l'efficacité du jeu défensif chez les équipes de volleyball féminin de la Ligue Nationale

Mots-clé: Volleyball, actions de jeu, défense, modèle, efficacité

Résumé: La recherche porte sur la construction d'un modèle d'efficacité des actions de défense, à l'aide duquel on puisse déterminer l'efficacité générale pour le jeu défensif chez les équipes de la Ligue Nationale.

Determinarea eficienței jocului de apărare la echipele de volei feminin de Ligă Națională

Cuvinte cheie: Volei, acțiuni de joc, apărare, model, eficiență

Rezumat: Cercetarea de față se concretizează, prin realizarea unor modele de eficiență a acțiunilor de apărare, cu ajutorul cărora să putem determina eficiența generală pentru jocul de apărare la echipele de volei senioare de Ligă Națională.

Am încercat și sperăm că am și reușit într-o oarecare măsură să determinăm și să elaborăm modele ale eficienței specifice apărării, pentru set, pentru cele două structuri fundamentale (la serviciu și primirea serviciului) și pentru acțiunile de joc specifice apărării, respectiv preluarea din serviciu, blocajul și preluarea din atac.

Analiza acestor modele, scoate în evidență cauzele concrete care duc, în majoritatea situațiilor la câștigarea sau pierderea punctelor, cunoașterea acestor cauze de către antrenori și sportivi putând duce la eliminarea lor.

HANDBALL PRACTICE-CHILDREN, BEGINNER LEVEL

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Abstract

The paper tries to demonstrate that by using games in all the forms of expression can optimize the process of initiating children playing handball, and increasing indices of the main motric qualities. Their use over a period of training, fully contributes to increased technical and tactical content of young players while the development of knowledge of regulations and training lessons becomes highly attractive.

Keywords: handball, children, beginner level, training

Introduction. Selection and initiation of young handball players largely depend on achieving superior results at senior age. Choice of means and methods of training and organizing training assisted by specialized educational supervision will help to motivate children to take their first contact with the handball game in order to practice this sport, hoping to achieve great performance targets. However, the didactic-methodological methods, help creating a dominating character behavior for the application of techniques in new structures of the game.

Methods, materials. In order to achieve the current research we conducted a pedagogical experiment on a group of young beginners in the game of handball practice in a private sports club, children whose age is between 8 and 10 years. Over a period of 10 months the 18 members of the group, participated in 3 weekly training sessions, whose ultimate objective was initiation in practicing handball by using games. The share of games in the classroom was over 60% and

the analytical work of almost 40%. There have been used a series of moving games, playing handball with simplified rules, bilateral game with few players, games with rules imposed, adapted games, or games with disabilities, all intended to increase the attractiveness of classroom learning and shortening the time for learning the handball game.

For assessing the development of motric qualities we have developed a number of 6 control samples (30m running speed, 20m straight line dribbling, return triangle movement, ball throwing 40 m away, 30s, 2m wall pass), designed to measure how the use of games can result in higher ratios.

Also, throughout the training it was noticed how the young practitioners of the game applied learned analytical and technical elements and how they knew the principal rules of the handball game.

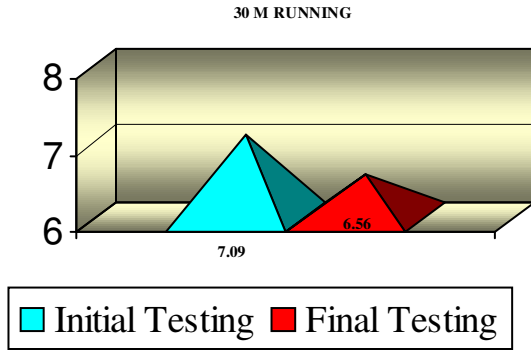
Results

Results obtained by athletes at the initial testing.

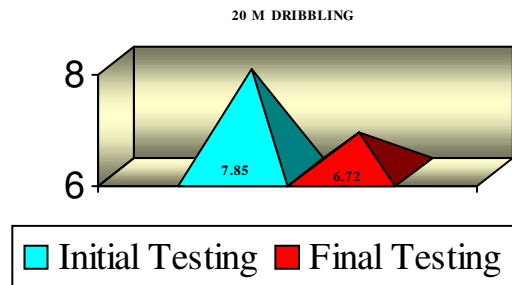
Nr crt	Running 30 m	Dribbling 20 m	Triangle movement	Ball throwing	Shuttle	Wall pass
X	7,09	7,85	11,07	19,23	27,42	15,96
Sd	0,78	0,81	0,95	2,95	1,31	3,56
Cv	12,23	11,32	9,36	14,67	4,26	20,12

Results obtained by athletes at the final testing

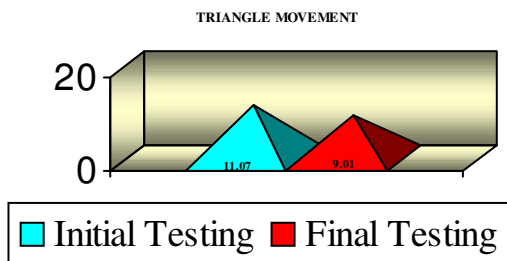
Nr crt	Running 30 m	Dribbling 20 m	Triangle movement	Ball throwing	Shuttle	Wall pass
X	6,56	6,72	9,01	21,89	25,13	18,87
Sd	0,61	0,59	0,78	3,07	1,08	3,21
Cv	9,74	8,03	5,98	11,45	4,02	12,37



Running (30 m). The initial testing -7.09 arithmetic average, 0.78 standard deviation (normal), 12,23% coefficient of variation (medium consistency). Final testing – 6.56 arithmetic average, 0,61 standard deviation, 9,74 coefficient of variation (good homogeneity). Test 't' calculated from results obtained in initial testing and final testing is 5.43; significant differences with 99% certainty ($p < 0.01$).

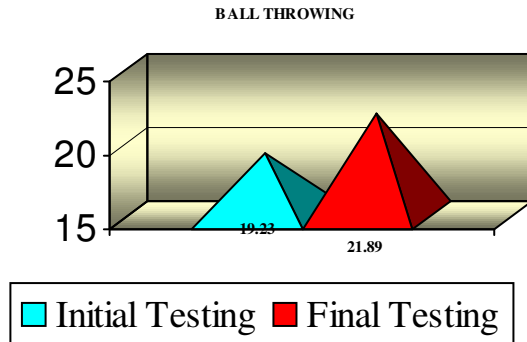


Straight line dribbling (20 m)
The initial testing – 7.85 s arithmetic average, 0,81 s standard deviation (normal), 11,32% coefficient of variation (medium consistency).
Final testing- 6.72 s arithmetic average; 0,59 standard deviation, 8,03% coefficient of variation (high consistency). Test 't' 6.48; the differences are significant with 99% certainty ($p < 0.01$).

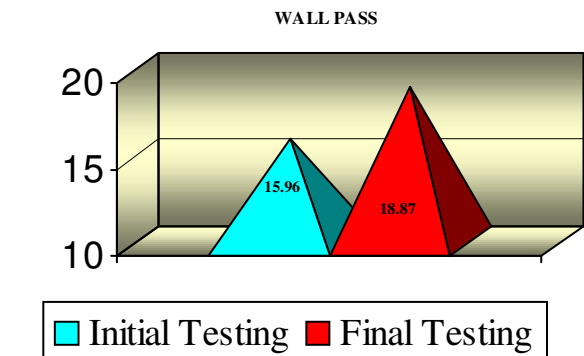
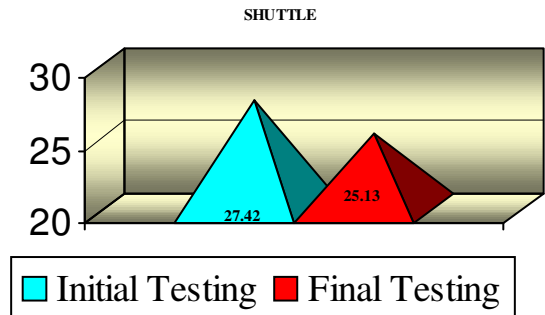


Triangle Movement.

Initial testing – 11.07 s arithmetic average; 0,95 standard deviation (normal) 9,36% coefficient of variation (good homogeneity). Final testing- 9.01 s arithmetic average; 0,78 standard deviation; 5,98% coefficient of variation (high consistency). Test 't' 8.24; the differences are significant with 99% certainty ($p < 0.01$).



Ball Throwing
Initial testing – 19,23m arithmetic average; 2,95m standard deviation (normal), 14,67% coefficient of variation (medium consistency). Final testing- 21.89 m arithmetic average; 3,07 m standard deviation, 11,45% coefficient of variation (medium consistency). Test 't' 5.32; the differences are significant with 99% certainty ($p < 0.01$).



Shuttle:

Initial testing – 27.42 s arithmetic average; 1.31 standard deviation (normal), 4.26% coefficient of variation (high uniformity). Final testing 25.13 arithmetic average; 1.08 standard deviation; 4.02% coefficient of variation (high consistency). Test 't' 5.01; significant differences with 99% certainty ($p < 0.01$).

Wall pass: Initial testing -15.96 passes arithmetic average, 3.56 passes standard deviation (normal); 20.12% coefficient of variation (lack of homogeneity). Final testing- 18,87 passes arithmetic average, 3.21 passes standard deviation, 8.03% coefficient of variation (high consistency). Test 't' 4.33; significant differences with 99% certainty ($p < 0.01$).

Conclusions

Initiation into the handball game means the transition from the stage of childhood games to games organized by the gradual discovery of the mysteries of the game and the rules imposed. Using games in all their aspects of practice led to shortening the time of learning the handball game while the training lessons became more attractive. Also, the research subjects undergoing research showed more tactical and technical knowledge and concepts of regulation that were applied in the game. The results obtained from subjects in control samples in the initial and final testing were elaborated by the specialized federation for children, beginners in practicing handball. The differences between performances in final and initial testing for all control samples are statistically significant, $p < 0.01$.

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La pratique du handball chez les groupes d'enfants au niveau débutant

Mots-clé: Handball, enfants débutants, entraînement

Résumé: L'article essaie de démontrer que l'utilisation des jeux peut optimiser le processus d'initiation des enfants dans le jeu de handball, et aussi l'augmentation des indices de manifestation des principaux qualités motriques.

Pregătirea prin joc la nivelul grupelor de copii începători în practicarea handbalului

Cuvinte cheie: Handbal, copii începători, pregătire

Rezumat: Lucrarea încearcă să demonstreze că prin utilizarea jocurilor sub toate formele sale de manifestare se poate optimiza procesul de inițiere al copiilor în jocul de handbal, precum și creșterea indicilor de manifestare a principalelor calități motrice. Utilizarea acestora pe parcursul unei perioade de pregătire, contribuie pe deplin la creșterea conținutului tehnico-tactic al tinerilor jucători și în același timp la dezvoltarea cunoștințelor de regulament, iar lecțiile de antrenament capătă un grad mare de atractivitate.

OPTIMIZATION OF ROPE THROWS IN RHYTHMIC GYMNASTICS BY RATIONALIZING THE MEANS OF TRAINING

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Abstract

Training process optimization is strongly related to rationalizing the means of training used, thus contributing not only to improving the means of solving the tasks, but also to reducing their overcharging. Rhythmic Gymnastics specialists are permanently concerned with choosing the most suitable means according to the concrete conditions, with applying some new ways of approaching the training process and of conceiving lesson plans that respect the athletes' individual peculiarities.

The methodology of optimizing the training process consists in the dialectic, systemic approach of assessing the possible solutions for the current tasks. Such approach ensures choosing the best variant, according to the concrete conditions.

Key words: efficiency, rhythmic gymnastics, optimization, rationalization.

I. Conceptual delimitations regarding training optimization in performance sports

Optimization represents a precise way of approaching the structure of the training process, based

on the unity of sportive training principles, of the peculiarities of the studied topic contents, of all the methods and means that can be used, of the age peculiarities and the real possibilities of the athletes.

According to the systemic analysis of all these elements, the conscious, scientifically based choice is being made. This is not a random variant, but the best one for the sportive training process, in the concrete conditions given.

In order to find out what characteristics of the sportive training process we wish to bring to a maximum or minimum level, we should take into consideration certain optimization *criteria*. By elaborating these criteria, we will be able to represent the essential parameters of the process, that we must bring to their maximum value.

The criterion of the optimum character is an indicator on the basis of which we make the comparative assessment of the possible alternatives and choose the best of them.

The most important *criteria* for assessing the optimum character of the sportive training process are: efficiency, quality and time and effort consumption from coaches and athletes, when completing the tasks.

Optimization can take place at different levels, it can be more or less exhaustive, according to the character of the estimated results, to the number of criteria that optimization requires and to the number of athletes included in the training process.

Babanski I.K., (1979), presents the possible levels for achieving optimization, given the approaches described above, in this way:

1. *According to the character of the objectives and the results expected* (level of component contained – objectives and level of resulted component), we can consider:

- Increasing efficiency and improving the quality of only one of the components of the sportive training process.

- Increasing efficiency and improving the quality of simultaneous completion of some training tasks.

- Increasing efficiency and improving the quality of the training process, meaning completing all the tasks regarding training.

2. *According to the character and number of criteria according to which optimization is achieved* (level of component "criteria"), we can consider:

- Efficiency of the process without taking into consideration the consumption of time, efforts and means used.

- Efficiency of the process and consumption of the means used for achieving certain goals.

- Efficiency of the process, consumption of time and means.

- Efficiency of the process, consumption of time, efforts and means.

II. Operational framework of the research

The research undertaken by us had as a *goal* the improvement of the training process in Rhythmic Gymnastics, focusing on rope throwing and catching optimization.

The hypothesis of the research was the following: the process of rationalizing leads to rendering efficient the training means applied in the training process, at the object the research was undertaken for.

Considering the *aim* of this research, we established the following *tasks*:

- Conceiving and selecting the training means for consolidating and perfecting the rope throwing with rolling and catching.

- Rationalizing the training means, by calculating the "Spearman" correlation coefficient, in regard to using the significant ones in the experiment.

- Applying the means that proved a significant correlation in the training process.

The lot included in the research was made up of 8 gymnasts of the 4th category who are registered as legitimate athletes at C. S. S. "Anghel Saligny" in Iași.

The research methods used in this paper were the following:

- The method of studying the field literature.
- The observation method.
- The experimental method.
- The statistic and mathematic method.

III. Systems of exercises for the technical element „rope throwing, rolling and catching”

1. Standing in pairs, one in front of the other, at a 2,5 m distance. The gymnasts perform a right hand vertical balance in a circle, rope exchange performed by right hand vertical throwing and catching.

2. Standing in pairs, one in front of the other, at a 4 m distance: rope exchange with vertical throw, rolling and catching.

3. Standing, gymnasts in a circle position, four by four, left shoulder toward the center. Vertical throwing, chasée moving forward and the catching of the rope by the gymnast in front.

4. Standing in pairs, one in front of the other, at a 2,5 m distance: one of the gymnasts performs a vertical throwing, a forward rolling and the other gymnast takes the rope.

5. Standing (rope knotted at ends): vertical right hand rope throwing, moving forward and left hand catching; left hand throwing and right hand catching.

6. Standing in pairs, at a 4 m distance one in front of the other; at the mid-distance there is a 4 m high net. There is a ropes exchange with vertical throw over the net.

7. Standing in pairs, one behind the other, at a 2 m distance. The gymnast behind performs the vertical throwing with the right hand above the gymnast in front, who performs the catching.

8. Standing in pairs one behind the other at a 3 m distance, the gymnast in front holding a rope. She performs the vertical throwing and then the forward rolling. The other gymnast simulates the throwing, performs the rolling and catches the rope thrown by the first gymnast.

„Spearman” coefficient (Nicu A., 2002) for the exercises that have constituted the independent variable and that resulted as having a significant correlation. As a consequence of this process, the exercises were applied in the training process in order to achieve optimization of the technical element „rope throwing, rolling and catching”.

IV. Calculation of “Spearman” coefficient for rationalizing the training means

In this paper we present the calculation of

Table with values obtained at exercise no. 1 for element „rope throwing, rolling and catching „

0	1	2	3	4	5
Criteria no.	Athlete	Rope throwing	Ex. no. 1	Throwing order	Exercise order
1	O.M.	7.60	7.70	7	8
2	B.A.	8.00	8.10	5	6
3	V.D.	7.80	8.30	6	5
4	P.D.	7.40	7.90	8	7
5	C.M.	9.00	9.10	1	1
6	T.A.	8.80	9.00	2	2
7	S.A.	8.60	8.70	3	3
8	I.D.	8.10	8.50	4	4

$r = 0.960, p < 0.001$

Table with values obtained at exercise no. 6 for element „rope throwing, rolling and catching „

0	1	2	3	4	5
Criteria no.	Athlete	Rope throwing	Ex. no. 6	Throwing order	Exercise order
1	O.M.	7.40	7.60	8	8
2	B.A.	7.90	8.50	5	4
3	V.D.	7.50	8.00	7	6
4	P.D.	7.70	7.80	6	7
5	C.M.	8.70	9.00	2	2
6	T.A.	8.90	9.20	1	1
7	S.A.	8.30	8.80	3	3
8	I.D.	8.00	8.30	4	5

$r = 0.952, p < 0.001$

Table with values obtained at exercise no. 7 for element „rope throwing, rolling and catching „

0	1	2	3	4	5
Criteria No.	Athlete	Rope throwing	Ex. no. 7	Throwing order	Exercise order
1	O.M.	7.70	7.90	8	7
2	B.A.	8.00	8.40	5	5
3	V.D.	7.80	7.80	7	8

4	P.D.	8.10	8.70	4	4
5	C.M.	8.90	8.80	2	3
6	T.A.	9.00	9.10	1	1
7	S.A.	8.60	8.90	3	2
8	I.D.	7.90	8.20	6	6

$r = 0.953, p < 0.001$

Conclusions

Following the application of Spearman ranks correlation coefficient, we obtained significant correlations among the gymnasts' ranks, as follows: for exercise no. 1, coefficient "r" has a value of 0.960 and materiality $p < 0.001$, at exercise no. 6, coefficient "r" has a value of 0.952 and materiality $p < 0.001$, while for exercise no. 7, coefficient "r" has a value of 0.952 and materiality $p < 0.001$.

Out of the 8 means presented, the 3 exercises above obtained significant correlations. They were therefore introduced in the training process as the most efficient means for improving the performance technique of the element "rope throwing, rolling and catching".

Generalizing the characteristics of the highest levels of optimization of each analyzed part helps us make a global, specific approach of the optimization phenomenon, that should include the following aspects:

- achieving optimization with the aim of increasing efficiency and improving the training process;
- reaching this goal with minimum time, means and efforts input from trainers and athletes;
- achieving optimization together with all the participants at the sportive training process.

According to all the above, optimizing strategy can be achieved so as higher levels of solving the tasks be gradually created. Necessary measures regarding the content, the objectives, the criteria and the organizational aspects should simultaneously be taken.

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Optimisation des lancements à la corde dans la gymnastique rythmique par la rationalisation des moyens d'entraînement

Mots-clé: Efficacité, gymnastique rythmique, optimisation, rationalisation

Résumé: L'optimisation du processus d'entraînement est étroitement liée à la rationalisation des moyens utilisés. Les tâches doivent être abordées systématiquement, choisissant la meilleure variante par rapport aux conditions concrètes.

Optimizarea lansărilor cu coardă din gimnastica ritmică prin raționalizarea mijloacelor de pregătire

Cuvinte cheie: Eficiență, gimnastică ritmică, optimizare, raționalizare.

Rezumat: Optimizarea procesului de antrenament este strâns legată de raționalizarea mijloacelor utilizate, contribuind astfel nu numai la îmbunătățirea modalităților de rezolvare a sarcinilor, ci și la reducerea supraîncărcării acestora. Specialiștii domeniului sunt preocupați permanent de alegerea celor mai potrivite mijloace adaptate la condițiile concrete, de aplicarea unor noi modalități de abordare a procesului de antrenament și de conceperea unor planuri de lecție care să țină cont de particularitățile individuale ale sportivilor.

Metodologia optimizării procesului de antrenament constă în abordarea dialectică, sistemică a aprecierii rezolvărilor posibile ale sarcinilor curente, abordare care asigură alegerea celei mai bune variante în raport cu condițiile concrete.

EXERCISE CAPACITY REMAKING SWIMMERS TO PREPARATORY PERIOD

Lector univ. dr. ONEȚ IOAN
F.E.F.S. Galați.

Summary

Present paper has focused on finding and apply the most efficient methods and means of swimmer's body reconstruction after effort, in the preparatory period. It is well known the fact that great performance may be obtained only if the motivity renew is made continuously, being lead and coordinated by all the responsible factors (trainer, doctor, physiologist, etc).

In the paper I experimented the efficiency of including a specific training of reconstruction in the CSS Braila swimmer's usual weekly preparation program. The training program have been included wednesday, after reaching the top of the weekly training effort and his length reach approximately 60 minutes. The used means are detailed in the paper.

At the end has been observed increased biological and fiziological indicators values, the reconstruction of the organism being faster at the experimental group. Also, we observed the swimmer's increasing performance in sporting events.

Keywords: exercise capacity, recovery

Introduction

Recovery is a natural, spontaneous body, under the direct dependence of the central nervous system and endocrine-vegetative. In certain circumstances intense efforts, very high biological consumption (Avramoff E., Urmuzescu A., 1980).

That spontaneous recovery may become ineffective, qualitatively or quantitatively, occurring outside intervention is required to accelerate the restoration. Restoration aims to restore internal balance environmental and operational parameters, taken before exercise

According to some specialists of the field, Crețuleșteanu Gh. și Marinescu Gh. (1995), is the recovery means the component of the training process that brings together all natural or artificial means used to accelerate the process of rebalancing the body's homeostasis. It is necessary to emphasize the difference between the concepts of rehabilitation, recovery and support effort

Restoration addresses healthy bodies that have suffered the effects of exercise training or competition, while the second addresses functional body or physical handicap (disease, trauma, scars, etc.).

Recovery is the component of sports training using rationally and directed a number of medical and educational resources, natural or artificial, from the external environment or inside the body to homeostasis before re-editing effort and most importantly, exceeded this level (Badiu T. și colab., 2001; Opreșescu I., Dumitrescu N., 1973). As part of training, recovery is subject to legitimate it's physiological and therefore must be coached. Thus, we conclude that:

- Restoring healthy bodies is addressed.

- Directed the restoration does not replace natural recovery, physiological, but strengthens, one enhances the conditions under which it can not achieve the role.
- Effectiveness of both forms is conditional integrator role, coordinator of the neuro-endocrine-vegetative system.
- Recovery of individual character and effort has to age, sex, health status and duration of effort, its motivation.
- Restoration by pharmaceutical means, from the metabolic necessarily be directed by a doctor.
- Restoring life indicators organism be differentiated: those hemodynamic and vegetative occurs in minutes to hours occur in the metabolic and neuro-endocrine-of the hormone and enzyme occurs in 1-2 days.

Research methods used in this work were bibliographic study, experimental study and interpretation of statistical-mathematical methods.

A systematic attempt to rebuild, we can say that recovery is a daily, weekly, stage, and year Olympic cycle, and during a competition intra competition a partial recovery (after trial) and total competitive position (after competition).

This guidance is based on the merits of the training process, the multidisciplinary nature of the recovery approach; the creation of individualized rehabilitation training stereotype, the detection of new reserves that recovery has in maintaining the health of athletes and maintaining a higher efficiency in preventing illness and overstraining of neuro-psychiatric and metabolic disorders.

I will mention below some simple ways to

reach coach and doctor, who can bring real help to optimize workout-recovery system:

1. Journal of athlete self, which should be recorded:

- a) C.F. in supine and standing in the morning to wake;
- b) body weight;
- c) the quality of sleep;
- d) appetite;
- e) provision trainings.

2. Athlete behavior at rest and exercise, sports performance and cost biological price.

3. Autonomic reactions and recovery index after exercise.

4. Indicators of effort and muscle tone.

5. Neuro-muscular excitability.

6. Indices of exercise capacity (aerobic, anaerobic).

7. E.K.G. rest and exercise.

To assess long term recovery, a complex investigation, integrated in a sports medical unit can accurately determine the level of recovery in various fields. A specific type of research raises the question whether it is better to give him everything he needs athlete body, so unless there is a risk of "sloth of the body" to a subliminal request of different systems and organs.

The recovery approach in sport must start from understanding the effort deployed in physiologically, in terms of the traces they leave the force on the body. Thus, effort and cost conducted biological resources will be directed by us to act at this level, moving more difficult recovery if left solely to the body, contrary to our needs in sport.

Call today can appreciate the different sectors in order of biological importance. Swimming request includes mainly: cardiopulmonary system, metabolic scope and scope neuro-psychical.

A brief overview of the "physiology of fatigue" can enlighten us on how the swimmer's body found in the process of training can and should be helped to recover quickly to resolve the issue of fatigue in short time. Studies recently showed that fatigue is a state with local events and general pre pathological in general psycho-affective, functional changes that cause some reduction in yield (Avramoff E., Pentia R., 1980). Detection of such events in preclinical stage is a pathological condition of prevention fatigue.

Counsellman, one of modern nattations mentors said that the main factors of fatigue and the emergence of diseases not only through the efforts of the training, but several factors summing their. Combining plus several factors lead to stress (physical and psychological) and the result is diseases.

If syndrome referring to psycho-physical performance of the athlete, we see that its makers have limiters are: depletion of carbohydrate in muscle and

liver, high contracting an oxygen debt (tissue acidosis increases), excessive heat production (conversion of mechanical energy into heat) and predominance of excitation phenomena in the cortex.

The study seeks to determine the actual effectiveness of recovery methods and means swimmers body in basic preparatory period by introducing a specific rehabilitation training included weekly training program of swimmers from CSS Brăila. This Rephaiah workout Wednesday was placed afternoon and lasts approximately 60 minutes. This special training allows athletes to mentally detach from everyday stress caused by sports training and follow those procedures a state of relaxation.

This training was included in the program after the peak of the curve when the means used. Gamma effort is broader and includes the following times in succession as is normal in terms of methodological and operational:

1. Active rest a slight jog in the park outside the basin with articular mobility exercises, cortical tone and good humor.

2. Natural oxigening, made in an area of the park where there is good ventilation conditions.

3. Hot shower sport base done inside, making the flow and thermal fluctuations.

4. Handle massage and instrumental combination (about 4-6 minutes).

5. Sauna, sessions of varying lengths.

6. Rehydration, by ingesting 250 ml. juice fruit sweetened with 4 teaspoons of sugar.

7. Seeks medication vitamining mineralization and liver protection.

8. Alimentation, contain 70-75% carbohydrate 10-15% fat and 15-20% protein. In the number of calories it varies depending on the size, volume of training and the metabolism to each sport.

9. Rest (sleep), are features for each sport in hand. Recovery assessment was performed by measuring indicators: blood pressure, weight, vital capacity, dynamometer, respiratory frequency, respiratory apnea, Ruffier index, recovery index, urine examination and a clinical examination.

The conclusions are:

1. Biological values indicators were slightly improved during training.

2. The subjects improved energy efficiency, as evidenced by the times makes the training (0.3 sec.).

3. Recovery is achieved in a shorter time.

4. Sleep quality was significantly improved.

5. Experienced a slight increase in vital capacity (150-200 cm³).

6. Urine density is maintained within normal physiological.

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La récupération de la capacité d'effort des nageurs dans la période préliminaire

Mots-clé: *Capacité d'effort, récupération*

Résumé: *L'article porte sur l'application des moyens les plus efficaces pour récupérer l'organisme des nageurs après les efforts de la période préparatoire. On a expérimenté un entraînement spécifique dans le régime hebdomadaire des nageurs de CSS Braila, qui a été introduit le mercredi, après le sommet de l'effort, avec une durée de 60 minutes environ. On a observé l'augmentation des indices biologiques et physiologiques, et aussi une augmentation des*

performances sportives.

Refacerea capacității de efort a înotătorilor în perioada pregătitoare

Cuvinte cheie: *Capacitate de efort, refacere.*

Rezumat: *Este știut faptul că marea performanță se poate obține numai dacă refacerea rezervelor energetice ale organismului se realizează continuu, fiind condusă și coordonată de toți factorii responsabili din domeniu (antrenor, medic, fiziolog, chinetoterapeut) etc. Lucrarea urmărește găsirea și aplicarea celor mai eficiente metode și mijloace de refacere a organismului înotătorilor după efort în perioada pregătitoare.). În lucrare am experimentat eficiența introducerii unui antrenament specific de refacere în regimul săptămânal de pregătire al înotătorilor de la C.S.S.Brăila. Acesta a fost introdus miercurea după realizarea vârfului de efort săptămânal al antrenamentului și avea o durată de aproximativ 60 de minute. Mijloacele folosite sunt descrise amănunțit în lucrare.*

La final s-a observat creșteri ale indicatorilor biologici și fiziologici, refacerea organismului fiind mai rapidă la grupa experiment și nu în ultimul rând și o creștere a performanțelor sportive la probele de concurs.

OPTIMIZATION PROCEDURE FOR SELECTION TO SOCCER

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Summary

Preparation of children and junior sport is a complex issue with many specific issues. Methodological orientation of the current training process requires co-factors training and improvement of relations between them. This guidance is based on the premise that development enhances the combined motor qualities specific physical preparation level by enabling biological substrate and functional effort required to compete.

Playing football is a phenomenon of international superstructure which in recent years great changes have occurred. Analysis of the modern game features mean that applications have increased significantly and only a scientific training to higher level, from junior age players can meet the demands of the current game, where modern training involves getting a higher return with maximum effort.

Keywords: *motivation, methodological guidelines, complexity*

I. Physiological elements underlying the selection

Besides genetic differences between populations order - responsible for some variation - the phenomenon of acceleration is made primarily on account of a complex of factors related to urbanization, improving living conditions, including the type of food (increased intake of vitamins), plus much larger fan psihonervoase applications. The validity of this

hypothesis is proven most significant differences seen in the present, between urban and rural areas in terms of somatic growth spurt and sexual maturation ages. Body muscles grow more slowly than the skeleton, a circumstance that makes a certain clumsiness of movements preteens.

Essential element in achieving a harmonious body developed, is mobile and muscles strong. Appropriate use of physical culture significantly

enhances the development process. Assist in driving business improvement in terms of generally healthy adolescents may, in normal circumstances to make the effort representing 70-78% of adults when it comes to boys. Changes in dynamics of various somatic indices turn up on the general appearance of the adolescent body. During adolescence ends the first period of sexual maturity and at the same point of view, the morphologic, there is a functional process improvement cortex neurons. Enhance selection and analysis of the brain is very fine.

Motivation - is any force, regardless of her body that trigger activity which it carries. The reason is considered to be psychological in nature, which transposes the plan update and subjective states of motivation in the body. He was seen as a cell that trigger the activity, direct and dynamic human behavior.

Motivation can be found in two forms:

Intrinsic motivation, which manifests itself in childhood, the desire to know, because of knowing about phenomena occurring. PPNevanu, 1977, states that the motivation on the one hand means all grounds, and secondly the very process of reasoning in the context of interactions and interdependencies between personality and humanized environments. Motivation integrates itself grounds giving them value and ensure their practical implementation and updating.

Importance of preparation in this age period is only compatible in its peculiarities, is fragile and most dynamic segment in psycho-morphological evolution, but also the social. If methodological errors in a group of mature players can be remedied easily, with reduced slightly damaging the same mistakes made in the children and juniors can have irreversible negative consequences, sometimes with scars for life. Need thorough preparation and future exchange tomorrow sport performance has become a particular concern in countries with advanced sport.

This concern came to the attention of international and continental federations, which includes some time in their competition schedules as many juniors competitions. In turn, Freshness preparation required reserve echelon permanent juvenile, national sports bodies wide open gates of systematic training of children as the main source of selection and release of elements from early yet equipped to sport performance requirements. In football battle between attack and defense tactics result in changes in the system and creates a new style of game that causes changes in structure and content of the educational process in general and that of proper training in particular - play and team training require upgrading under these conditions.

Determinative factors such as formation of children and juniors are somatic-functional index, organize and conduct training phased according to age and progress in ethnic and physical training:

- Acting early on driving improved quality to that age.
- Can benefit from a stadium work longer.
- Improving the game and the players' physical preparation.
- Recovery from trauma especially împidicarea their production.

All these depend largely on the use of elements in sports training, will provide raw elements and whether they will be better "ground" will shine later game.

II. Body exercise capacity

Once puberty, the child becomes a teenager who in terms of morpho-functional development and the exercise capacity and physical characteristics are closer and closer to adulthood. After 15-16 years, growth slows, bone structure and strength approaching the adult conjugation cartilage is thin marking the beginning of ossification and the downturn in height. Development indices muscle groups have lower values than the adult, but by increasing the surface sections physiological force develops in proportion to the amount of land. Strength in this age period remain behind the speed and coordination skills, which are close to adult values. It is the time when muscle tone and resilience to static load increases. Nervous system is somewhat balanced, functional way to promote fundamental processes creating the possibility of rapid recovery after the effort of working capacity.

Another feature is that these young people to not support an intensive effort too long, so that must necessarily be given due consideration in the training process. Cardiovascular system reach the stage where there is a relation between central and peripheral organs, but changes in pulse and blood pressure indices are more extensive than in adults. On respiratory, vital capacity, respiratory frequency, pulmonary ventilation and gas changes are encouraging them improves.

III. Methodological guidance

Driving qualities present in performing any act different motive: one is dominant qualities, the others are spaced differently, as subdominante or secondary, secondary driving quality of a specific effort helps in the recovery quality sports game dominant motive. Given that movements in land sports games have a decisive role in solving technical tasks best tactical exercises to target structures, in particular, development of resistance in the regime of force and strength, speed of execution.

Calls soccer players from a number of qualities that combined driving efficiency can get all technical and tactical actions.

The practice exercise is of great importance in mental development of children. They developed a series of trials, psychological features and traits of importance in multilateral and harmonious development of youth.

Following the broad interests of the different activities and is a future-oriented choice of profession.

Their main concern is teaching, which now takes place under the influence of a well known social motivations and the sense of responsibility is high. Thinking becomes more abstract, takes a more organized and systematic nature.

On the other hand have a special importance and the skills that reinforce skills and acquire the most varied aspects. And will also develop and affectivity is enriched by the formation of higher moral sentiments. At this age, the teenager is characterized by dynamism, vivacity, nonconformity, the requirement increases to himself and to others, develops the potential of self-rule. It is good independent from this age to continue working formative youth, given the new social status that integrates adolescent sport activity and some requirements of the role of education and psychological support becomes a dominant character. In this regard assessment as a crucial instrument to investigate the conditions of selection of beginner athlete, has a role to establish the limits within which performance can be determined, allowing establishment of short-term objectives, medium term and checking the improvements sought.

We believe that the assessment must meet some conditions: knowing precisely the objectives to be achieved through sports training, to diagnose based on initial conditions, to predict defining future opportunities.

Football, have similar conditions but with your own content prestation technical, tactical, physical, and psychological theory.

Evaluation of technical training is manifested by requesting and using specific criteria game. Some authors such as Harrow are different degrees of deemed possession of the same type of skill: the beginner level, intermediate level, advanced and expert level. We will stop at the beginner level, through trial and error when, athlete reaches a certain security to perform a movement similar to that proposed. For Zațiorsky there are some benchmarks of skill that can allow a quantification of this quality, such as the difficulty of coordination during a movement, precision in execution year, during the execution. In this psychological preparation to receive the specialized and individual virtues, highlighting the mental and character traits such as determination, initiative, courage, perseverance and tenacity. Should be given more importance at this age growing self-confidence as frequently occurring discrepancies between results obtained from training and competition, attitudes and motivation unstabilised accused of inner turmoil.

Conclusions

1. Methodological guidelines on the factors contributing to the renewal training for this sport to be within the modern standards for a modern and efficient game.
2. Operating systems for specific physical preparation

should aim to develop specific qualities combined driving and improving driving skills and habits, acts and actions of driving with and without the ball, which made the effective technical and tactical actions required by the game.

3. Components of physical factor to be educated and developed to become an organic part of the technical and tactical elements, representing the media and making their condition.

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L'optimisation de la procedure de selection des joueurs de football

Mots-clé: Motivation, orientations méthodologiques, degré de complexité

Résumé: La preparation sportive des enfants et des joueurs debutants est un problème complexe, impliquant beaucoup d'aspects spécifiques. Le jeu de football est un phenomena de suprastructure international au niveau duquel on a récemment témoigné de grands changements. L'analyse des caractéristiques du jeu modern mène à la conclusion que les sollicitations on beaucoup augmenté, demandant un entrainement rigoureux et scientifique dès le début de la preparation sportive.

Optimizarea procedurii de selecție la fotbalisti

Cuvinte cheie: Motivație, orientări metodologice, grad de complexitate

Rezumat: Pregătirea sportivă a copiilor și juniorilor este o problemă complexă, cu multe aspecte specifice. Orientarea metodică a procesului de pregătire actual solicită perfecționarea concomitentă a factorilor antrenamentului și a relațiilor dintre aceștia. Această orientare pornește de la premiza că dezvoltarea calităților motrice combinate contribuie la sporirea nivelului pregătirii fizice specifice, întrucât asigură substratul biologic și funcțional al efortului cerut de competiție.

Jocul de fotbal este un fenomen de suprastructură internațională în care în ultimii ani s-au produs mari schimbări. Analiza caracteristicilor jocului modern duce la concluzia că solicitările au crescut foarte mult și numai printr-o pregătire științifică la nivel superior, încă de la vârsta junioratului, jucătorii pot face față cerințelor jocului actual, unde antrenamentul modern presupune obținerea unui randament sportiv cu maxim efort.

THE EXPLOSIVE FORCE FOR THE TWO LEGS AND FOR ONE LEG IN THE STIINTA BACAU FEMALE HANDBALL PLAYERS

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For the study to be completed, we needed to conduct the assessment tests and to record the data regarding the age and the anthropometric development (weight, height).

Abstract

This paper is a study conducted on the Stiinta Bacau Club female handball players. We used, as an assessment test, the "15 jumps" drill, performed on two legs, on the right leg and on the left leg, on the sensor board. The results, represented by the average power (PU), the average flight height (H_flight), the average ground time (V_rep), the energy variability coefficient (CVE), the structure variability coefficient (CVS), the minimum ground time (TSOLm), the maximum height (HMax), the accomplished maximum power (PMr), the jump with the accomplished maximum power (S.PMr) and the maximum possible power (PMp) were entabulated, analyzed and charted.

H_flight and Hmax for both legs have an average value of 28 cm, and, respectively, 31 cm, for the right leg, 17 cm and 19 cm, and for the left leg 17 and 20 cm. V_rep and SOLm have average values for the two-leg take-off of 0.20 s and, respectively, 0.18 s, for the right leg take-off of 0.28 s and 0.26, and for the left leg take-off, 0.28 s, in both cases. PU, PMr and PMp have average values for the two-leg take-off of 4.08 W/kg body, 4.36 W/kg body and, respectively, of 4.47 W/kg body, for the right leg take-off of 2.54 W/kg body, 2.76 W/kg body and 2.84 W/kg body, and for the left leg take-off, of 2.560 W/kg body, 2.87 W/kg body and 2.96 W/kg body. CVE and CVS have recorded average values for the two-leg take-off of 3.31 and, respectively, 6.82, for the right leg take-off of 3.82 and 4.57, and for the left leg take-off, 4.60 and 5.27.

The value of the one-leg and the two-leg take-off height ratio is between 127.77 % and 200.00%, with average values of 167.82 for the right leg and 163.05 for the left leg. The ratio for the two-leg take-off, in the female handball players, is greatly beyond the specialized literature data, so the first hypothesis is infirmed. Both values for power and speed are low, so hard work is imposed for in the respective fields, which validates the second hypothesis.

Keywords: *explosive force, female handball players, take-off height, power, time*

I. Introduction

The professional sports, hence handball, is characterized by a spectacular nature. This is the result of the explosive force in performing movements, but also of the unexpected situations during the actions performed in order to win the game. The beauty of the game is given by the explosive force manifested in the lower limbs and by the take-off height, the one which actually ensures both the transmission of the ball from one player to another, and the vision of the opening and occupation of the goal by the goalkeeper.

In this research we tried to know the manifestation of the take-off height and the power using the lower limbs, for the University Sports Club "Știința Bacău" female handball players and to emphasize the ratio between the two-legs and the one-leg (right and

left) take-off height.

In order to ensure the correctness of the scientific research, we used the drill conceived by Miron Georgescu, introduced in sportive assessment in 1953. The method was revised and modified by a group of specialists (I Stupineanu, O. Ciubotaru and P. de Hillerin), a new variant being created inside the Research Center for Sports Problems. The method called the modified Miron Georgescu (MGM-15) redefined and reinterpreted the "anaerobic effort capacitate" test through the determination of certain defining elements for the neuro-motor, energetic and control qualities, in a maximal effort of force-speed at the level of the triple extension. Pierre de Hillerin, in 1999, managed to improve it and to introduce two new assessment indicators and terms, the accomplished

maximum power (PMr) and the maximum possible power (PMp).

Emphasizing the power through the high jump (spring) is in "ascribing the take-off height to the body weight" (Epuran, 2005, pag. 362) and is given by the quickness the mechanical work is done, and the value of the vertical take-off height is negatively influenced by the decrease of the flexion angle under 90°, "the smaller the flexion angle, the higher the quantity of elastic energy", consumed for the accomplishment of the take-off (Cordun 2009, page 171). "The vertical jump height, respectively the top point of the general weight center of the body depends on the height of the general weight center of the body during the take-off and on the flight height, the vertical movement, on the duration of the air ascension", but also on the developed power, on the ground contact time, and, not in the least, on the reaction force of the support, whereas the latter "depends on the forces applied on the core by the head and arms, and on the forces of the hip, knees and ankles" (Rață, 2001, pag 75). The emphasized aspects draw the attention on the control drill.

Referring to the importance of the platform, Niculescu and Vladu (2009, page 134) consider that "The equipment has established itself as an equipment of testing the force-velocity qualities in the lower limbs through the emphasis of the energy and control parameters". Sbenge (1999, page 227) says that "the performance of the two-leg jump is greater but not double (approximately 147 %) that the one-leg jump", an assertion that needs to be verified, because it does not specify the characteristics of the subjects.

II. Hypothesis

This study tried to verify the following hypotheses:

1. in the B Division Stiinta Club Bacau female handball players the two-leg flight height is greater but not double (circa 147 %) than the one-leg flight height.
2. knowing the value of the assessment indicators can emphasize essential aspects regarding the training of the athletes.

III. Procedures and research methods

The subjects of the research were 10 female handball players, aged between 19 and 31 years old, who had a training experience of 9-20 years, and with a good competition experience. They are a part of the

Stiinta Bacau handball team, B Division.

In this research we used the method of: the bibliographical material study, the observation, the testing and the statistical-mathematical method. As assessment indicators we used the arithmetical means, the standard deviation, the maximal and the minimal values, the ratio and the difference.

The assessment test comprised 15 successive jumps on two legs, 15 successive jumps on the left leg and 15 successive jumps on the right leg. In the testing methodology it is prescribed that out of the 15 take-offs to be automatically eliminated the data considered to be "aberrant", thus keeping only 10 values for calculating the indicators. During the 15 jumps drill, the subject begins moving from a standing position, legs slightly apart on the sensor board (that is coupled through the RS-232 serial interface to a computer), by performing a flexion of the inferior members, followed immediately by a vertical take-off and a landing, followed by another 14 take-offs. The condition for each take-off is to obtain a maximum height and a minimum ground contact time. With the help of the computer program, we recorded and automatically analyzed the values of the indicators regarding: the average power (PU), the average flight height (H_flight), the average ground time (V_rep), the energy variability coefficient (CVE), the structure variability coefficient (CVS), the minimum ground time (TSOLm), the maximum height (HMax), the accomplished maximum power (PMr), the jump with the accomplished maximum power (S.PMr) and the maximum possible power (PMp). For the study to be completed, we needed also to record the data regarding the age weight, and height.

IV. RESULTS OF THE RESEARCH – ANALYSIS, INTERPRETATION

The data recorded for the assessment indicators, presented through the modified Miron Georgescu method, was organized and analyzed through the "Microsoft Office Excel 2003" software. The data interpretation was based on the analysis of the arithmetical mean between the maximum and minimum values of the ratio and the difference.

IV.1. Results of the indicators during the two-leg take-off drill for the female handball players

The chosen indicators emphasize a series of interesting aspects and are presented in Table 1.

Table 1.
Assessment indicators for the muscle strength in women's handball, for the two-legs take-off drill

N.P.	A. (y.o.)	H. (m)	W. (Kg)	PU (W/kg. body)	H_flight (cm)	V_rep (s)	CVE (%)	CVS (%)	TSOLm (s)	HMax (cm)	PMr (W/kg. body)	PMp (W/kg. body)
B.B.	19	1.65	66	3.26	18	0.17	5.78	8.18	0.15	22	3.55	3.77
G.A.	31	1.67	57	3.37	21	0.20	4.26	5.03	0.18	24	3.62	3.74
S.A.	20	1.71	66	3.56	23	0.21	4.27	6.29	0.19	27	3.97	4.03
C.L.	19	1.71	60	3.99	28	0.21	4.93	11.91	0.18	32	4.48	4.54

M.I.	20	1.72	63	4.07	27	0.20	1.98	3.23	0.19	30	4.21	4.30
B.M.	19	1.70	65	4.28	30	0.20	3.53	5.77	0.18	35	4.61	4.76
A.M.	19	1.75	61	4.40	32	0.21	1.89	9.54	0.19	35	4.74	4.76
N.M.	20	1.71	66	4.47	32	0.19	3.44	9.48	0.18	36	4.72	4.90
P.F.	21	1.71	63	4.48	32	0.20	1.24	4.42	0.19	34	4.59	4.72
B.A.	26	1.78	74	4.94	35	0.16	1.81	4.34	0.16	38	5.08	5.2
M	21.40	1.71	64.10	4.08	28	0.20	3.31	6.82	0.18	31	4.36	4.47
S	3.98	3.63	4.58	0.54	06	0.02	1.53	2.82	0.01	0.05	0.51	0.49
V. max	31	178	74	4.94	35	0.21	5.78	11.91	0.19	38	5.08	5.2
V. min.	19	165	57	3.26	18	0.16	1.24	3.23	0.15	22	3.55	3.74

Following the 15 two-leg take-off drill, we observed that:

- the *age* (A) of the players is between 19 and 31 years old and has an average value of 21.40 years old, which is a young age;

- the *weight* (W) has extreme values of 74 and respectively 57 kg and its average value is of 61.10 kg, the *height* (H) is comprised between extreme values of 1.78 m and 1.65 m, with an average value of 1.71 m. Individual values, as well as the group values, are within the specific requirements of the professional handball;

- the *average flight height* (H_{flight}) has an average value of 28 cm, a minimal value of 18 cm and a maximum value of 35 cm, whereas the *maximum take-off height* (H_{Max}) accomplished by the 10 athletes has an average of 31 cm and extreme values between 22 cm and 38 cm;

- the *average power* (PU) records an average group value of 4.08 W/kg. body, with extreme values of 4.94 and 3.26 W/kg. body, the *accomplished maximum power* (P_{Mr}) has values between 5.08 and 3.55 W/kg. body, with an average of 4.36 W/kg. body, whereas the *maximum possible power* (P_{Mp}) has values comprised between 5.20 and 3.74 W/kg. body, with an average value of 4.47 W/kg. body;

- the *average ground time* (V_{rep}), also called the repetition speed, and which constitutes the average time spent on the ground, has values between 0.16 s and 0.21 s, with an average of 0.20 s. As we can see in Table 1, an athlete has very good speed values (BA - 0.16 s), another has average values (BB - 0.17 s), and the other 8 have very poor speed values. Because this indicator emphasizes the quickness with which the excitation and the inhibition processes are succeeding, and the contraction with the relaxation processes, we can say for

sure that only athlete BA has qualities much above her other teammates;

- the *energy variability coefficient* (CVE) is the ability to control the energy sources during the unspecific movement and has an average value of 3.31 and extreme values of 5.78 and 1.24. The high numerical value, over 3, in 6 players, emphasizes the fact that the athletes cannot succeed in controlling the scoring chances during high speed movements;

- the *structure variability coefficient* (CVS) represents the assessment indicator of the ground contact control and has a maximal value of 11.91, a minimal value of 3.23, and an average value of 6.63. We also underline that only the values between 3 and 3.5 show a good anticipation of the contact moment, and as we can observe, only one athlete has this ability (MI, 3.23);

- the *minimum ground time* (TSOL_m) recorded extreme values of 0.15 s and 0.19 s, and an average value of 0.18 s. Regarding the minimum ground time, we can observe that 2 persons have very good values, 4 recorded also average values, and the rest of 5, have poor speed values;

- the *take-off power* is not in a direct relation with age, weight, or height;

- the *maximum take-off height* is in a direct ratio to the maximum power, but also to the average power, so there is the possibility to improve the accomplished maximum power, which leads us to say that there is a chance for each of the subjects to achieve a better take-off height;

- an intense work-out is imposed, both for the speed and for the strength.

IV.2. Results of the indicators during the right leg take-off drill for the female handball players

From the results presented in Table 2, following the 15 take-offs drill, we can observe that:

Table 2.

Assessment indicators for the muscle strength in women's handball, for the right leg take-off drill

N.P.	Take-off assessment indicators for the right leg								
	PU (W/kg. body)	H_flight (cm)	V_rep (s)	CVE (%)	CVS (%)	TSOLm (s)	HMax (cm)	PMr (W/kg. body)	PMp (W/kg. body)
B.M.	2.42	15	0.28	2.07	1.49	0.27	17	2.55	2.57
B.B.	2.13	12	0.24	4.08	5.38	0.22	14	2.43	2.44
C.L.	2.75	19	0.29	3.78	4.11	0.27	22	2.92	3.09
A.M.	2.74	19	0.30	5.08	4.63	0.28	22	2.97	3.08
S.A.	2.58	18	0.29	2.76	3.46	0.27	19	2.72	2.78
M.I.	2.46	16	0.29	6.44	7.73	0.26	20	2.81	2.99
N.M.	2.75	19	0.29	3.70	5.67	0.26	21	2.94	3.12
P.F.	2.52	17	0.31	3.88	4.40	0.30	20	2.81	2.84
B.A.	2.86	19	0.27	4.20	3.50	0.25	22	3.10	3.15
G.A.	2.2	12	0.24	2.21	5.30	0.22	13	2.36	2.38
M	2.54	17	0.28	3.82	4.57	0.26	19	2.76	2.84
S	0.24	0.03	0.02	1.31	1.65	0.02	0.03	0.24	0.29
V. max	2.86	19	0.31	6.44	7.73	0.30	22	3.1	3.15
V. min.	2.13	12	0.24	2.07	1.49	0.22	13	2.36	2.38

- The Average flight height (H_flight) has an average value of 17 cm, a minimal value of 12 cm and a maximum value of 19 cm, whereas the maximum take-off height (HMax) accomplished by the 10 athletes has an average of 19 cm and extreme values between 22 cm and 13 cm;

- the average power (PU) records an average group value of 2.54 W/kg. body, with extreme values of 2.86 and 2.13 W/kg. body, the accomplished maximum power (PMr) has values between 3.10 and 2.36 W/kg. body, with an average of 2.76 W/kg. body, whereas the maximum possible power (PMp) has extreme values of 3.14 and 2.38 W/kg. body, with an average value of 2.84 W/kg. body;

- the average ground time (V_rep), also called the repetition speed, and which constitutes the average time spent on the ground, has values between 0.24 s and 0.31 s, with an average of 0.28 s;

- the energy variability coefficient (CVE) has an average value of 3.82 and extreme values of 6.44 and 2.24;

- the structure variability coefficient (CVS) has an average value of 4.57 and extreme values of 7.73 and 1.49; We emphasize that only 3 values are comprised between 3 and 3.5 and show a good anticipation of the contact moment;

- the minimum ground time (TSOLm) recorded extreme values of 0.30 s and 0.22 s, and an average value of 0.26 s;

- the maximum take-off height is in a direct ratio to the maximum power, but also to the average power, so there is the possibility to improve the accomplished maximum power, which leads us to say that there is a chance for each of the subjects to achieve a better take-off height.

IV.3. Results of the indicators during the left leg take-off drill for the female handball players

The chosen indicators emphasize a series of interesting aspects and are presented in Table 3.

Table 3.

Assessment indicators for the muscle strength in women's handball, for the left leg take-off drill

N.P.	Take-off assessment indicators for the left leg								
	PU (W/kg. body)	H_flight (cm)	V_rep (s)	CVE (%)	CVS (%)	TSOLm (s)	HMax (cm)	PMr (W/kg. body)	PMp (W/kg. body)
B.M.	2.42	16	0.29	5.62	7.06	0.26	19	2.74	2.88
B.B.	2.62	15	0.23	4.68	4.63	0.22	17	2.82	2.86
C.L.	2.66	18	0.28	7.61	3.35	0.27	23	3.17	3.24
A.M.	2.76	18	0.27	4.44	8.74	0.24	21	3.04	3.18
S.A.	2.20	14	0.29	3.92	3.12	0.28	16	2.39	2.42
M.I.	2.63	17	0.27	3.95	4.33	0.25	19	2.81	2.92
N.M.	2.81	19	0.29	4.63	5.21	0.27	22	3.13	3.15

P.F.	2.68	19	0.31	2.24	6.73	0.27	21	2.84	2.96
B.A.	3.00	21	0.28	3.48	3.65	0.26	23	3.18	3.28
G.A.	2.23	13	0.25	5.4	5.91	0.23	16	2.62	2.66
M	2.60	17	0.28	4.60	5.27	0.26	20	2.87	2.96
S	0.25	0.02	0.02	1.43	1.83	0.02	0.03	0.26	0.27
V. max	3.00	21	0.31	7.61	8.74	0.28	23	3.18	3.28
V. min.	2.20	13	0.23	2.24	3.12	0.22	16	2.39	2.42

- The *Average flight height* (H_{flight}) has an average value of 17 cm, a minimal value of 13 cm and a maximum value of 21 cm, whereas the *maximum take-off height* (H_{Max}) accomplished by the 10 athletes has an average of 20 cm and extreme values between 16 cm and 23 cm.

- The *Average power* (PU) records an average group value of 2.60 W/kg. body, with extreme values of 3.00 and 2.20 W/kg. body, the *accomplished maximum power* (PMr) has values between 3.18 and 2.29 W/kg. body, with an average of 4.362,87 W/kg. body, whereas the *maximum possible power* (PMp) has extreme values of 3.28 and 2.42 W/kg. body, with an average value of 2.96 W/kg. body.

- the *average ground time* (V_{rep}) has values between 0.23s and 0.31s, with an average of 0.28s.;

- the *energy variability coefficient* (CVE) has an average value of 4.60 and extreme values of 7.61 and 2.24;

- the *structure variability coefficient* (CVS) has an average value of 5.27 and extreme values of 8.74 and 3.12; We emphasize that only 3 values are comprised between 3 and 3.5, which shows a good anticipation of the contact moment;

- the *minimum ground time* (TSOLm) recorded extreme values of 0.28 s and 0.22 s, and an average value of 0.26 s.

IV.4. The results for the two-leg and one-leg flight height ratio

In Table 4 we present: the values for the two-leg and the right leg flight height ratio, the two-leg and the left leg flight height ratio; the sum of the values of the left leg and the right leg flight height and the difference between the sum of the left and the right leg flight height and the two-leg flight height. .

Regarding the data presented in Table 4, the following aspects become obvious:

Table 4.

The values for the flight height ratio

N.P.	H _{flight} 2 legs (cm)	H _{flight} right (cm)	Ratio %	H _{flight} left (cm)	Ratio %	Sum of H _{flight} , lft and right (cm)	Dif. between the sum of H _{flight} lf + rt and the 2 legs (cm)
A.G.	30	15	200.00	16	187.50	31	1
C.A.	18	12	150.00	15	120.00	27	9
H.C.	28	19	147.36	18	155.55	37	9
H.M.	32	19	168.42	18	177.77	37	5
I.R.	23	18	127.77	14	164.28	32	9
L.T.	27	16	168.75	17	158.82	33	6
N.A.	32	19	168.42	19	168.42	38	6
R.V.	32	17	188.23	19	168.42	36	4
T.M.	35	19	184.21	21	166.66	40	5
T.Z.	21	12	175.00	13	161.53	25	4
M	28	16.6	167.82	17	163.05	33.6	5.8
S	06	2.80	21.38	2.49	18.76	4.90	2.62
V max.	35	19	200	21	187.5	40	9
V.min	18	12	127.77	13	120	25	1

✓ there are differences between the two-leg take-off height, which has an average value close to double, and sometimes even double, and the one-leg take-off height;

✓ the take-off height average for the 10 athletes, as the right leg is concerned, represents 167.82 %; of the two-leg take-off value;

✓ the take-off height average for the 10 athletes, as the left leg is concerned, represents 161.53 % of the two-leg take-off value;

✓ the difference between the left leg and the right leg ratio is of 6.29 %;

✓ keeping in mind T. Sbenge's assertion, of 1999, saying that "the performance of the two-leg jump is greater but not double (approximately 147 %) that the one-leg jump", we can say that, as the Știința Bacău

Club female handball players are concerned, the values are comprised between 147.36% and 200%, so they do not confirm the theory;

✓ the two-leg take-off values ratio, for the female handball players, surpasses greatly the data in the specialized literature, the average being of 167.82, with extreme values between 200 and 127.77.

✓ the values for the left and the right leg, (Table 4), are smaller than the values for the two-leg jump, for all of the indicators, regarding both the individual and the group values;

✓ we observed that the values of the indicators are better for the left leg, in comparison with the right leg.

Conclusions

Analysis of the data presented in Tables 1, 2, 3, and 4 emphasize the following aspects regarding the assessment indicators calculated through the adapted Miron Georgescu method, after the 15 jumps test:

✓ the average flight height (H_{flight}) and the maximum height (H_{Max}), the average power (PU), the accomplished maximum power (PMr), and the maximum possible power (PMp) have their average, minimal and maximal values higher for the two-leg take-off in comparison with the one-leg take-off;

✓ the average ground time (V_{rep}), or the repetition speed, represented by the average of the time spent on the ground, both for the two-leg and for the one-leg take-off has large values and a negative aspect. As we can see in Table 1, an athlete has very good speed values (BA - 0.16 s), another has average values (BB - 0.17 s), and the other 8 have very poor speed values. Due to these values, we can say that only the athlete BA has qualities for professional handball;

✓ the energy variability coefficient (CVE), which presents data regarding the control ability over the energy sources during the unspecific movement and has high values both for the two-leg and the one-leg take-off. The high numerical value (over 3) in 6 players, emphasizes the fact that the athletes cannot succeed in controlling the scoring chances during high speed movements;

✓ the structure variability coefficient (CVS), which represents the assessment indicator for the control ability over the ground contact, has smaller values in the three tests. We also underline that only the values between 3 and 3.5 show a good anticipation of the contact moment, and as we can observe, only one athlete has this ability (MI);

✓ the minimum ground time (TSOLm) also recorded extreme values during the three drills. We can observe that only 2 persons have very good values, 4 recorded also average values, and the rest of 5, have poor speed values;

✓ the take-off power is not in a direct relation with age, weight, or height;

✓ the maximum take-off height is in a direct ratio to the maximum power, but also to the average power, so there is the possibility to improve the accomplished maximum power, which leads us to say that there is a chance for each of the subjects to achieve a better take-off height;

✓ the two-leg take-off values ratio, for the female handball players, surpasses greatly the data in the specialized literature, the average being of 167.82, with extreme values between 200 and 127.77, so the hypothesis is infirmed;

✓ both values for power and speed are low, so hard work is imposed for in the respective fields, which validates the second hypothesis.

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La force explosive sur deux pieds et la force explosive sur un seul pied chez les joueuses de handball féminin—Știința Bacău

Mots-clé: Force explosive, handbaliste, hauteur de la détente, pouvoir, temps

Résumé: L'article porte sur l'évaluation des membres de l'équipe féminine de handball de Știința Bacău. Les tests utilisés sont „les 15 sauts” à deux pieds, au pied droit, au pied gauche, sur la plateforme sensorielle.

Forța explozivă pe două picioare și cea pe un singur picior la jucătoarele de handbal - Știința Bacău

Cuvinte cheie: Forța explozivă, handbaliste, înălțime de desprindere, putere, timp

Rezumat: Această lucrare reprezintă un studiu realizat pe handbalistele de la Clubul Știința Bacău. Pentru evaluare am folosit, testul celor „15 sărituri” realizat pe două picioare, pe piciorul stâng și pe piciorul drept,

pe platforma senzorială. Rezultatele, reprezentate de puterea unitară medie (PU), înălțimea medie de zbor (H_{zbor}), media timpilor pe sol (V_{rep}), coeficientul de variabilitate energetică (CVE), coeficientul de variabilitate structurală (CVS), timpul minim pe sol ($TSOLm$), înălțimea maximă ($HMax$), puterea unitară maxim realizată (PMr), săritura cu putere unitară maxim realizată ($S.PMr$), puterea unitară maxim posibilă (PMp) au fost prelucrate și analizate.

H_{zbor} și $Hmax$ pe ambele picioare au valoare medie de 28 de cm și respectiv 31 de cm, pe piciorul drept de 17 cm și respectiv 19 cm, iar pe piciorul stâng de 17 și respectiv 20 de cm. V_{rep} și $SOLm$ are valori medii la desprinderea pe două picioare de 0,20 s și respectiv 0,18 s, la desprinderea pe piciorul drept de 0,28 s și respectiv 0,26 s, iar la desprinderea pe piciorul stâng de 0,28 s în ambele cazuri. PU, PMr și PMp au valori la desprinderea pe două picioare de 4,08 W/kg corp, 4,36 W/kg corp și respectiv 4,47 W/kg corp, la desprinderea

pe piciorul drept de 2,54 W/kg corp, 2,76 W/kg corp și respectiv 2,84 W/kg corp, iar la desprinderea pe piciorul stâng 2,560 W/kg corp, 2,87 W/kg corp și respectiv 2,96 W/kg corp. CVE și CVS au înregistrat valori la desprinderea pe două picioare de 3,31 și respectiv 6,82, la desprinderea pe piciorul drept de 3,82 și respectiv 4,57, iar la desprinderea pe piciorul stâng 4,60 și respectiv 5,27.

Valoarea proporției deținute de înălțimea de desprindere pe verticală pe un picior față de cea pe două picioare se încadrează între 127,77 % și 200,00%, cu valori medii de 167,82 pentru piciorul drept și de 163,05 pentru piciorul stâng. **Proporția valorilor desprinderii pe 2 picioare, la jucătoarele de handbal depășește cu mult datele din literatura de specialitate, deci prima ipoteză se infirmă.** Atât valorile de putere cât și cele de viteză sunt scăzute, deci se impune lucru intens atât pentru viteză cât și pentru forță, ceea ce validează ipoteza a doua.

SELECTION AND TECHNICAL TRAINING IN PERFORMANCE WEIGHTLIFTING

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Abstract

This paper introduces some methodological aspects related to the final stage criteria of junior weightlifters' selection and technical training. With this aim in view, we have considered that an efficient use of the specific means necessary for the junior weightlifters' training during workouts will contribute to the growth of the performance level during competitions.

The study was conducted within the Sports Club „Rapid” of Bucharest, at the Weightlifting Department, over a 2 months period (January – February 2010), with a group of 8 junior weightlifters of 12-18 years old.

The results of the study emphasized the efficient use of specific means needed to the training sessions of the junior weightlifters.

Key words: selection, barbells, training, performance.

Introduction

The selection is a continuous process intended for the discovery of talents at the right age, their observation all along the initiation inside departments, as well as during their progress on the route of performance sport, with the purpose to reach the sports mastership (Nicu, A., 1993).

For a good development of this process, the selector must know very well the following aspects: *selection criteria, stages of selection activity and promotion in the performance sport and the system of control norms and trials for the respective branch or event.*

The technique of a sport branch includes the

totality of the motor acts ideally achieved as for their efficiency, rationally and economically performed (Dragnea A., Teodorescu – Mate S., 2002).

According to Meinel (1984), the technical training, as any learning of the motor skills, passes through *three stages* successively (Manno, R., 1992):

a) development of the rough coordination, consisting of understanding the gesture basic structure, leaving eventually the known aspects in favor of the aspects to be learned;

b) assimilation of the movement by improvement and differentiation of the movement various phases;

c) stabilization and automation, making the

movement to remain efficient even in variable or unusual conditions.

Purpose of the study: highlighting some methodological aspects of the final selection criteria and of the technical training in juniors' performance weightlifting.

Hypotheses of the study:

We consider that the efficient use of the specific means needed to the junior weightlifters' training during workouts will contribute to the increase of the performance level in events.

Also, by applying the control trials and tests during the final stage of the selection we can emphasize the level of the athletes' training and the selection of these ones for participation in events.

Methods of research:

- bibliographic study regarding the theoretical documentation of the paper;
- method of observation, used all along the study for watching the progress of the athletes' training;

- experimental method: meant to confirm or invalidate the study hypotheses;
- statistical-mathematical and plotting methods („KyPlot" - *Nonparametric Test with multiple comparisons*).

Research organization and conduct

For pointing out some methodological aspects of the final selection and of the juniors weight lifters' training, we have organized a study of case within the Sports Club „Rapid" of Bucharest, in Weightlifting Department, for a period of 2 months (January – February 2010) with a group of 8 junior weight lifters, 12-18 years old.

Applied control trials: Anthropometrical data; General and specific physical training and the technical training in competitions.

Contents of the training means (micro-cycles):

Table no.1.

Micro-cycle no.2, Period: 8-13.02.2010

No of reps-500, Technique-40%-200 reps, Strength-60%-300 reps

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Percentage	20	15	20	15	20	10
No of reps	100	75	100	75	100	50
Morning workout	Gf.S 90%,3x4 95%,2x4 Sm.Th. 85%,3x4 90%,2x4 Ar.Th. 85%,2+2x4 90%,2+2x4	Gf.P 90%,3x4 95%,2x4 Sm.FF 80%,3x5 Ar.FF.Sup 80%,2x5 Tr.Ar. 90%,3x5 95%,3x5	Gf.S 90%,3x4 95%,2x4 Sm.Th. 85%,3x4 90%,2x4 Ar.Th. 85%,2+2x4 90%,2+2x4	Gf.P 90%,3x4 95%,2x4 Sm.FF 80%,3x5 Ar.FF.Sup 80%,2x5 Tr.Ar. 90%,3x5 95%,3x5	Gf.S 90%,3x4 95%,2x4 Sm.Th. 85%,3x4 90%,2x4 Ar.Th. 85%,2+2x4 90%,2+2x4	Gf.S 85%,3x4 90%,3x4 Apl. 85%,3x5 90%,3x4
Afternoon	Gf.P 85%,2x3 90%,2x3 Tr.S 90%,3x4 95%,2x2		Gf.P 85%,2x3 90%,2x3 Tr.S 90%,3x4 95%,2x2		Gf.P 85%,2x3 90%,2x3 Tr.S 90%,3x4 95%,2x2	

Legend of means contents: (Gf.S – back squat; Gf.P – front squat; Sm.Th.- technical snatch; Sm.FF- snatch without lounge; Tr.S – snatch pull ups; Ar.Th.- technical clean and jerk; Ar.FF.Sup- technical clean and jerk racks; Apl.- bent-over; PFG –general physical training

means needed to weight lifters' training during micro-cycle no 2 of the competitive mezzo-cycle, highlighting the percentage share and the number of series and reps per training session.

In table no.1 is listed the content of the specific

Results of the study

*Table no.2.
Anthropometrical Data*

N .P.	Birth year	Class of weight in competition	Weight kg	Height, cm
V.A.	1998	56	37	147
P.V.	1994	77	76	180
C.M.	1994	69	63	171
M.T.	1993	77	75	176
C.M.	1992	62	61	171
C.A.	1992	94	85	181
M.R.	1997	56	40	148
C.F.	1993	56	51	168
Statistical Indicators				
Mean		68.4	61	167.7
S.E.M.		4.8	6.2	4.7
S.D.		13.6	17.4	13.2
Variance		186.5	302.5	176.5
Coeff. Var.		0.19	0.28	0.07

*Table no.3.
Anthropometrical Data*

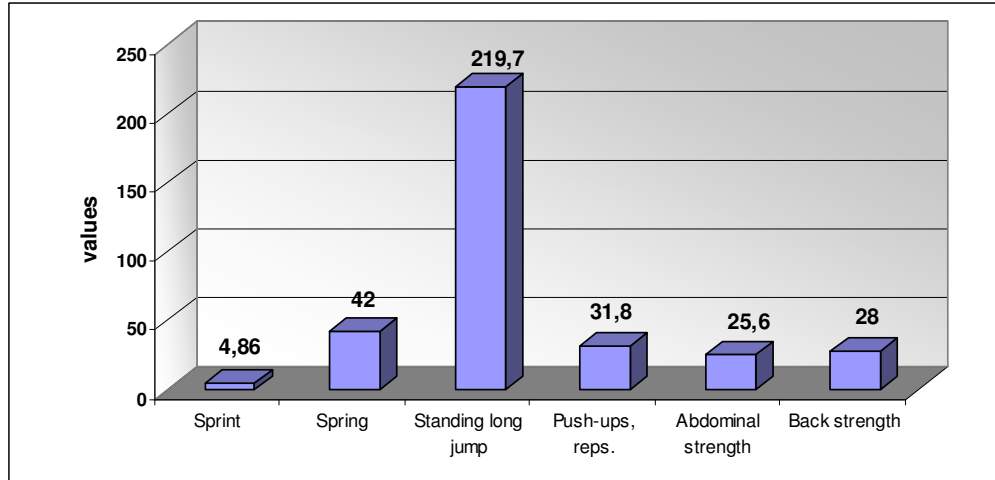
Statistical Indicators	Full-arm span, cm	Thoracic elasticity, cm		Waist, cm	Lower limbs length, cm
		Expiration	Inspiration		
Mean	169.7	87.6	92.8	73.5	92
S.E.M.	5.38	5.58	5.86	5.43	6.57
S.D.	15.2	15.7	16.5	15.3	18.6
Variance	231.9	249.4	275.5	236.2	346
Coef. Var.	0.08	0.18	0.17	0.2	0.2

Tables no. 2 and 3 show the data of the anthropometric measurements of the juniors weightlifters, with the following average values: body weight of 61 kg , height of 167.7cm, full-arm span of

169.7cm, thoracic elasticity in expiration of 87.6cm, in inspiration of 92.8cm, waist of 73cm and length of lower limbs of 92cm.

*Table no.4.
General physical training*

Statistical indicators	Sprint 30m, sec	Spring, cm	Standing long jump, cm	Push-ups, no of reps / 30 sec	Abdominal strength, no of reps / 30 sec	Back strength, no of reps / 30 sec
Mean	4.86	42	219.7	31.8	25.6	28
S.E.M.	0.28	8.96	12.1	3.04	0.98	0.86
S.D.	0.79	25.3	34.2	8.62	2.77	2.44
Variance	0.63	642.8	1170.2	74.4	7.69	6
Coeff. var.	0.16	0.61	0.15	0.27	0.11	0.08
Compar. test	X1	X2	X3	X4	X5	X6
X1		3.36(P<=0.01)	-3.36(P<=0.01)	-3.36(P<=0.01)	-3.36(P<=0.01)	-3.39(P<=0.01)
X2	0.0099		-3.61(P<=0.05)	0.31NS P>0.05	1.735NS P>0.05	1.07NS P>0.05
X3	0.0099	0.0101		3.363(P<=0.05)	3.363(P<=0.05)	3.38(P<=0.01)
X4	0.0098	0.99	0.01		1.736NS P>0.05	1.49NS P>0.05
X5	0.0098	0.508	0.01	0.507		1.49NS P>0.05
X6	0.0091	0.89	0.009	0.668	0.507	



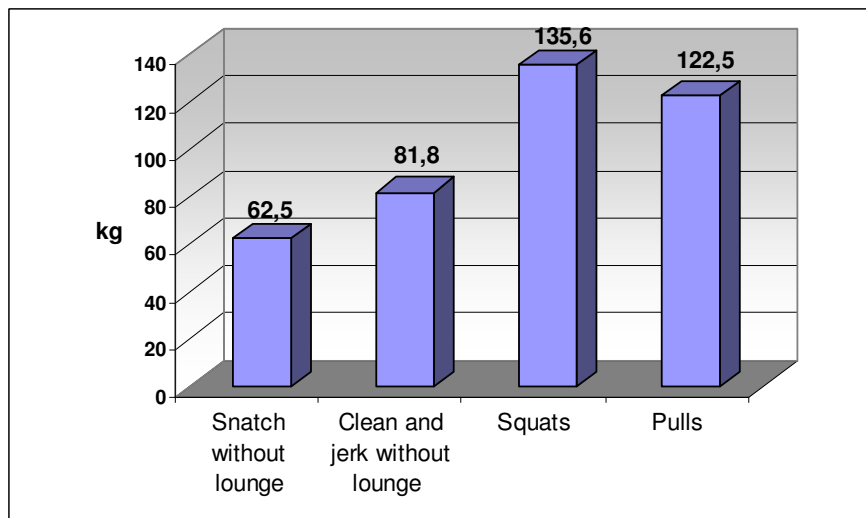
Graph no.1. General physical training

In table no.4. and graph no.1 are introduced the results of the control trials concerning the general physical training. As for the analysis of the test "multiple comparisons between control trials" we point out insignificant differences at $P > 0.05$ between: spring

with push-ups, abdominal strength and back strength; push-ups with abdominal strength and back strength; abdominal strength with back strength. There are significant differences at the other trials at $P \leq 0.05$ and $P \leq 0.01$.

Table no.5.
Specific physical training

Statistical Indicators	Snatch without lounge, kg	Clean and jerk without lounge, kg	Squats, kg	Pulls, kg
Mean	62.5	81.8	135.6	122.5
S.E.M.	8.91	10.8	18.01	16.03
S.D.	25.2	30.8	50.9	45.35
Variance	635.7	949.5	2595.9	2057.1
Coef. Var.	0.403	0.37	0.37	0.37
Multiple comp. test	X1	X2	X3	X4
X1		-1.265NS $P > 0.05$	-2.894($P \leq 0.05$)	-2.846($P \leq 0.05$)
X2	0.58		-2.477($P \leq 0.05$)	-1.945NS $P > 0.05$
X3	0.019	0.063		0.684NS $P > 0.05$
X4	0.022	0.208	0.903	



Graph nr.2. Specific physical training

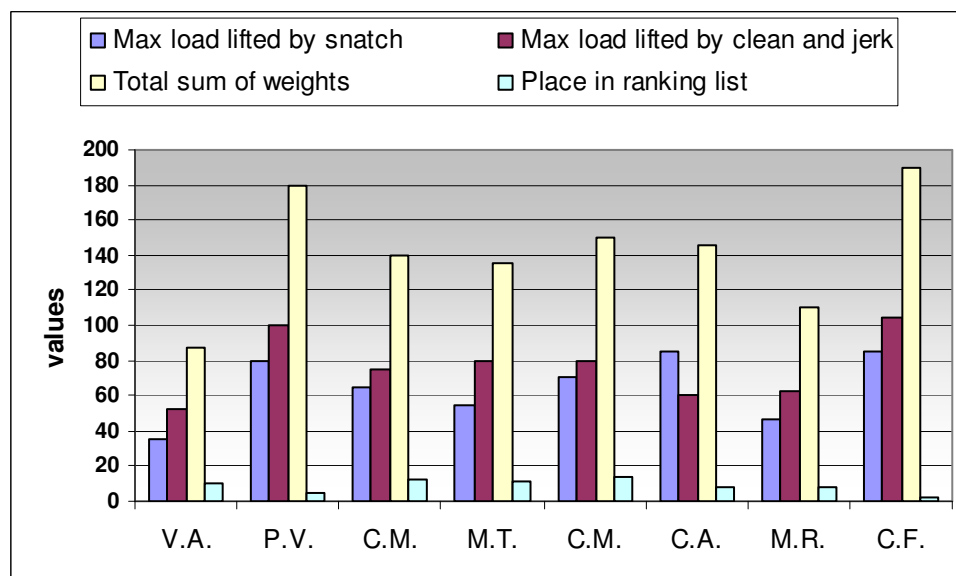
In table no.5 and graph no.2 are shown the results of the control trials regarding the specific physical training along the pre-competitive period. The analysis of the test "multiple comparisons between the control trials" emphasizes the insignificant differences

at $P > 0.05$ between: *snatch with lounge* and *snatch without lounge*; *pulls with clean and jerk without lounge* and *squats*. There are significant differences at the other trials at $P \leq 0.05$.

Table no.6.
Results obtained in events

Juniors I National Championship, Bucharest, March 2-6, 2010

N .P.	Technical snatch, tries			Max. weight lifted	Technical clean and jerk, Tries			Max. weight lifted	Total sum of weights	Place in ranking list
	1	2	3		1	2	3			
V.A.	30	35	38	35	45	50	52	52	87	10
P.V.	80	87	87	80	90	100	100	100	180	5
C.M.	55	60	65	65	75			75	140	13
M.T.	55	60	60	55	80	85		80	135	11
C.M.	70	80	80	70	80			80	150	14
C.A.	80	85	85	85	60			60	145	8
M.R.	40	44	47	47	55	60	63	63	110	8
C.F.	85	90		85	100	105	105	105	190	2
Statist.Ind.										
Mean	61.8	67.6	66	65.25	73.1	80	80	76.8	142.1	8.8
S.E.M.	7.1	7.4	7.2	6.5	6.5	10.8	13.2	6.6	11.8	1.4
S.D.	20.1	20.9	19.1	18.4	18.5	24.2	26.4	18.6	33.6	4.01
Variance	406.6	438.5	363.3	339.1	342.4	587	699.3	349.2	11.3	16.1
Coef. Var.	0.32	0.31	0.28	0.28	0.25	0.3	0.3	0,24	0.2	0.45



Graph no.3. Results obtained in events

Conclusions

The selection in weightlifting at performance level observes the training activity stages and the stages of promotion in the high performance sport as well. With his aim in view we intended to highlight some methodological aspects of the final stage criteria of selection and technical training in juniors' level

performance weightlifting.

The results of the study emphasize the inconsistency of the body weight with the competition weight class, the insignificant differences between the control trials regarding the general and specific physical training, as well as the places obtained by the athletes in competitions at different classes.

In conclusion, we can say that the efficient use of the specific means needed to the training of the junior weightlifters during training sessions contributes to the increase of the performance level during competitions.

Also, the application of the control trials and tests during the final stage of the selection highlights the athletes' level of training and their selection for participation in various competitions.

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La sélection et l'entraînement technique en haltères de performance

Mots-clé: Selection, halters, entraînement, performance

Résumé: L'article porte sur certains aspects méthodologiques des critères de l'étape finale de la

selection et preparation technique des haltérophiles debutants.

Selecția și pregătirea tehnică în haltere de performanță

Cuvinte cheie: Selecție, haltere, pregătire, performanță
Rezumat: Lucrarea de față prezintă unele aspecte metodologice ale criteriilor etapei finale ale selecției și pregătirii tehnice a halterofililor juniori. Pentru aceasta, am considerat că folosirea eficientă a mijloacelor specifice, necesare pregătirii sportivilor halterofili juniori în cadrul antrenamentelor, va contribui la creșterea nivelului de performanță în competiții.

Studiul s-a desfășurat în cadrul Clubului Sportiv „Rapid” București, la secția de haltere, pe o perioadă de 2 luni (ianuarie – februarie 2010), cu o grupă de 8 halterofili juniori, în vârstă de 12-18 ani. Rezultatele studiului au scos în evidență folosirea eficientă a mijloacelor specifice necesare pregătirii sportivilor halterofililor juniori în cadrul antrenamentelor.

FEATURES OF EFFORT IN WOMEN'S ARTISTIC GYMNASTICS

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Summary

Women's gymnastics is a polyathlon which comprises four events, each of them having its particularities as concerns the effort.

The polyathlon events of women's gymnastics are the following, in Olympic order: the vault, the uneven parallel bars, the balance beam and the floor exercise.

The types of effort in women's gymnastics are neuromuscular and neuropsychical. They are differentiated based on the duration and features of effort for each event, as follows:

1. *The vault – requires anaerobic alactacid effort (length of time: approximately 7 s).*
2. *The uneven parallel bars – require anaerobic lactacid effort (length of time: approximately 30 s).*
3. *The balance beam and the floor exercise - require mixed effort and short-term endurance (length of time: 80-90 s).*

Key words: anaerobic alactacid effort, anaerobic lactacid effort, mixed effort, limiting factors, gymnastics

Introduction

The performance level in gymnastics depends upon the good functioning of the nervous system, the locomotive system and the analyzers. Therefore, the study of such systems, apparatus and organs of effort, will provide us with the measurement of the specific requirements.

As a whole, effort in gymnastics is *aerobic and middle sized*, but it is known that women's gymnastics is a polyathlon which comprises four events, each of them having its own features as concerns the effort.

If effort is assessed based upon the duration of a performance, then we are tempted to consider this effort as being *anaerobic*, but if we take into account the values of cardiac frequencies during and after the performance, it lies within our competences to say that the effort is both *aerobic and anaerobic (mixed)*.

Theoretical perspectives

We will describe further the features of effort for each of the women's artistic gymnastics events, in the Olympic order.

1. *The vault – with anaerobic alactacid effort (length of*

time: approximately 7 s)

In *anaerobic-alactacid* efforts, of maximum intensity, with a 5-7 s duration (N.Alexe, 1993, p. 195), the energy is resulted from the adenosine triphosphoric acid (ATP) and creatine phosphate (CP) decomposition. Although the energy is supplied from the phosphagenes, the acidosis increases noticeably during these efforts.

The limiting factor (the organs and systems which reach the limit of their functional capacity) is represented by the *neuromuscular* system.

Full maturation of the neuromuscular system is produced relatively to the evolution of the maximum anaerobic power, which, for girls reaches the maximum level at age 14. In order to achieve performances in efforts of strength, the prevalence of white fibers and the stimulation of activities of some enzymes, the function of which is the ATP and CP decomposition, are required. "The ATP and CP are restored by 50% within the first 20 s, by 90% in one minute and reach the initial level in 2-5 minutes. In order to recover from the oxygen debt, 3-5 minutes of break are needed" (C. Urzeală, 2006, p. 46) A. Dragnea (1993, p. 38) states that the PC is restored in approximately 30 minutes.

In order to sustain the effort for this event which requires speed (in addition to strength), the energetic resources supplied by the most common and rapid energy system are used: the ATP-CP system (the anaerobic system). The energy released through CP decomposition is used to restore the ATP, yet this process is limited. During an exhaustive effort, the ATP and CP have low levels and both of them provide the energy required to perform the effort. The CP is found in larger amounts than the ATP in the skeletal muscle fiber.

2. *The uneven parallel bars – with anaerobic lactacid effort (length of time: approximately 30 s)*

In *anaerobic-lactacid* efforts, of submaximal intensity, with a 5-7 s and 50-60 s duration (according to N. Alexe, 1993, p. 196), the energy is resulted from the ATP resynthetization through anaerobic decomposition (glycolysis) of glycogen down to lactic acid which accumulates in muscles and blood, preventing the effort from continuing. In this case, the energy release is lower than during the effort mentioned previously.

The intensity of these efforts must be below the maximum value (85-95%) in order to obtain a maximum efficiency of the lactacid capacity development (I. Hantău, 2008, p. 33).

During such efforts the quantitative increase of enzymes which participate in glycogen metabolism and lactic acid is essential.

The limiting factors are represented by the neuromuscular system, the body's capacity to tolerate the oxygen debt and the accumulation of lactic acid. These biological factors reach maturity after age 16 in girls.

According to A. Dragnea (1993, p. 38),

glycogen is restored after 2-3 hours.

It has been shown that better trained gymnasts have a higher level of acidosis than the ones lacking training.

For increased performances under the *anaerobic effort*, the types of training that generate a strong hyperacidity and a high lactate level (interval trainings) are preferred.

3. *The balance beam and the floor exercise – mixed and short endurance effort (length of time: 80 s-90 s)*

During *mixed*, high intensity efforts which last 1-3/5 minutes (the first category of mixed effort) and 3-5 minutes (the second category of mixed effort, according to N.Alexe 1993, p. 203) the necessary energy is supplied by *anaerobic* and *aerobic* processes.

The two events of women's artistic gymnastics belong to the first category of mixed efforts, in which the time required for the anaerobic biochemical processes to supply alone the necessary energy is exceeded, but the duration of the entire effort is shorter than the period of adaptation to cardiorespiratory functions demands after which the oxygen needed for the energy release can be ensured aerobically.

The relation between the anaerobic and aerobic biochemical processes varies depending upon the intensity and duration of the effort.

According to Keul's data, quoted by Avramoff (1982, p. 22) it may be considered that in gymnastics the entire range of energy accumulators is consumed, in the following order: the ATP, the creatine phosphate and the glycogen.

Research has revealed that the effort specific to the sports category in question does not alter the intermediary metabolisms balance, therefore a fit gymnast does not need to have modified metabolic values. Metabolic deviations may be caused by the effort's wrongful adjustment, an inadequate diet, etc.

While on apnea, the oxygen debt may reach the values of 60-70% during floor exercises while the gas exchanges may increase twice the normal value during asymmetrical exercises (Avramoff, 1982, p. 19).

The values of oxygen consumptions are lower in this case than in other sports.

According to E. Avramoff (1982, p. 21), the maximum oxygen consumption to female gymnasts is 3600 ml/minute (57ml/ body kg), and the values of the same parameter are higher for *floor exercises* as compared to other apparatus.

The oxygen consumption is influenced by the quality of executions which reflects the gymnasts' training level. In poor executions, the oxygen consumption increases by 15-30%, reaching the value of 2,7 l/min, and as the execution is perfected by enhancing the neuromuscular coordination, the oxygen consumption is reduced to 2,3 l/min (for the same subject at the same apparatus)

Likewise, during effort specific to

competitions, due to emotional factors, the oxygen consumption increases, reaching the 2,5 l/min value.

Personal approaches

Taking into consideration the above mentioned, in women's gymnastics, one may consider that effort should be described and analyzed by taking into account two physiological guiding lines:

a. the training or competition global effort which has the following characteristics:

- it is aerobic;
- it has a medium intensity;
- it is cardiorespiratory and partially energetic.

b. the effort for each execution separately has the following features:

- it is anaerobic-alactacid, and lasts approximately 7s (during the vault event), anaerobic-lactacid and lasts approximately 30s (during the uneven parallel bars events) and mixed (aerobic and anaerobic) which lasts 80-90s (for the balance beam and floor exercises);
- it is neuromuscular and neuropsychical.

The physiological line described under point "a" requires a volume adjustment while the physiological line under point "b" imposes an intensity adjustment.

During the uneven parallel bars event, effort is sustained by the ATP-CP and glycolytic energy systems.

Upon analyzing the effort in the light of the energy systems, one may conclude that in two of the women's artistic gymnastics events (balance beam and floor exercises), the competition effort is sustained by the glycolytic energy system, which is much more complex than the ATP-CP system. This system does not produce a large amount of ATP.

It is known that in artistic gymnastics, the ability, which is a motor quality significantly determined genetically, plays an important role in acquiring the specific techniques and should be assessed as precisely as possible. In this context, the research works of Booth - Narahara and Malina, quoted by N. Alexe and M. Ifrim (1993, p. 67) reveal the fact that the anaerobic effort capacity and the cortical functionality are directly proportional. Thus the motor ability potential can be estimated. This conclusion is based upon the fact that the nervous cell has a predominantly anaerobic metabolism.

Conclusions

Effort in gymnastics has an alternating nature, challenging the entire body and mainly the upper body. The alternating nature is resulted from:

- the alternation of effort and rest;
- alternation of the static and dynamic effort (according to the specific features of each apparatus).

The gymnasts' energy consumptions grow from inferior to superior categories as a result of an increase

in the difficulty of exercises, work duration, number of repetitions and body weight.

The studies carried out by Dr. Carmen Dumitru, quoted by E. Avramoff (1982, p. 22) aiming to explore the gymnasts' functional capacity, have shown that gymnastics is ranked last among sports disciplines, as concerns the maximum oxygen consumption, against the body weight, which means that the cardiovascular and respiratory apparatus are not significantly challenged, therefore gymnastics is a sports category in which aerobic effort is not a prevailing feature.

Suggestions

The aerobic and anaerobic effort components shall be developed during trainings, successively and not simultaneously, because one method restrains the other.

It is advisable that coaches identify as soon as possible the gymnasts with favorable genetic predispositions within the neuromuscular system, which represents the limiting factor during the vault efforts of strength. These predispositions must be converted into skills through an adequate training and by making the most of the anaerobic capacity at optimal age (14 years in girls), when the neuromuscular system reaches full maturation.

In order to properly guide the effort during trainings and competitions, coaches must correlate the metabolic data (mainly those concerning the sodium and chlorine) with the somatic data (especially the muscle tone) and with data related to motor capacities (especially speed and ability). It is advisable that the following be correlated:

- sodium and chlorine with muscle tone;
- potassium with speed;
- total acidity with ability (E. Avramoff, 1982, p. 37).

In order to assess the capacity of recovery after the specific effort, the glycogen reserves, the acid-base balance, the speed and mobility of nervous processes shall be determined.

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Les caractéristiques de l'effort dans la gymnastique artistique féminine

Mots-clé: Effort anaerobe alactacyde, effort anaerobe lactacyde, effort mixte, facteurs limitatifs, gymnastique
Résumé: La gymnastique féminine est un polyathlon à quatre épreuves, chacune ayant ses particularités de

point de vue de l'effort neuromusculaire et neuropsychique.

Caracteristicile efortului în gimnastica artistică feminină

Cuvinte cheie: Efort anaerob alactacid, efort anaerob lactacid, efort mixt, factori limitativi, gimnastică

Rezumat: Gimnastica feminină este un poliatlon care cuprinde patru probe, fiecare probă având particularitățile ei din punctul de vedere al efortului.

Probele poliathlonului din gimnastica feminină sunt în ordine alfabetică următoarele: sărituri, paralele

inegale, bârnă și sol.

Tipurile de efort în gimnastica feminină sunt neuromuscular și neuropsihic. Acestea se diferențiază în funcție de durata și caracteristicile efortului în fiecare probă, astfel:

1. Proba de sărituri – cu efort anaerob alactacid (durata: aproximativ 7 s.)

2. Proba de paralele inegale - cu efort anaerob lactacid (durata: aproximativ 30 s.)

3. Probele de bârnă și sol – cu efort mixt și de scurtă duranță (durata: 80 s.- 90 s.)

CONSIDERATIONS ON THE USE OF THE METAMI INSTRUMENT AND OF THE METAMI RADIAL NETWORK IN ASSESSMENT OF THE HUMAN FOOT POSITION

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Abstract

The METAMI instrument and the METAMI radial network are two devices designed for use in assessing human foot position, in determining normality and any deviations from normal. METAMI name comes from the following anatomical landmarks used to assess foot: ME – external malleolus, TA – Achilles tendon, MI – internal malleolus. Normal position of the foot (in physiological external rotation) corresponds to the value of 0.432 and is indicated by the inner radius of the METAMI radial network, respectively by the tip of the pointer arm (internal) of the METAMI instrument. Abnormal position of the foot in external rotation is indicated by the inscription RE (which is on the connecting arm of the instrument, respectively on the last parallel of the radial network) and, by exclusion, is determined abnormal position of the foot in internal rotation.

Keywords: physiological external rotation of the foot, foot in external rotation, varus foot, foot in internal rotation, valgus foot

Introduction

The alignment of the human foot is one of the areas debated in particular by chiropodists, kinetotherapists and orthopedic specialists.

Theoretical background

Gilbert Le Grand, French podiatrist, experimenting about normal 100 feet, has calculated the index of the rotation of bimalleolar axis based on formula $I = \frac{b}{a+b}$, where **a** is the distance from the external malleolus to the middle of the Achilles tendon and **b** is the distance from the middle of the Achilles tendon to the internal malleolus, reaching an average value of **0.432**. The value of the index of rotation of bimalleolar axis $I = 0.432$ corresponds to the normal position of the foot (in physiological external rotation), values of the index of rotation below **0.432** mean external rotation, indicating varus foot and values above **0.432** mean internal rotation, indicating valgus foot.

Personal approaches

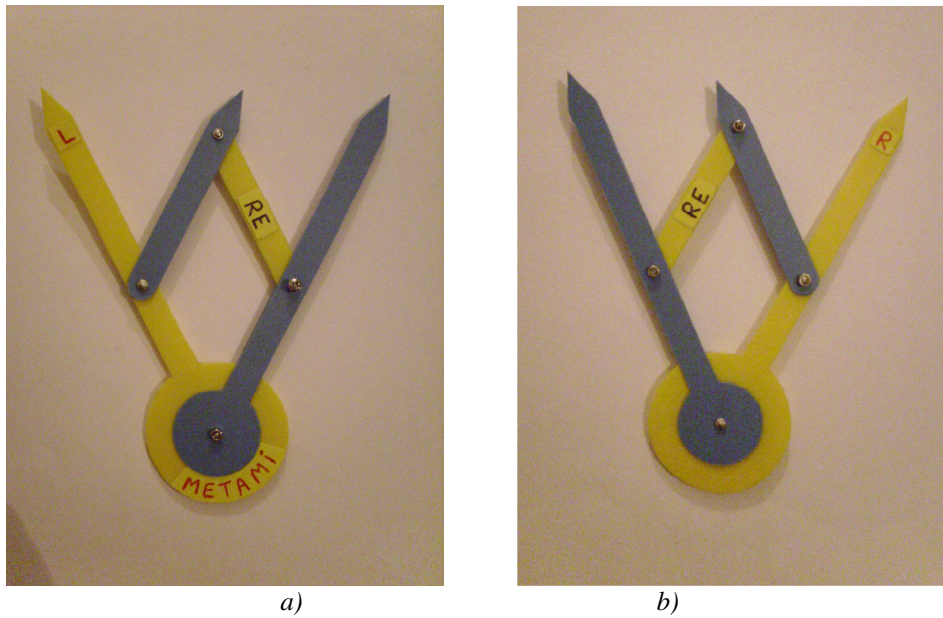
METAMI instrument and METAMI radial network, which are built on the formula of Gilbert Le Grand $I = \frac{b}{a+b} = 0.432$, were designed to more rapid assessment of the human foot position, in determining normality and any deviations from normal. METAMI name comes from the following anatomical landmarks used to assess foot: ME – external malleolus, TA – Achilles tendon, MI – internal malleolus.

The two devices have the following characteristics:

– the METAMI instrument (*Fig. 1*) is composed of two long arms of different colors, one of which is inscribed the letter L or R (corresponding to the two sides of the instrument), the arms bordering a shorter arm, pointer of the normal position of the foot (in physiological external rotation), corresponding to the value of **0.432**. The pointer arm has the same color as the arm which doesn't have any inscription and he is

joined to it through a connecting arm heaving the inscription RE (on both sides of the instrument), inscription which help to the visual guidance and in the

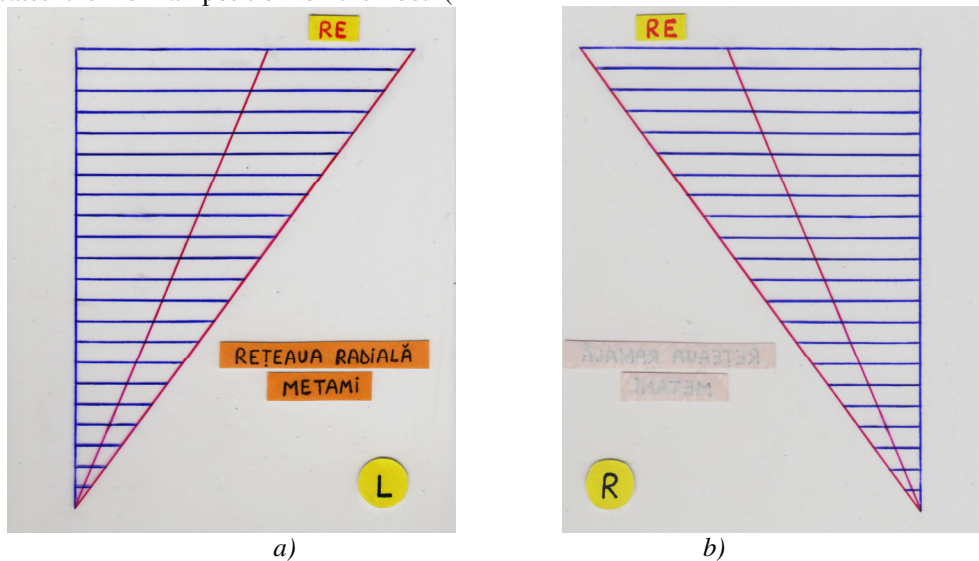
diagnosis of foot position in external rotation or, by exclusion, in internal rotation.



a) b)
 Fig. 1. The METAMI instrument on both sides:
 a) the corresponding side of the left foot assessment (L=left)
 b) the corresponding side of the right foot assessment (R=right)

– the METAMI radial network (Fig. 2) is composed of three radii with a common end and a radial layout, intersected by equidistant parallel lines perpendicular to the base radius (the shortest and with a different color from the other two radii). The inner radius indicates the normal position of the foot (in

physiological external rotation), corresponding to the value of **0.432**. The inscription RE, which lies between the radii of the same color, over the last parallel, help to the visual guidance and in the diagnosis of foot position in external rotation or, by exclusion, in internal rotation.



a) b)
 Fig. 2. The METAMI radial network on both sides:
 a) the corresponding side of the left foot assessment (L=left)
 b) the corresponding side of the right foot assessment (R=right)

The METAMI instrument and the METAMI radial network can be used independently, but also for

mutual confirmation of results (Fig. 3), both the METAMI radial network and the METAMI instrument

following the same principles of measurement.

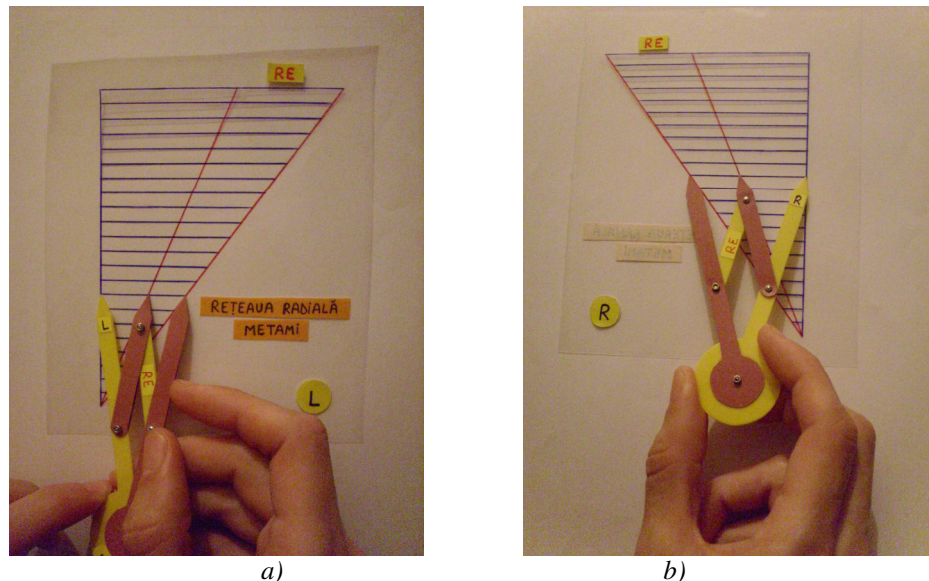


Fig. 3. Equivalence of the measurement actions using the two devices for:

- a) the corresponding side of the left foot assessment (L=left)
- b) the corresponding side of the right foot assessment (R=right)

The two devices, the METAMI instrument and the METAMI radial network, have the following advantages:

- they are especially useful for beginners in determining of the foot position;
- they are concrete means of visual guidance: with the tip of the pointer arm of the METAMI instrument, respectively with the inner radius of the METAMI radial network, we can observed the physiological external rotation position that should normally be the foot and which a deviant foot should be, after treatment, as close as possible;
- they can be used to determine the foot position on subjects of all ages, because the value of the index of rotation of bimalleolar axis (**0.432**) is valid for all ages;
- with these devices are made objective measurements, because the measurements are performed on the plantar footprint or on the photo

recording;

- the METAMI instrument can be used both in analysis of static images (recorded on film camera) and of the dynamic images (the video recording). For example, for gait analysis (hind view) we can stop running the movie in a certain phase of the gait, determining then the position in which the foot is.

The indications of the two devices in the assessment of foot position are illustrated in the figures below (Fig. 4, Fig. 5, Fig. 6), where the determination of the foot position was performed using:

- a) the METAMI radial network;
- b) The METAMI instrument, with perpendiculars dropped from the external malleolus, the middle of the Achilles tendon and the internal malleolus to the horizontal axis;
- c) The METAMI instrument, without auxiliary lines.

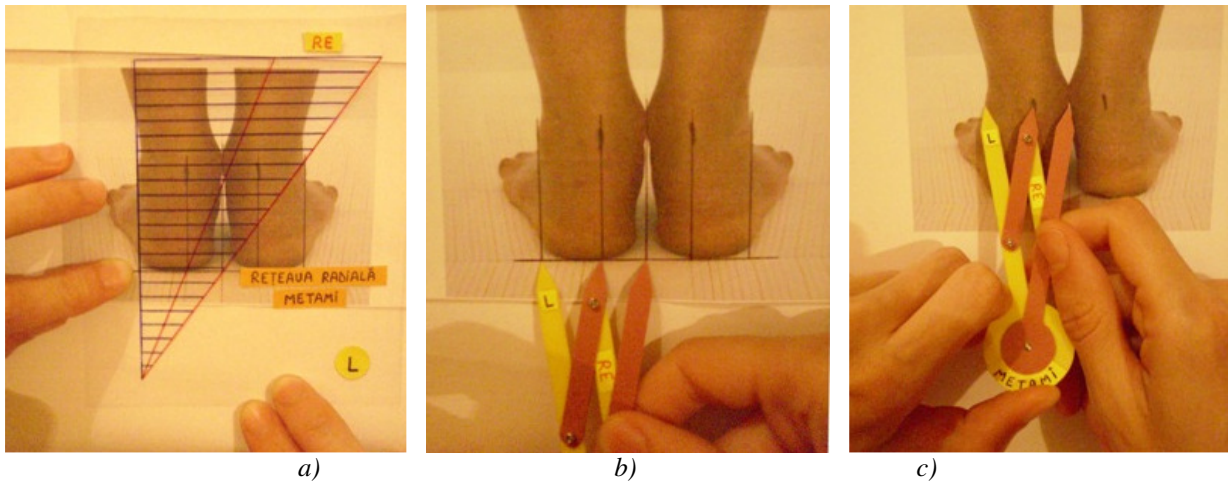


Fig. 4. Normal position of the left foot

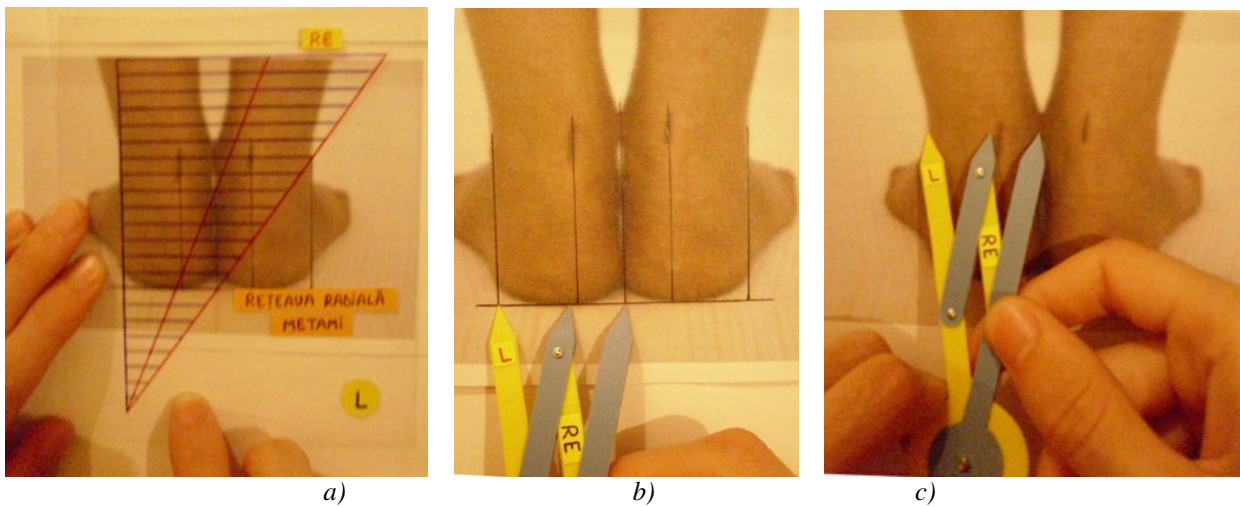


Fig. 5. External rotation position of the left foot, indicating varus foot

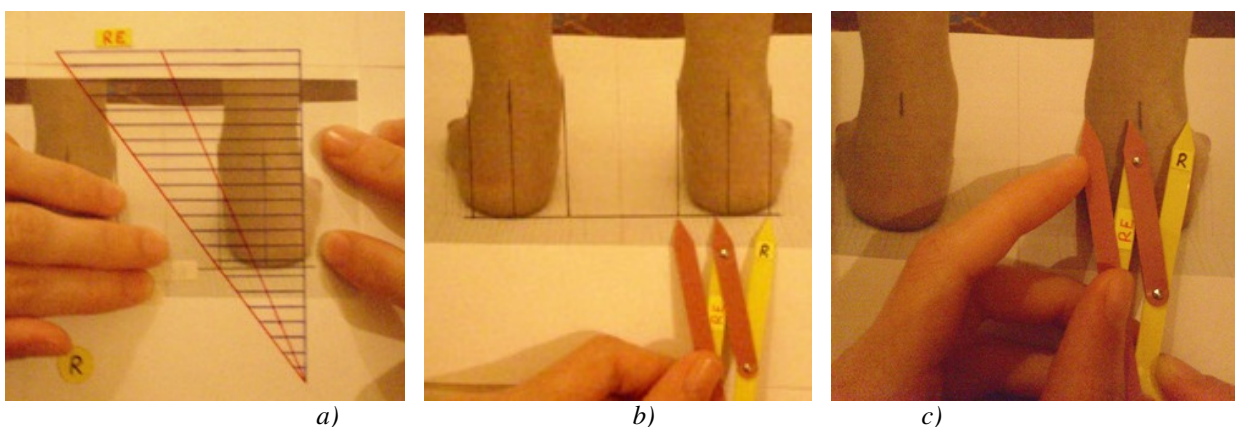


Fig. 6. Internal rotation position of the right foot, indicating valgus foot

Conclusions

The devices achieved in this research activity – the METAMI instrument and the METAMI radial network – can be means of rapid assessment of the foot position, they being useful in the work of a kinetherapist, to guide the physical therapy treatment, for monitoring progress and efficiency of treatment.

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Considérations sur l'utilisation de l'instrument metami et du réseau radial metami dans l'évaluation de la position du pied humain

Mots-clé: Pied en rotation externe physiologique, pied en rotation externe, pied en varus, pied en rotation interne, pied en valgus

Résumé: L'instrument METAMI et le réseau radiale METAMI sont deux appareils conçus pour l'utilisation dans l'évaluation de la position du pied humain dans l'établissement de la normalité et les déviations possibles.

Considerații privind folosirea instrumentului metami și a rețelei radiale metami în evaluarea poziției piciorului uman

Cuvinte cheie: Picior în rotație externă fiziologică,

picior în rotație externă, picior în varus, picior în rotație internă, picior în valgus

Rezumat: Instrumentul METAMI și rețeaua radială METAMI sunt două aparate concepute pentru a fi folosite în evaluarea poziției piciorului uman, în stabilirea normalității și a eventualelor abateri de la normal. Denumirea METAMI provine de la următoarele repere anatomice folosite în evaluarea piciorului: ME – maleola externă; TA – tendonul ahilian; MI – maleola internă. Poziția normală a piciorului (în rotație externă fiziologică) corespunde valorii de 0,432 și este indicată de raza interioară a rețelei radiale METAMI, respectiv de vârful brațului indicator (interior) al instrumentului METAMI. Poziția anormală a piciorului în rotație externă este indicată prin inscripția RE (de pe brațul de legătură al instrumentului, respectiv de pe ultima paralelă a rețelei radiale), iar prin excludere este determinată poziția anormală a piciorului în rotație internă.

PHYSICAL THERAPY IN NON-ALCOHOLIC FATTY LIVER DISEASE

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Abstract

Long regarded as a benign condition, non-alcoholic steatosis is recognized today as having the current problems: significant prevalence to 30 percent in the general population; correlated with the growing incidence of obesity and metabolic syndrome²; evolutionary potential serious; can lead to steatohepatita, cirrhosis, liver failure, hepatic carcinoma - celular²); association with other pathologic entities: obesity, dyslipidemia, diabetes, cardiovascular disease

Key words: physical therapy, obesity, prevalence, steatosis

Introduction

Nonalcoholic fatty liver disease is an increasingly recognized condition that may progress to end-stage liver disease. The pathological picture resembles that of alcohol-induced liver injury, but it occurs in patients who do not abuse alcohol^{3,4}. The lack of populational studies that shows the scale fatty liver, high socio-economic costs are serious arguments for a physical therapy approach for this disorder therapist

Material and methods

Aim of the study

- evaluation of the fatty liver prevalence in the studied group;
- the finding of any correlation between dyslipidemia and other clinical and biochemical parameters, dietary patterns, imaging data and the severity and prognostic of NAFLD;
- assessing of the prevalence of risk factors in the studied group;
- assessing of physical therapy role in NAFLD treatment.

Lot Selection:

- 1) the studied group was elected from approx.4000

patients;

2) the selection was made using clinical and biochemical parameters like:

- food and behavior investigation in order to make a risk score (with emphasis on eating carbohydrates and fats and their relationship, physical activity, family circumstances).

In the first phase were enrolled in the study a number of 1323 people who were made up a observation sheet. After exclusion of those not cooperating or aligned to the inclusion criteria for the study remained a no. of 517 patients in which 220 men 297 women.

Including Criterias:

- belonging to the same geographical area;
- the subjects were divided in groups age and sex and randomly selected a study group.

Excluding Criteria

1) drinking;

2) virus B, C;

3) other toxic and autoimmune liver disease, etc.

Work stages

The patients samples are classified by age, sex, BMI in order to asses the prevalence of the risk factors associated with fatty liver disease.

In the second stage the selected patiens will make a standard abdominal ultrasound.

It starts from the principle that tissue pathological changes in some diseases (such as steatosis or cirrhosis early) cause alterations in physical properties and microarchitecture (density, viscosity, elasticity, uniformity, etc.) which, although difficult to perceive visually however affect ultrasound propagation and thus can be perceived through complex image analysis (ultrasound tissue characterization), a different texture than the normal pattern.



Image 1 digitized work

Computerized tissue characterization can be achieved by methods based on ultrasonic attenuation and parenchymal ecogenitatii study or quantification methods based on textural parameters.

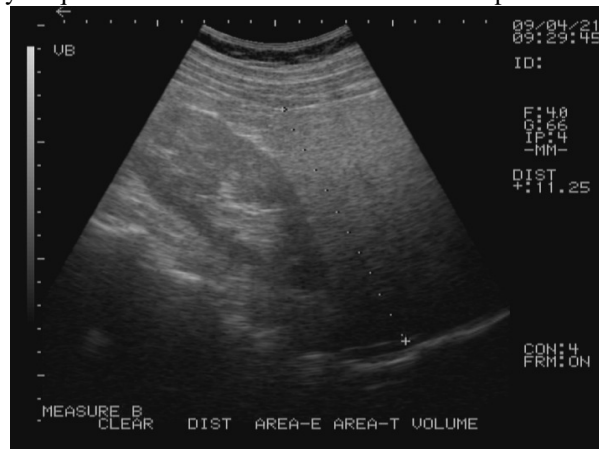


Image 2 Fatty Liver

I. Analysis of echo intensity (gray scale analysis, acoustic intensity histogram, or simply histogram ultrasound) is a mathematical method for characterizing a specific region by processing the ultrasound image data from RAM. To obtain comparable images on a given device must be recorded and saved a number of technical factors of the apparatus and preprocessing methods.

The results obtained by analyzing histograms can be compared with each other provided the device keeping the same settings. Thus we want to follow the prevalence of steatosis in this population and its relationship with dyslipidaemia, overweight and other risk factors.

II. All patients according to comorbidity will follow a suitable treatment plan - analyzing the results

based on clinical indicators, biochemical and imaging monitor. In addition we will randomize the patients into three samples:

Lot. 1 witness;

Lot. 2 undergone a personalized diet;

Lot. 3 undergo a kinetic program personalizat.

Data will be processed using computer programs: Student, SPSS, ACCESS, EXCEL, etc. Will be respected bioethics and ethics rules of national and international research collaboration with the Bioethics Commission UMF Iasi.

Results

As a first step we analyzed quantitatively this intermediate risk factors for steatosis in pursuing the study population distribution by sex, age groups of the lot, cholesterol and BMI.

Distribution of comparative gender by age on analyzed group

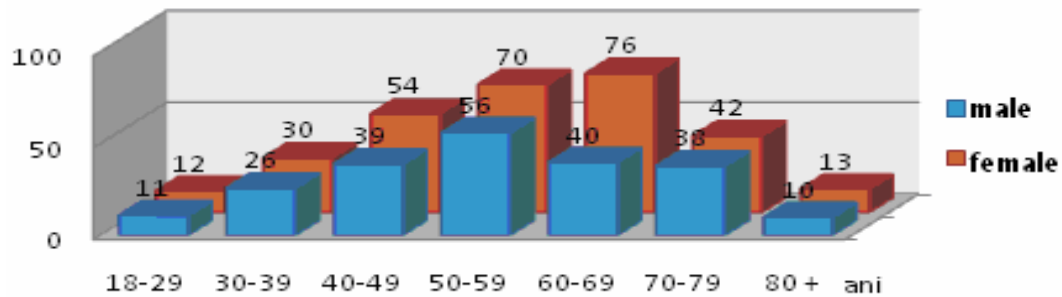


Fig.3 Distribution of comparative gender by age on analyzed group

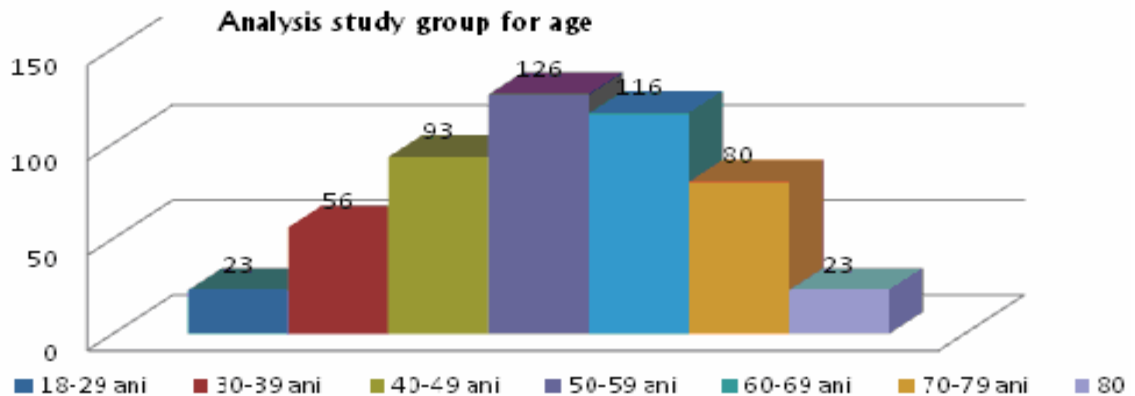


Fig. 4 Analysis study group for age and sex

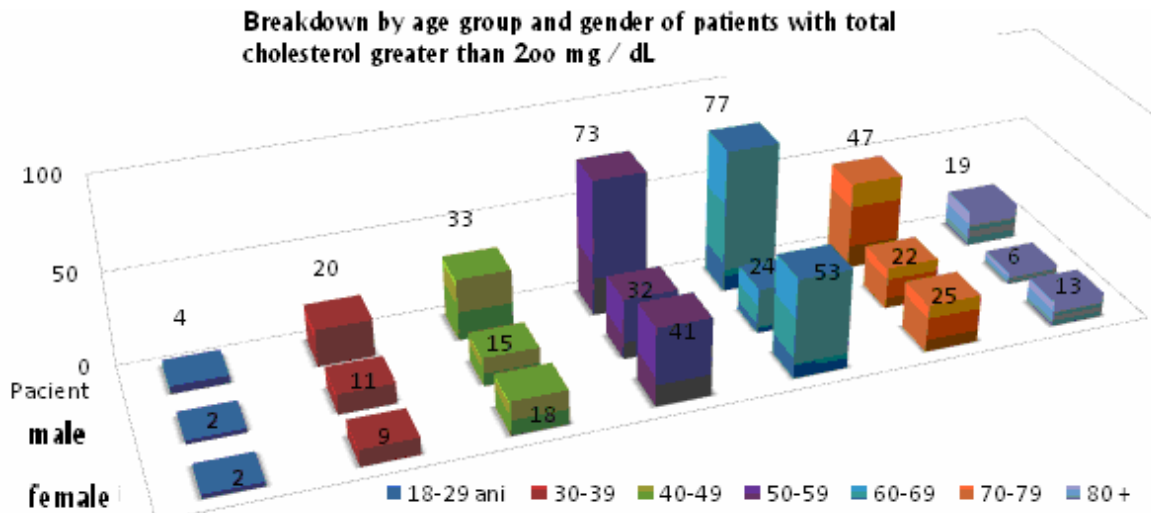


Fig. 5 Breakdown by age group and gender of patients with total cholesterol greater than 200 mg / dL

Share of overweight persons (BMI > 25) in the studied group

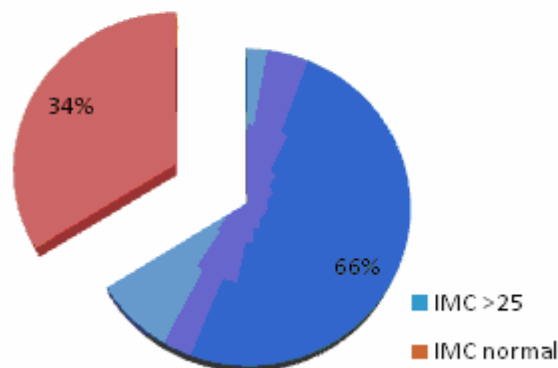


Fig. 6 Share of overweight persons (BMI > 25) in the studied group

Conclusions

Preliminary data on the presence of fatty liver risk factors in the population show a high prevalence followed them to justify a forecast high rates of incidence of fatty liver.

The samples will be subjected to further study the proposed therapeutic programs above

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La thérapie physique dans la stéatose hépatique non-alcoolique

Mots-clé: *thérapie physique, obésité, prévalence, stéatose*

Résumé: *La stéatose hépatique non-alcoolique est vue aujourd'hui comme ayant un potentiel évolutif sérieux.*

Kinetoterapia in steatoza hepatica non-alcoolica

Cuvinte cheie: *kinetoterapie, obezitate, prevalență, steatoză*

Rezumat: *Mult timp privită ca o condiție benignă, steatoza hepatică non-alcoolică este recunoscută azi ca o problemă de actualitate având: prevalență semnificativă până la 30% în populația generală; incidența în continuă creștere corelată cu a obezității și a sindromului metabolic ²⁾; potențial evolutiv grav – putând duce la steatohepatită, ciroza hepatică, insuficiența hepatică, carcinom hepato-celular prin asociere cu alte entități patologice: obezitate, dislipidemie, diabet, boli cardiovasculare.*

PAIN MANAGEMENT IN PLANTAR STATICS DISORDERS

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Summary

Study objectives: 1. The prospective determination of the efficiency of kinetic treatment, including plantar prostheses on the symptoms of plantar static disorders. 2. Pain alleviation. 3. Recovery of the muscular balance. 4. Recovery of articular mobility. 5. Recovery of the plantar arch. 6. Remediation of the foot alignment. The present study is a prospective clinicostatistic and epidemiological study, randomized in a controlled manner, which monitored 40 patients evaluated, treated and monitored in the Recovery Centre of LACU-SĂRAT Brăila and the Recovery Centre S.C. FIZITER S.R.L., within the period 2007-2010, selected on the basis of their symptomatology generated by disorders of plurietiological plantar statics, randomly divided into two lots of 20 subjects each: lot M (witness) and lot S (study). Treatments: lot M: standard treatment (local and general medicine treatment, physiotherapy, kinetotherapy). Lot S: standard treatment associated to applying prostheses depending on the etiological pathology. The effect of the treatment of medical recuperation is better maintained in time if the classic treatment is associated with prescribing and wearing plantar prostheses.

Key words: disorder, kinesiology, leg, statics

Objectives of the recovery treatment.

1. Prospective determination of the efficiency of the kinetic treatment including plantar prostheses upon the symptoms of plantar static disorders. 2. Pain alleviation. 3. Recovery of the muscular balance: this process is linked to the normal statics of the foot. The rest balance is ensured by ligaments and only the sural triceps is active, drawing back the calf. Any deviation of the balance vector contracts the extrinsic and intrinsic muscles of the leg. The recovery of the muscular balance of the foot involves two stages: the first stage aims at toning the muscles by the usual methods of isometry and exercises of progressive endurance; the second stage focuses on exercises of coordination and recovery of the sensitive and motor balance. 1. Recovery of the articular mobility: the posttrauma rigidity of the ankle and foot determines a functional handicap manifest mostly in walking on rough terrain. These movements may only be gained to the extent in which the anatomical structure and the rapports of the articular forces are observed. Posttraumatic edema is the most important element affecting the fibrous apparatus of the leg. 2. Recovery of the plantar arch. Almost all types of trauma or immobilization it requires leave as a sequella a static disturbance due to the modification of the plantar arch. The leg is made up of a system of bones, composed of the tarsian and metatarsian bones, maintained by ligaments and aponevrosis and kept tensed by the muscle tone. There are two longitudinal

arches (internal and external) and an anterior arch (transversal). It is achieved by specific exercises and personalised heel supports depending on the pressure area. 3. Recovery of the foot alignment.

Material and method

The present study is a clinicostatistical and epidemiological study, randomised in a controlled manner, monitoring 40 patients evaluated, treated and monitored in the Recovery of LACU-SĂRAT Brăila, and the Recovery Centre SC FIZITER SRL.

The subjects were selected on the basis of the symptomatology generated by dysfunctions of plurietiological plantar statics. They were randomly divided into 2 lots of 20 subjects each: lot M (witness) and lot S (study). The symptoms of selection were: Plantar pain during rest and/or walking on flat terrain; plantar static disorders diagnosed clinically and paraclinically; age between 30 and 65; physical ability to cope with a program of active exercises; The following cases were excluded: ailment going back further than 2 years; disorders of plantar statics associated to central or peripheral neurological conditions, chronic inflammatory rheumatological affections, severe dysfunctions of plantar statics requiring corrective orthopedic interventions, diabetes, psychosomatic disorders. The following treatments were applied: lot M: standard treatment (local and general drug administration, physiotherapy, kinetotherapy). lot S: standard treatment associated with orthosis,

depending on the etiological pathology.

The demographic structure of the lot S: age, sex, background. *Structure of the quantified clinical elements:* height, weight, IMC, duration of the etiopathogenic illness, the pain score, articular mobility, proximity pain. *Structure of functional variables:* distance walked without pain, occurrence of stiffness during walking, ADL, WOMAC index: *Evolution of podal(podographic) pressure:* plantar pressure at the level of the foreleg, at the end of the first metatarsian, at the heel level, at the end of the V metatarsian, global plantar pressure, the index of the plantar arch.

The plantography was performed according to the method of Cighin I. M: 0-1 – normal sole; from 1 to 2 – flattened sole; over 2 – flat sole. The support point by registering the plantar print by means of the plantogram (Ghirgolav and Levit) and the pedometric method of Fridleand. *Recovery programs and their follow-up.* The standard treatment consisting of: drugs administered locally and generally, physiotherapy and kinetotherapy, was followed by the patients in lot M for 3 weeks.

The standard treatment, associated with orthoses, depending on the podometric analysis, was followed by the patients in lot S. In order to determine the effect of the treatment applied to the two lots, the following were monitored: rest pain ,orthostatic pain and walking pain (VAS scale); articular mobility; distance covered without pain; life quality, ADL (Activities of DailyLiving); treatment compliance degree.

In order to appreciate comparatively the functional evolution, the following were used: functional indices: *the walking parameter;* pain indicators (*the analogous visual scale and the WOMAC index* (Western Ontario and McMaster University). The measurement of these indices was carried out by an evaluator who did not participate in the treatment of these patients, in a different location, not knowing the lot to which each patient belonged. The assessment was performed at the *beginning of the study, after 1 month (after the end of the standard treatment), after 3 months, 6 months and 1 year.* It should be mentioned that the patients in lot S wore the orthoses within the 3 month period permanently, then intermitently after the expected walking effort, until the final

evaluation. Materials used: autochtonous podometer ;standard X-rays at the foot level;probe ecograph for the examination of the soft tissues; computer programs for databases (Microsoft Access); clinical and functional assessment scales; the Ortopedica center of orthoses and orthopedical footwear, personalised adapted orthoses.

Results and discussions

Demographic variables. **Age** Lot M: Average age = 52 ± 10 ; Median age = 47 Lot S: Average age = 49 ± 13 ; Median age = 49; Modal age = 49. There is no notable statistic difference between the two lots regarding age ($p > 0.05$); the lots under comparison are homogeneous. For the age group 45 – 48, the difference could be situated at the limit of statistic significance, but the sublots are too small to bear statistical functions. **Sex** Lot M: 14 women and 6 men; Lot S: 13 women and 7men; There is a clear propensity of the female group in all age groups (the correlation ratio men/women is statistically significant).

Clinical variables .Height of the subjects: The difference of height distribution between the two lots, although obvious, is not statistically significant. The patients' evolution is not in correlation to their height, and also, the presence of plantar statics disorders is not significantly correlated with height. **The body mass index.** Both lots were mostly made up of subjects of normal weight and overweight, but the difference between the two groups for overweight patients is not statistically significant. It may be concluded that the disorders of plantar statics for the patients within this study did not have overweight as a risk factor. However, the evolution of the pain symptoms was not significantly influenced by overweight or obesity.

Plantar pain (Figure 1, 2). The intensity of plantar pain felt by the subjects was measured by means of the VAS scale 0-10. Pain quantification was as follows: pain of intensity 8, 9 or 10 on the VAS scale= **intense pain 1**; pain of intensity 5, 6 or 7 on the VAS scale= **average pain 2**; pain of intensity under 5 on the VAS scale= **moderate pain 3**

The two lots were homogeneous as far as the plantar pain intensity is concerned at the beginning of the study. Both lots belonged to the category of intense pain 1. The difference between the two lots is not statistically significant.

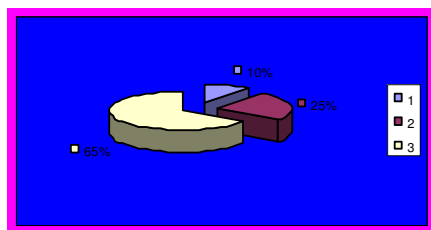


Fig. 1 Pain intensity in lot A at the beginning of the study

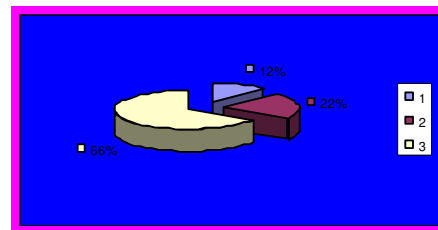


Fig. 2 Pain intensity in lot B at the beginning of the study

As for the evolution of the painful plantar

symptoms after the implementation of treatment

protocols on average term (3 months), there is a clear distinction, statistically significant. Thus, lot S, containing the patients wearing the ortheses built according to the results of the plantogram, exhibited an

almost 30% decrease of pain intensity within the limits of level 3 pain, which is statistically significant. No patient in lot S manifested level 1 pain. (Figure 3, 4).

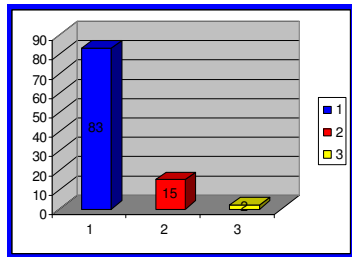


Fig. 3 Pain intensity in lot A after 3 months

Other associated musculoskeletal pains

The patients included in the study also manifested in a proportion of 100% other localisations of musculoskeletal pain (spinal, lumbar, back and neck pains), pain at the knee and hip level. However, specialised literature mentions the role of plantar statics disorders in the ailments of supra-adjacent joints and spine which occur in time. The lots of subjects were also homogeneous from this point of view, without statistically significant differences. The predominant type of patients were the ones with CDL ailments (60% in lot I and 66.6% in lot II). For the patients in the two lots who exhibited spinal statics disorders the objective exam identified two such disorders: the first place belonged to cases of spinal straightness (47.3%), followed by hyperlordosis (26.3%).

Disease duration. The study included patients complaining of painful symptoms having installed after a period of at most 1 year. From the point of view of ailment duration, the subjects were grouped into 3 categories: under 3 months, between 3 and 6 months, over 6 months. The patients have a lesser compliance to non-pharmacological treatment, and plantar ortheses function of the duration of the plantar condition. In the first weeks of wearing ortheses, the suffering may grow in intensity, especially if the application procedures are not observed, leading to abandonment of treatment. The distribution of the subjects between the two lots

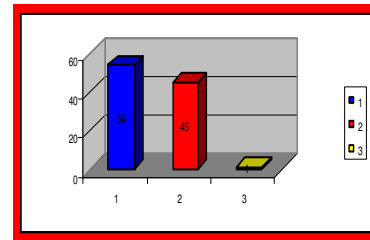


Fig. 4 Pain intensity in lot B after 3 months

according to the condition duration was relatively homogeneous. It is necessary to continue the study and enlarge the lots of subjects in order to obtain relevant results.

Type of anatomic defect, according to the etiological ailment. The foot anatomical defects in the patients in the two lots were noted as absent or present. The lots were homogeneous, with a predominance of the patients with anatomical foot defects (79% in lot I, 77% in lot II) Fig.6: Lot I registered anatomical alterations of the type: flatfoot D12.42%; eHallux-valgus-.13.34%; arthrosis (hallux rigidus) 20.sequellae of the foot micro trauma 32%; sequellae of the foot macro –trauma 20.24%; heel tendinitis 5.33%; plantar fasciitis 6.33%; heel spur 20%. The etiological pathology was about the same in both lots. (Figure 5)

Types and distribution of plantar statics modifications

The common types of plantar statics disorders in the subjects in the two lots were the following: arched foot and flat foot (degree 1, degree 2, degree 3).In lot I: arched foot = 13.33%, flatfoot degree 1 = 13.33%, flatfoot degree 2 = 40%, flatfoot degree 3 = 33.33%.In lot II : arched foot = 13.33%, flatfoot degree 1 = 20%, flatfoot degree 2 = 40%, flatfoot degree 3 = 26.66%.(Fig.7).

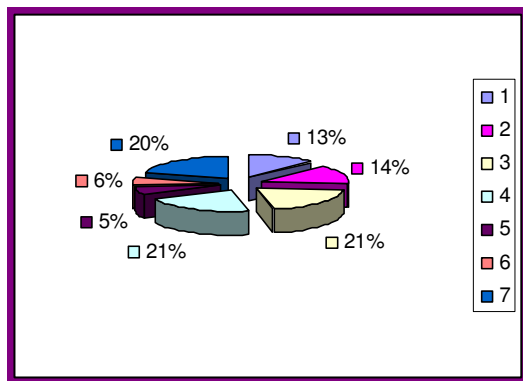


Fig. 5 Presence of anatomical defects in the 2 lots

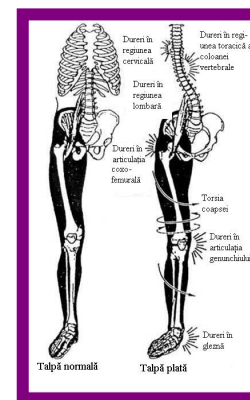


Fig 6 .Referred pain

Pain evolution in the two lots under treatment. Plantar pain intensity perceived by the subjects was measured by means of the VAS 0-10 scale. Pain quantification was similar to the one at the beginning of the study. The lots were named M1, M2, M3 and S1, S2, S3 respectively. According to the moment of assessment: a – at the beginning of the study; b – after 3 weeks; c– after 3 months. Lot M, the witness lot, displays a significantly favourable response to the evolution of plantar pain after 3 weeks of

treatment. None of the patients exhibits level 1 pain, 40% describing level 3 pain. In the final assessment, after 3 months, 20% of the patients resume the description of level 1 pain; level 3 pain is no longer found at none of the patients. It should be mentioned that in the interval between the second and the third assessment the subjects went about their normal daily activities, at the level of strain similar to the beginning of the study.

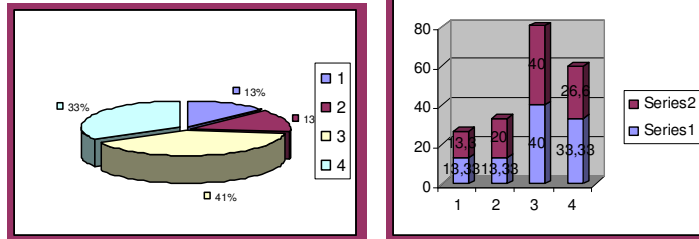


Fig. 7. Types of plantar statics disorders in the subjects in the two lots

Even if at the end of the study they were recommended to daily continue at home with the physical therapy program routine, only 2 subjects (13.33%) sporadically did so. However, after 3 months,

most subjects (80%) display plantar pain of a lower intensity than at the beginning of the study. It is a point in favour of the classic recovery program.

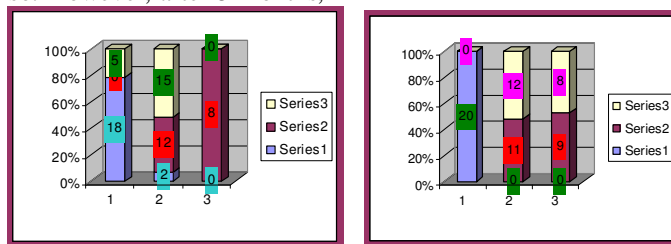


Fig. 8. Pain evolution in lot M – witness at levels 1, 2, 3.

In lot S, the response to the treatment applied after 3 weeks is similar to lot M; pain alleviation is statistically significant. None of the patients exhibits level 1 pain, 53.33% complain about level 2 pain, and 46.66% level 3 pain. Unlike lot M, pain alleviation is maintained, being situated at different levels at the beginning of the study and the third assessment, effected after 3 months. None of the patients exhibits level 1 pain, 66.66% display level 2 pain, and 33.33% level 3 pain. The effect of the medical recovery treatment is better maintained in time if the classic treatment is associated to plantar orthoses.

The evolution of the associated musculoskeletal painful symptoms exemplified by the evolution of the chronic lumbar (LBP) underwent modifications similar to plantar pain, as follows: after 3 weeks the LBP intensity, measured on the VAS scale significantly decreased as compared to the initial moment, and it was the same in the two lots. At the medium-term assessment, the LBP modification remained the same, and even improved in the S lot, as compared to the LBP evolution for the subjects in lot M. The association of plantar statics disorders, in the lots under study, was observed as being statistically significant with behavioural alterations, lifestyle, harmful attitudes, working behaviour. In any case, it was noticed that in the lots under study, there is no association of the disorders of plantar statics and the body mass index or height.

The comparative evolution of pain in the two lots illustrate the favourable short term evolution, similar in the two lots, and the substantially and persistently better medium-term evolution of the subjects in lot S.

Association of plantar statics disorders. The evolution of life quality showed a more substantial and durable improvement in the subjects of the S lot as compared to the M lot.

Evolution of the walking parameter. The evaluation of this indicator at the beginning of the study, after 3 weeks and after 3 months shows statistically significant differences between the two lots in favour of the S lot both on a short-term, and a medium-term period. The average increase of the walking parameter.

Evolution of the global mobility of the ankle-foot complex. In order to evaluate this parameter, the

following convention was applied in the classification of the mobility of the ankle-foot complex: limitation of global mobility by over 50% = **level I**; limitation of global mobility by 25 – 50% = **level II**; limitation of global mobility by less than 25% = **level III**. The lots were named M1, M2, M3 and S1, S2, S3 respectively, according to the assessment moment: 1 – at the beginning of the study, 2 – after 3 weeks, 3 – after 3 months. The following may be noticed: homogeneity of the lots from the point of view of the global mobility of the ankle-foot complex at the assessment moment at the beginning of the study; the better response (within the limits of statistic significance) at the short-term assessment of the patients in lot M, who received the classical treatment of medical recovery; the statistically significant improved response after 3 months (on medium term) for the subjects in lot S, who also received plantar orthoses.

Evolution of the WOMAC index. The average increase of the WOMAC index. The evaluation of this indicator at the beginning (WI) and the end (WF) of the study showed statistically significant differences in its evolution between the two lots, in favour of the S lot.

Conclusions

I. The lots under comparison were homogeneous from the point of view of demographic characteristics. There were no statistically significant differences between the lots in point of distribution according to sex or age.

II. The compared lots were also homogeneous in point of clinical characteristics. Thus, there were no statistically significant differences between the groups of subjects in the study in point of plantar pain intensity at the beginning of the study, the associated musculoskeletal pain of a different localization, the plantar and associated and plantar anatomical flaws, the types of plantar static disorders, the degree of articular mobility.

III. The duration of the ailment, which was a criterion of inclusion, or exclusion from, the study, was evenly distributed in the two lots.

IV. From a functional point of view (WOMAC index, walking parameter, life quality), the two lots were similar at the beginning of the study.

V. In regard of the plantar pain evolution in the two lot sunder treatment, the study revealed a significantly better evolution as a result of applying plantar orthoses, built according to podometric analysis. In the M lot, the witness lot, there was a significantly favourable response to the evolution of plantar pain after 3 weeks of treatment. However, the 3-month assessment showed that there is a consistently smaller favourable response of the 3-week treatment applied to the M lot. In any case, after 3 months, most of the subjects (80%) complain of plantar pain of a decreased intensity as compared to the beginning of the study. It

proves the advantages of the classic recovery program. In the S lot, the response to the treatment applied after 3 weeks is similar to the other lot; the alleviation of pain is statistically significant. Unlike the M lot, pain alleviation is maintained, situated at various levels as compared to the beginning of the study and the third assessment, after 3 months. The effect of the medical recovery treatment lasts better in time if the classic treatment is associated to plantar orthoses.

VI. The evolution of the global mobility of the ankle-foot complex was better (within the limits of statistic significance) at the short-term assessment of patients in lot M, who received local medical recovery treatment. On the other hand, on medium-term (after 3 months), the response was statistically better in the subjects in lot S, who wore plantar orthoses. Plantar orthoses allow durable functional improvement, in comparison with the local medical recovery.

VII. The evolution of functional indicators is also better from a statistical perspective, on the medium-term duration in lot S, although the short-term evaluation evinced better results in lot M. This may be explained by the initial difficulty in wearing the orthoses, apparent at most subjects in lot S. However, observing the application procedure leads to very good functional results, persistent in time.

VIII. Musculoskeletal pain with a different localization than plantar registered, after 3 months, a significantly higher alleviation in lot S than in lot M.

IX. The patients in the S lot witnessed a higher improvement (within the limits of statistic significance) of the life quality indicators as compared to the M lot. It is notable that over half of the patients in lot S viewed the daily wearing of orthoses as a stressor and not a factor of life improvement.

X. In the studied lots there were no associations between plantar pain and excessive weight or height.

XI. In the present study, plantar pain and plantar static disorders were rather associated with behavioural attitudes, the lifestyle and type of activity in which the subject was involved (e.g. sedentarism, prolonged orthostatism).

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Le management de la peine dans les dysfonctions de statique plantaire

Mots-clé: Troubles, kinésiologie, pied, statique

Résumé: L'étude porte sur l'efficacité du traitement kinétique, y compris les prothèses plantaires, dans les troubles de statique plantaire. Les résultats expérimentaux suggèrent que le traitement standard associé aux prothèses plantaires donne des effets qui durent plus longtemps.

Managementul durerii din tulburările de statică plantară

Cuvinte cheie: kinetologie, plantogramă, statică, tulburare

Rezumat: Obiectivele studiului: 1. Determinarea prospectivă a eficienței aplicării tratamentului kinetic

inclusiv de orteze plantare, asupra simptomatologiei tulburărilor de statică plantară. 2. Combaterea durerii. 3. Refacerea echilibrului muscular. 4. Refacerea mobilității articulare. 5. Refacerea bolții plantare. 6. Refacerea alinierii piciorului. Material și metodă. Este un studiu (clinicostatistic și epidemiologic) prospectiv, randomizat controlat în care au fost monitorizați 40 de pacienți din Centrul de Recuperare „LACU-SĂRAT”, Brăila și centrul de Recuperare SC „FIZITER”, SRL. 2007-2010 împărțiți, în mod randomizat, în două loturi a câte 20 subiecți fiecare. Tratamente: lotul M: tratament standard (medicamentos local și general, fizioterapie, kinetoterapie). Lotul S: tratament standard asociat cu aplicarea de orteze în funcție de patologia etiologică. Rezultate. Efectul se menține mai bine în timp dacă la tratamentul clasic se asociază cu purtarea de orteze plantare.

THE EFFECTIVENESS OF ANTI-STRESS MASSAGE USED DURING LEISURE TIME ACTIVITIES OF THE PROFESSIONAL FEMALE VOLLEYBALL PLAYERS

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Abstract

Due to its specificity, professional sports do not only bring satisfactions, enjoyment etc., but have become, for many practitioners, an important source of stress. When the stress reaction corresponds, it effectively prepares the action, conferring the individual more attention and vigilance, more energy for reflection and intervention, better productivity during training practice and during competitions. When the reaction is too intense or it takes too long, the productivity decreases and problems appear, such as: insomnia, permanent nervous tension, diarrhea, organic dysfunctions (gastritis, ulcer, diabetes etc.).

In order to better adapt to stress and to have a corresponding response of the body to its effects, it is necessary to find the most effective combination of methods and to apply it in strictly individualized working schemes, according to each subject's particularities. As a general set, concluded from the conducted research, we can recommend the use of anti-stress massage.

Keywords: sport, stress, leisure time, massage

Introduction

The meaning of the notion of *leisure time* has known, along the years, several modifications. The modern age, characterized by an ample industrialization program, but also by an ascendant road towards humanizing work, made possible the separation of professional work from leisure time activities, but also

interpreting the latter in a different manner. This separation was determined by a decrease in the number of possibilities for the human being to fully integrate in the mechanized industrial production, which lead to reducing the working hours, and by an intellectual over stress during work, hence the need for de-stress, relaxation, enjoyment.

The French sociologist Dumazedier J. (1983) considers leisure time as being the time during which we accomplish: *a set of activities to which the individual is fully committed, freely, willingly, and with pleasure, either in order to rest, or to have fun, to satisfy his/her aesthetic needs, or to enrich his/her knowledge, or to enlarge and develop his/her voluntary social participation, or creative ability, after he/she was released from the social, professional and family obligations.*

Due to its specificity, professional sports do not only bring satisfactions, enjoyment etc., but have become, for many practitioners, an important source of stress.

When the stress reaction corresponds, it effectively prepares the action, conferring the individual more attention and vigilance, more energy for reflection and intervention, better productivity during training practice and during competitions. When the reaction is too intense or it takes too long, the productivity decreases and problems appear, such as: insomnia, permanent nervous tension, diarrhea, organic dysfunctions (gastritis, ulcer, diabetes etc.).

When chronic stress is installed, fatigue and depression appear (especially when the subject enters the exhaustion phase). It is at this time when the individual makes use of *miracle* substances: tobacco, alcohol, coffee, but also tranquilizers. The quality of life is degrading also due to chaotic feeding (too much or too little food) and reducing the sleeping time. In this situation, the functional disturbances (migraines, allergies, skin problems) are frequent, adding also organic problems: HTA, cholesterol, dysfunctions of the digestive tract, endocrine problems.

The stress is, by definition, an unspecific reaction of the individual when exposed to the actions of disturbing factors. It is produced at a physiological (heart, lungs, hormones, perspiration), psychological and behavioral level - so it involves the whole functional ensemble of one person (Selye, H., 1984).

A good use of the stress means to have a physiological, emotional and psychological reaction that is necessary for action, followed by enough time for recovery, in order to dispose of that energy when it is needed. This is one of the fundamental effects that the leisure activities and the preventive massage are aimed to provoke, among other relaxation methods.

Reason

The stress can be eliminated, partially or totally, not only with the help of a drugs treatment prescribed by the doctor, but also through some less-known but effective methods.

These methods want to emphasize the idea that the stress can be fought successfully in all persons, of all ages, regardless of gender, profession, background, being adaptable to all types of stress and temperaments.

Aim

Knowing the effects of the massage on the body and thinking that they can be directed due to multiple possibilities of adapting the procedures and techniques to our aim, we set ourselves to study the ways of adapting this method with the purpose of fighting the effects of the stress in female volleyball players.

Material, method

This experiment studied a number of 6 female volleyball players of the Știința Bacău Sports Club, participant at the National Volleyball Championship, on whom we applied, outside the usual massage sessions, applied for post-effort recovery, anti-stress massage sessions, applied during their leisure time, aiming to fight the stress caused by sportive activity (training and competitions).

For assessing the volleyball players, we used:

- The Life events Inventory (Holmes).
- The H.A.R.D. depression diagram.
- The Stress-induced somatic-physiological-psychological manifestations assessment questionnaire.

All of these assessment instruments were used during both testings (initial - at the beginning of training for the 2008-2009 championship, and final - at the end of the championship).

After the initial and final testings, and starting from the recorded results, we established, as general objectives for the intervention, the following:

1. To fight the head, neck, back aches.
2. To fight the muscle spasms.
3. To diminish the vegetative manifestations: high blood pressure, indigestion, constipation.
4. To fight the state of fatigue.
5. To improve the psychological state.

In order to be able to attain the objectives and to establish whether the anti-stress massage has any effects in that sense, the intervention program was structured as follows:

METHOD	AIM, INDICATIONS, OBSERVATIONS
Anti-stress massage	<p><i>Aim:</i> to eliminate the effects of stress</p> <p><i>Methodical indications:</i> the massage was applied in rooms with optimal temperature, spacious, conferring a pleasant and relaxing atmosphere.</p> <p><i>Duration, posology:</i> the intervention was conducted during the 2008-2009 championship, the frequency of the sessions being one a week, of 60 minutes.</p>

Results

After centralizing and analyzing the recorded data, the results are as follows:

Centralizing Table
The results obtained after applying the Life Events Inventory (Holmes), reported to the risk of becoming ill in the near future

INITIAL TESTING		FINAL TESTING	
Average points	Risk of becoming ill	Average points	Risk of becoming ill
421.8	74%	234.4	54%

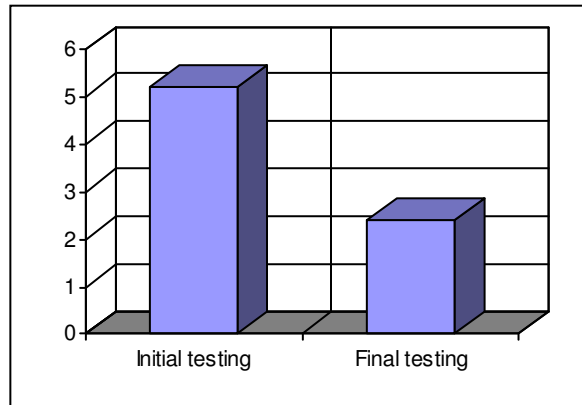


Chart 1 Evolution of the risk of becoming ill because of stress level

As we can see in Table 1 and Chart 1, in the initial testing, the subjects showed a high level of stress and a high risk of becoming ill. As a result of anti-stress

massage intervention, there was a decrease in stress level and risk of becoming ill.

Centralizing Table 2.
The results obtained during the H.A.R.D. depression diagram

INITIAL TESTING		FINAL TESTING	
Average points	Assessment	Average points	Assessment
5.2	Filter area	2.4	Filter area

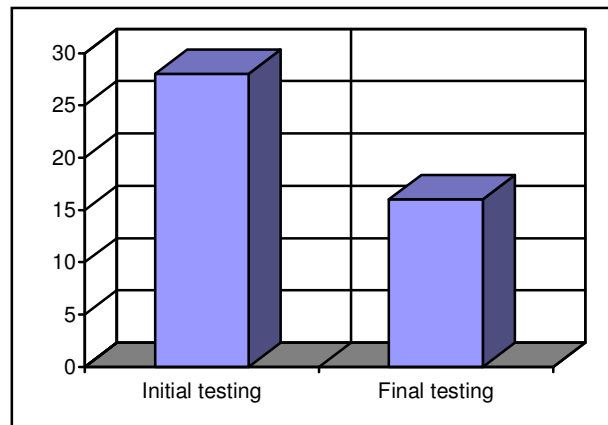


Chart 2 Evolution of the scores obtained by the subjects during the H.A.R.D. depression diagram, comparing the two testings

The average for the subjects' scores following the H.A.R.D. depression diagram emphasized the fact that all the subjects were initially placed in the filter area, the same situation occurring in the final testing; at

the end of the research, the average score was reduced with over 50%, diminishing also the risk of evolving towards more serious forms of depression.

Centralizing Table 3.

The results obtained during the Stress-induced somatic-physiological-psychological manifestations assessment questionnaire

INITIAL TESTING		FINAL TESTING	
Number of reported	%	Number of reported	%
28	100	16	57.1

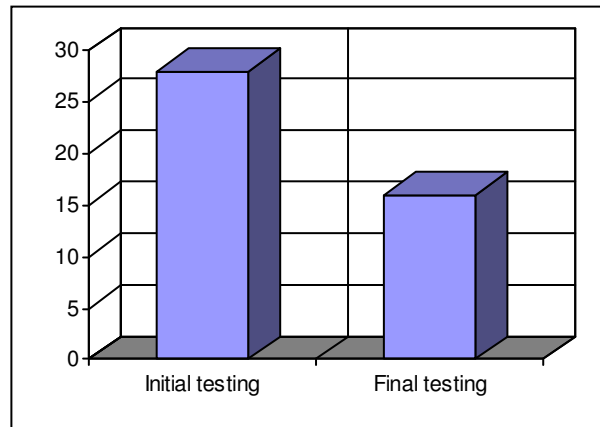


Chart 3. Evolution of the average number of stress-induced somatic-physiological-psychological manifestations, by comparing the two testings

As we can see in Table 3 and Chart 3, the subjects reported, for the initial testing, 28 stress-induced somatic-physiological-psychological manifestations. In the final testing we recorded a decrease (of up to 57.1%) of the number of manifestations, which clearly demonstrates the effectiveness of anti-stress massage, from the point of view of improving the effects of the stress.

Conclusions

- ✓ The anti-stress massage, adapted and oriented towards fighting the stress-induced somatic-physiological-psychological manifestations, has proven its effectiveness through the obtained results.
- ✓ The use of the anti-stress massage during the leisure time of female volleyball players lead to obtaining some good results, materialized in:
 - a decrease of stress-induced illness occurrence;
 - decrease in depression level and eliminating the risk of pathological forms;
 - a decrease in the number of stress-induced somatic-physiological-psychological manifestations and/or redirecting them towards less important events;
 - eliminating the excess muscle tensions, accumulated in various regions, as a consequence of stress;
 - an improvement of productivity during training and competitions.
- ✓ In order to better adapt to stress and to have a corresponding response of the body to its effects,

it is necessary to find the most effective combination of methods and to apply it in strictly individualized working schemes, according to each subject's particularities. As a general set, concluded from the conducted research, we can recommend the use of anti-stress massage.

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L'efficacité du massage anti-stress dans les activités de temps libre des volleyballistes de performance

Mots-clé: Sport, stress, temps libre, massage

Résumé: A cause de son spécifique, le sport de haute performance n'apporte pas seulement des satisfactions, mais aussi du stress. Quand la réaction au stress est normale, elle préfigure l'action d'une manière efficace, en donnant à l'individu plus d'attention et de vigilance, plus d'énergie et de productivité en entraînements et

compétitions. Pour s'adapter mieux au stress, il est nécessaire de trouver les méthodes les plus efficaces à appliquer en concordance avec les particularités de chaque individu.

Eficiența masajului antistres folosit în activitățile de timp liber ale voleibalistelor de performanță

Cuvinte cheie: sport, stres, timp liber, masaj

Rezumat: Datorită specificului său, sportul de performanță nu este numai aducător de satisfacții, bucurii etc., ci a devenit, în ultimele decenii, pentru mulți dintre practicanți, o sursă importantă de stres. Când reacția la stres este corespunzătoare, ea pregătește eficient acțiunea, conferind individului mai multă atenție și vigilență, mai multă energie pentru

reflecție și intervenție, un randament mai bun în antrenamente și competiții. Când reacția este prea intensă sau durează prea mult, randamentul scade și apar probleme de genul: insomnii, stare de tensiune permanentă, diaree, tulburări organice (gastrită, ulcer, diabet etc.).

Pentru a obține o mai bună adaptare la stres și un răspuns corespunzător al organismului la efectele acestuia, este necesară găsirea celor mai eficiente combinații de metode și aplicarea lor în scheme de lucru strict individualizate, în funcție de particularitățile fiecărui subiect. Ca și cadru general, desprins în urma cercetării efectuate, se poate recomanda folosirea masajului antistres.

STUDY ON THE CORRELATION BETWEEN PHYSICAL DEVELOPMENT AND THE EVOLUTION OF EXPLOSIVE STRENGTH OF THE LOWER TRAIN IN YOUNG ATHLETES

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Abstract

Conditional motor skills are directly dependent on physical fitness and are based on the metabolic effectiveness of the muscles and other systems and apparatuses (circulatory, respiratory, nervous system). Taking into account that these motor skills have an important genetic dimension referring to inborn characters manifest as phenotype, the present study aims at evaluating the correlation between certain anthropometric parameters (waist, span, bust), and the strength evaluated by the standing leap, which evinces the explosive strength of the lower train. The study involves the multivariate analysis of a hybrid database, determining both the type of correlations (positive or negative), and a hierarchisation of the intensity of the correlations among various variables (indices).

Key words: athletes, strength, anthropometric indices

Introduction

Physical or motor skills, as Zatiorscki, V. calls them [6], constitutes the basis or the basic motor requirements upon which the athlete builds up his own technical abilities. Conditional motor skills are directly dependent on the physical shape and are based on the metabolic efficiency of the muscles and other apparatuses and systems (circulatory, respiratory, nervous system, etc.) [5]. Strength represents the human ability to overcome an external resistance measured in kilos, by an intense muscular effort. It is necessary to distinguish between strength and muscle force [2]. Strength means overcoming resistance without a time limit, and power refers to the mechanical work effected per time unit.

On the basis of sports training, three fundamental norms of muscle strength may be distinguished: maximal strength (the most intense strength that the neuromuscular system may develop by voluntary muscle contraction) [1], strength-speed (the ability of the neuromuscular system to overcome the various types of resistance by a very fast contraction) and a strength-resistance (the ability allowing the body to fight fatigue in exercise combining strength and duration).

Taking into account that these motor skills have an important genetic component referring to the inborn characters manifest as phenotype, the present study aims at evaluating the correlation between certain anthropometric parameters (waist, span, bust, weight)

and the strength evaluated by the standing leap, evincing the explosive strength of the lower train [3, 4].

Material and method

The study included 60 male voluntary athletes, aged between 14-16, members of the CSS and LPS Galați and Brăila. They were grouped into three groups of study:

Group 1- 20 athletes aged 14.

Group 2- 20 athletes aged 15.

Group 3- 20 athletes aged 16.

The evaluation of physical development by anthropometry (somatometry) was carried out in the Laboratory of functional explorations, effort capacity testing and physical development evaluation in the Faculty of Medicine and Pharmacy of the Dunarea de Jos University Galati. The anthropometric exam was performed in July (initial testing) and November (final testing) using the standard form (biometric sheet), at 8 o'clock in the morning, after a rest of at least 12 hours from the most recent training session. Anthropometric data served as a means of assessing more accurately the various aspects of physical development. The following were assessed: longitudinal aspects—stature, bust, transversal aspects—span, circular aspects—thorax perimeter and weight.

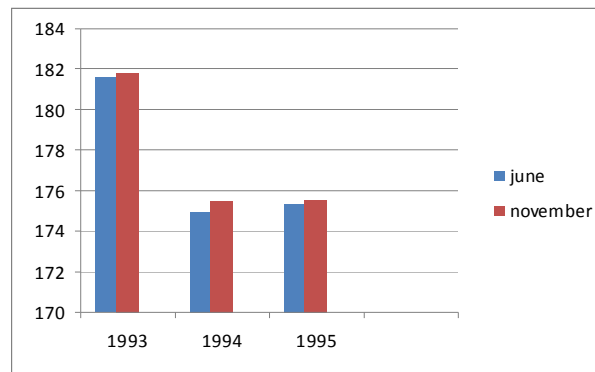
Strength testing was performed at LPS and CSS in July (initial testing) and November (final testing) by means of the standing leap. The data gathered as a result of the two types of evaluation were

centralised in an Excel-like database. In order to determine the type and intensity of the multivaried correlations, the study performed the analysis of the scores associated to subjects and loadings associated to variables.

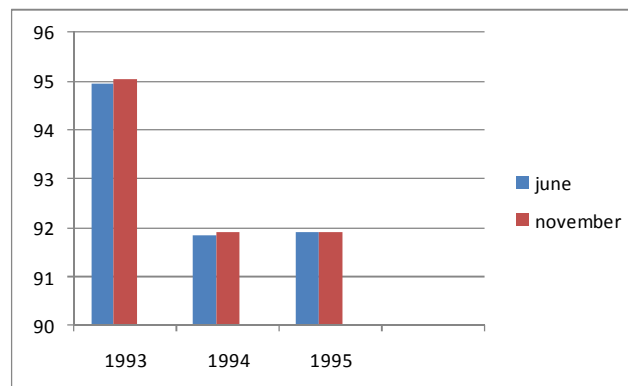
Results and discussions

Monitoring the anthropometric parameters during the competition training was effected to the purpose of observing if there was any significant difference between the age group which might directly influence the results of the standing leap event. The values of the anthropometric parameters in the initial and final testing for all lots, for waist, span and bust are homogeneous, and the spread of these values is normal. The average height in the lot in June was 177 cm, bust representing 52.01% of the stature (graph 1, 2).

In point of significant thresholds, and also of average difference pertaining to each age group, in regard of the initial and final testing, it was found that the subjects developed in about the same rhythm in the period of time covered by the experiment. There are differences among the age groups, as follows: for the first group, it is noticeable that the average value of the subjects' waist increased from 181.6 in initial testing to 181.79 in the final testing. For the second group, the difference was 0.47 between the two tests, while for the third group, the difference between the average values was 0.2



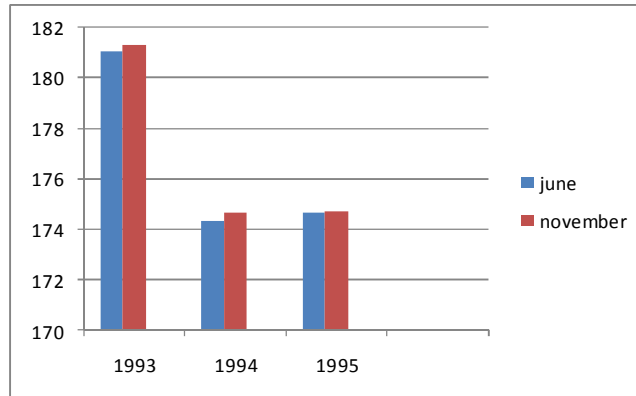
Graph1. Evolution of waist in the competition season in the 3 age groups



Graph 2. Evolution of bust in the competition season in the age groups

The span in the entire lot is equal to stature, with variations of 1-2 cm (graph 3). Out of the numerical comparison of the biacromial diameter and

the bithroanterior diameter the athletic allure may be seen (wide thorax, narrow pelvis).



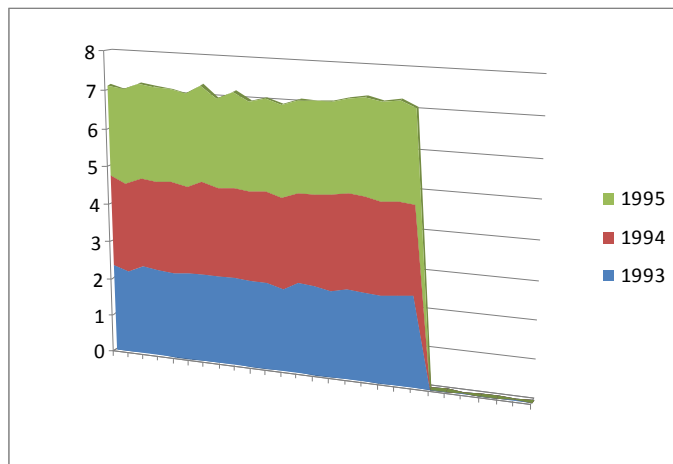
Graph 3. Evolution of span in the competitive season according to age group

The dynamic thorax perimeter was also registered, in deep inspiration and prolonged expiration, the thoracic elasticity being within the interval (6-12). In our lot it may be noticed that the Erissman index has negative values (0;-1), which shows the fact that the thorax is not sufficiently developed. The Adrian Ionescu index is between (3.5-6.25).

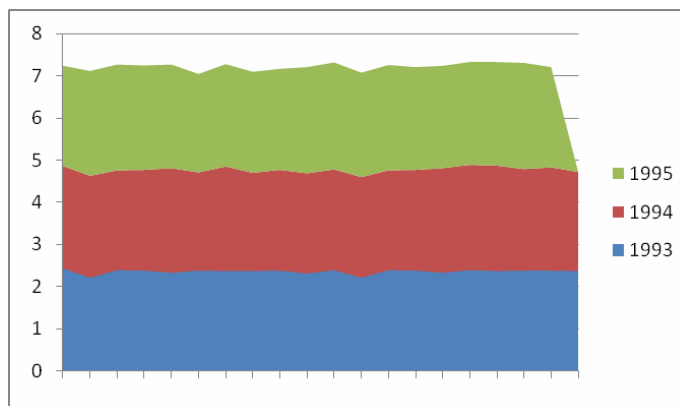
only by applying training programs. There are variations of the values according to age group, and moment of determination (initial and final).

The values of the initial and final tests corresponding to the standing leap are homogeneous within each age group. Thus, in all the 3 age groups, the results of the subjects in the standing leap increased

Thus, athletes born in 1995 registered an average value of 235 cm in June and 248 cm in November. Athletes born in 1994 showed an average value of the standing leap of 240 cm in June and 243cm in November. The widest difference between the two recordings was seen in the athletes born in 1993, who had an average value of 220cm in June and 239cm in November (graph 4, 5).



Graph 4. Results of the standing leap test in the 3 lots—June



Graph 5. Results of the standing leap test in the 3 lots in November

We performed a multivariate study of analysis of the hybrid database and initiated the training of the multivariate analysis system. By the analysis of the variation tendencies of the residual and explained variables the system was adjusted to a more robust, 8 PC model, without significantly diminishing the total explained variable. At the same time, by analysing the graphs corresponding to the loading values for the various main components, a new iteration was decided in system training, viz. modelling on the basis of balanced variables according to the standard deviation. This approach led to reducing by a size order the residual variant X.

On the basis of this final PCA model, the multivariate correlations were determined and analysed between the conditional motor skills indices and the anthropometric indices. A double determination was performed: the type of correlation (positive or negative), and a correlation intensity hierarchisation among the various variables (indices).

The indices of the conditional motor skills related to the standing leap measured in July (variable code SIUL) and in November respectively (variable code SNOV) were both characterised by low negative PC1 loadings and high positive PC2 loadings.

SIUL -4.389e-02 0.126 and SNOV -4.091e-02 0.131, registering a strong negative correlation to the anthropometric indices.

Conclusions

The indices of the conditional motor skills related to the standing leap measured in July and November respectively shows a negative correlation to the anthropometric indices under study, which would lead to an opposed evolution to the parameters of these correlations.

It may be noted that there are variables to which the indices of conditional motor skills may remain strongly correlated for many years, after which these correlations may change dramatically.

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Étude sur la corrélation entre le développement physique et l'évolution de la force explosive du train inférieur chez les jeunes athlètes

Mots-clé: Athlètes, force, indices anthropométriques

Résumé: Les qualités motrices conditionnelles dépendent directement de la condition physique et sont basées sur l'efficacité métabolique de la musculature et des autres appareils et systèmes. On a réalisé une étude multivariée d'analyse d'une base de données hybrides.

Studiu privind corelarea dezvoltării fizice cu evoluția forței explozive a trenului inferior la tinerii atleți

Cuvinte cheie: Atleți, forță, indici antropometrici

Rezumat: Calitățile motrice condiționale sunt dependente direct de condiția fizică și au la bază eficiența metabolică a musculaturii și a altor aparate și sisteme (cardiovascular, respirator, sistem nervos).

Având în vedere că aceste calități motrice au o importantă componentă genetică ce se referă la caracteralele înăscute ce se manifestă sub formă de fenotip, ne-am propus evaluarea corelației dintre unii parametri antropometrici (talie, anvergură, bust) și forța evaluată prin săritura în lungime de pe loc, ce evidențiază forța explozivă a trenului inferior.

Am realizat un studiu multivariat de analiză a unei baze de date hibride realizându-se atât determinarea tipului corelațiilor (pozitive sau negative), cât și o ierarhizare a intensității corelațiilor dintre diversele variabile (indici).

DETERMINATION OF THE BIOLOGICAL AND SOCIO-CULTURAL LATERALITY - ARGUMENTS AND EXAMPLES

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Abstract

Laterality dominant function is linked to one hemisphere of brain function resulting inequality left and right half of the body.

Lateralization is influenced and determined by biological factors, socio-cultural environment and very varied.

Key words: *laterality, psychomotricity, determination biological, determination socio-cultural.*

Introduction

Psychomotricity goal is very broad and has a very complex and varied content. Plane driving behavior, psychomotoric elements have important role in regulating voluntary action, both in terms of intent, goal orientation, and the mechanisms for monitoring, control and coordination-off.

The main components of psychomotricity are:

- body scheme;
- laterality;
- the organization of space-time;
- overall coordination and segmental;
- static and dynamic balance;
- ideomotricity;
- motor intelligence;
- fast movements.

Theoretical considerations

As a result of evolution, human beings has become a feature which can be found in any other animal on earth, namely that the human hemispheres are specialized for particular characteristic, this being called - "side".

Left and right hemisphere interact and work together to perform tasks of analyzing and organizing processes thinking, leading activities and providing psychological functioning of the brain.

All research shows that side dominance is manifested by a functional relative prevalence (not too left or right handed one hundred to one hundred), whose intensity is influenced by multiple causes.

Horghidan V. (2000), identifies the following

factors influencing laterality and lateralization in ontogenesis:

- motor activities of the subject;
- pressures environmental requirements;
- some elements that favor right-handed subjects;
- social convention, child models are taken through imitation.

Biological determination of laterality

The most numerous studies show that laterality is determined by biological factors in a proportion much higher than those of socio-cultural and environmental.

Most studies show such biological causes of weight in relation to the environment, arguing as follows:

- laterality– characteristics are genetically linked as hair or eye color;
- laterality formation– and evolution depend on the maturation of the nervous system of preserving the integrity, health and body functions to achieve skills.

After most of researchers laterality functional specialization is the product and its growth is dependent on the maturation of the nervous system of preserving the integrity, health and function of the body to achieve skills. This event established in 1865 is still Broca subsequently confirmed by numerous studies (conducted by Wepman, Penfield, Hoff, Paquette and others), highlighting the specialization and organization different from right handed and left-handed.

Dominance of one brain hemispheres is expressed by a prevalence of driving on the opposite side of the body, such right-hands has left brain dominance and right hemisphere dominance is

awkward.

Brains are different powers each, each specializing as a result of human evolution process.

Both hemispheres simultaneously involved in carrying out any features, but their share of contribution is different depending on the nature excitings or pregnancy.

Some authors considered that operational capability of the cerebral hemispheres depends on the mechanisms involved in achieving a given function and the type of information to be treated.

Elements determining the contribution of each hemisphere brain function, according to recent studies, are:

- nature of the task to– be performed;
- the context in which it– is conducted;
- resolution adopted– strategies.

One of the problems of scientific research in high laterality is whether functional asymmetry is an effect of maturation genetically conditioned or just an effect of social factors conditioning educational, cultural and environmental.

According to statistics approximately 50% of children are left if both parents are left and only 6% of children are left if both parents are right handed, these figures come to acknowledge the major share genetic determination laterality.

All statistics show that chances of a child to be left-right-handed parents are 9% to be right handed and left-handed parents are 26% and the chances of being left to parents, one is right handed and left 19 others %.

In favor of the above recently study we can add the N. Porac and A. Coren which found children:

- up to age 4: 20% ambidextry; 20% left side; 60% with right side;
- 4-6 years of age and between laterality of right hand increased by 75%.

Some studies show that left the party skills are determined by current testosterone in the womb before birth, but these investigations have not yet been generalized.

Socio-cultural determination laterality

On laterality or lateralization influence is assessed to have the following items (after V. Hodghidan - 2000)

- motor activities performed by people (the free and spontaneous natural laterality favor, the requirements can change or shape);
- pressure - explicitly requirements of the environment (an example is the ban on the left hand to eat, to drawing and writing);
- elements that favor right-handed subjects (manufacturing characteristics of objects, such as scissors);
- social convention (how to salute by raising their hands right).

Approximately 10% of the human population

is clumsy, and they were the subject of controversy over the humanity of what the word "left." There are many attributes that make it awkward to look left or a bad thing, as follows:

- word "left" comes from– Anglo-Saxon "lyft" which means "rupture" French word "gauche" – left means "dishonest";
- clumsy Italian word– translates as "Mancino" which has meaning of "dishonest";
- Latin word "sinister"– (left) means "devil", "sinister" in Russia if you yelled– "levja" (awkward), it is considered a great insult.

After personal research found that:

- according to Orthodox– Christian church rituals, the "night of resurrection" church around from right to left - so left-handed (reverse clockwise rotation), it aimed at driving away evil spirits, demons and keeping the universal balance (represented by movement in circles) because in the meantime, there are many rituals of the witch, whose dance sense of rotation from left to right (end dextrogir) by calling it the evil spirits wishing to participate and perform magic;
- another personal– observation, almost similar, is that related to "dance călușarilor", where "Călușari" form a circle and spin in their dance, from right to left, with the rotation they want to chase away evil spirits represented in their dance masked by a couple (who embodies evil) and who wants to spoil the harmony and balance of the dancers, trying to enter the circle of dancers created;
- under orthodox– conception and everything is starting from the left is evil and what is right and starts to embody the good;
- also all the Christian– concept is considered the left represents the past and soul, and right - present, future, body and mind;
- meaning left-handed– (from right to left) - is the meaning of life, and everything is good (example: the meaning of the earth's rotation around the axis, the direction of rotation of planets around the sun), and meaning dextrogir (from left to right) - the passage of time, death and everything that includes the concept of evil;
- the rituals– Christian women always sit in the left side of the altar, and men in the right side. Women represent the poor and because they are natural beings that are doomed conception are considered sinful, while men are human procreative power and strength;
- all greetings are made – with the right hand (raising hands);
- the ritual of marriage – is officiated by the Orthodox church, priest and godparents with grooms around the table from right to left, thereby wishing it a long life, harmonious and common.

Conclusion

Laterality dominant function is linked to one of the cerebral hemispheres, depending on what determines inequality right half and left the body. Laterality movement manifests itself in the arms, legs, eyes and ears in use and can detect, assess the evidence simple observation or testing psychomotricity.

We consider laterality as a national awareness of the two parts of the body and an awareness that different. If the concept is the difference between the two sides of its body, it is very difficult to learn how to coordinate.

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Détermination biologique et socio-culturelle de la latéralité—arguments et exemples

Mots-clé: Latéralité, psychomotricité, détermination biologique, détermination socio-culturelle

Résumé: La latéralité est lié à la fonction dominante d'une des hémisphères cérébrales, en déterminant l'inégalité entre les parties droite et gauche du corps.

Determinarea biologică și socio-culturală a lateralității – argumente și exemple

Cuvinte cheie: lateralitatea, psihomotricitatea, determinarea biologică, determinarea socio-culturală.

Rezumat: Lateralitatea este legată de funcția dominantă a uneia dintre emisferile cerebrale, funcție ce determină inegalitatea jumătăților dreapta și stânga a corpului.

Lateralitatea este influențată și determinată de factori de natură biologică, de mediu și socio-culturali foarte variați.

BENEFITS ON HEALTH RELATED QUALITY OF LIFE AND DEPRESSION BY USING A LONG-TERM EXERCISE PROGRAM IN WOMEN WITH FIBROMIALGIA SYNDROME

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Abstract

This study aims to assess the effect of a program combined by aerobic, strengthening and flexibility exercises in patients with fibromyalgia (FM) in relation to health related quality of life and psychological health status. Forty-two women with FM were randomly allocated to one of two groups: an experimental group that would conduct aerobic exercise, strength and flexibility exercises and a usual care control group, for 24 weeks. They were evaluated by using Short-form Health Survey (SF-36), and the psychological health status by using Beck Depression Inventory (BDI) for depression levels. Significant improvements were observed after the intervention for the combined exercise program in both quality of life (SF-36) and psychological health status (depression) and mainly in SF-36 mental health, physical function, bodily pain and vitality domain, while control group patients even experienced a decrement in some of those variables such as bodily pain. Shown results confirm that a combination of aerobic exercise, strengthening and flexibility is beneficial to improve psychological health status in patients with FM. Therefore this practice can be recommended to FM patients.

Keywords: Fibromyalgia, Exercise, Depression, Quality of life.

Introduction

Fibromyalgia (FM) is a common, multidimensional disorder with complex symptomatology and relatively poor treatment outcomes (Busch et al., 2008). In most patients, fibromyalgia is associated with fatigue, sleep dysfunction, stiffness, depression, anxiety, cognitive disturbance, or exercise intolerance (Wolfe et al., 1990). FM patients have shown a low health status when comparing with healthy subjects and even with patients suffering from other chronic diseases (Birtane et al., 2007). Similar results were found by Gormsen et al. (2009), who reported lower values in physical function, general health perception, vitality, social function and mental health, in FM patients than in subjects with neuropathic pain and healthy subjects of similar age. However, the relationship between FM and psychological disorders is controversial and, despite multiple studies, the results remain inconclusive (Fietta, 2007).

This complex symptomatic picture determines FM patients look for medical care and also the importance of an individualized treatment (Hoffman and Dukes, 2008). The management of this syndrome supposed the employment of both pharmacological and nonpharmacological strategies. Among the first, many authors have demonstrated the utility of antidepressants (O'Malley et al., 2000). However, many patients do not respond or cannot tolerate many of these medications. For this reason several nonpharmacological therapies have been used, including cognitive behavior therapy, education, biofeedback, and the implementation of different relaxation techniques (Rocha and Benito, 2006). In the other line, physical exercise is the nonpharmacological therapy that has shown greater benefits, either by itself or applied in combination with other treatments (Busch et al., 2008).

Many studies have reported significant improvements in the perceived health status of FM patients after physical exercise programmes, mainly based on aerobic exercise. It was reported that regular exercise results in decreased levels of depression and stress contributing to improve mental health status. In this line, numerous studies have attempted to establish basic guidelines or recommendations for the prescription of physical activity in women with FM, proving evidence of health related quality of life (HRQOL) benefits including general functioning, psychological wellbeing, and other symptoms reliefs such as in anxiety or depression (Valim et al., 2003; Gusi et al., 2006; Assis et al., 2006; Bircan et al., 2008, Tomas-Carus et al., 2008).

To date we have evidence supporting the short-term benefits of aerobic exercise in FM patients, although evidence is limited regarding the benefits of other types of training such as strength or flexibility. Since there is a lack of evidence-based models of

physical exercise to recommend these patients, the aim of this study is to assess the effects of a long-term program based on a combination of aerobic exercise, strengthening and flexibility on HRQOL and depression in women with FM.

Methods

Participants

Forty-two postmenopausal women who met the ACR criteria for the diagnosis of FM (Wolfe et al., 1990), and don't present one or more exclusion criteria: presence of inflammatory rheumatic or psychiatric diseases, respiratory or cardiac abnormalities that could interfere with the exercise and the participation in some type of physical or psychological therapy in the last 6 months, were randomized into two groups, a group that would conduct physical exercise (GA, n = 21) and a control group (CG, n = 21).

Outcome measures

The Short Form 36 (SF-36). The SF-36 is a self-administered questionnaire for measuring quality of life through the perception of health by the patient (Ware and Sherbourne, 1992). It contains 36 items grouped into 8 subscales: physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role, and mental health. The range of scores is between 0 and 100 in every subscale, where higher scores indicate better health. The SF-36 does not obtain a global score. One item in this questionnaire measures health change during the past year in a Likert-like scale in which 1 = "much better," 2 = "better," 3 = "unchanged," 4 = "worse," and 5 = "much worse."

The Beck Depression Inventory. This is a questionnaire developed and validated for patients with depression. It contains 21 items that assess the cognitive, affective, and neuro-vegetative factors associated with depression. The range of score is 0–63, where values above 13 indicate presence of depression, and values above 21 indicate major depression (Beck et al., 1961).

Procedures

Assessment of all outcomes was undertaken at baseline and immediately after the 24-week intervention and at the same time points in the usual care control group. Exercise group patients performed twice-weekly sessions of combined exercises with 1h duration, including 10 min warm up, 10-15 min of aerobic exercise at 65-70% HR_{max}, 15-20 min of muscle training on 8 exercises (1 set of 8-10 reps with 1-3 kg) and finally 10 min of flexibility training on 8-9 exercises (1 set of 3 reps keeping the stretched position for 30 s). Control group continued their normal daily activities during the period of the intervention.

Data analysis

Normality of data was initially tested using the Kolgomorov-Smirnov test. Differences between groups

were tested using analyses of variance (ANOVA) for continuous variables, and the χ^2 test for categorical variables. The effects of the intervention programme were evaluated by age-adjusted analyses of covariance for repeated measures. For all tests the significance level was set at $p < 0.05$. The analyses were performed using SPSS 15.0 (SPSS Inc. Chicago, USA).

Results

No significant differences between GA and CG

in any of the variables considered in the study were found at baseline (Tables 1 and 2). During the intervention, three participants of the experimental group (by an accident, family problems or without cause) and a subject of CG (did not attend the evaluation session at posttest) were excluded from the study, so that data from 18 women in GA and 20 in CG were included in the analysis.

Table 1
Baseline characteristics in FM patients in pretest

Outcomes	GA (n=18)	CG (n=20)	p-value
Age (years)	55,88 (7,14)	56,55 (8,48)	.968 (*)
Body mass (Kg)	68,49 (12,32)	74,48 (14,97)	.316 (*)
Height (m)	1,57 (0,08)	1,58 (0,07)	.793 (*)
Medicación (n)	2,2 (0,8)	2,5 (0,7)	.642 (†)

Values showed as mean \pm sd. n= drug number. *p-value (ANOVA). †p-value with χ^2 analysis.

Table 2 summarizes the results of all outcomes in both groups before and after 24 weeks intervention. Significant improvements can be observed for global score of SF-36 (22%) in GA patients. These improvements were also significant for physical function, general health, vitality and mental health. With regard to psychological dimension, significant

improvements were achieved by over 20% in depression (BDI). Patients in the CG did not improved in any of these variables and even some of them experienced a decrement (bodily pain). Improvements obtained for bodily pain, social function (14%) and emotional role (25%), were also remarkable when compared with those obtained in CG, but without reaching statistical significance.

Table 2.
Outcome measures before and after 24 weeks intervention

	Pretest			Posttest				
	GA	CG	p-value intergroup	GA	p-value intragroup	CG	p-value intragroup	p-value intergroup
SF-36 (0-100)	39.1 (15.9)	37.7 (14.9)	0.788	47.4 (13.1)	0.007*	36.3 (16.4)	0.908	0.033*
Physical Function	50.0 (22.7)	44.6 (15.9)	0.402	57.1 (17.4)	0.027*	45.2 (13.7)	0.825	0.030*
Role Physical	13.5 (17.4)	19.8 (27.6)	0.424	21.6 (25.6)	0.321	19.4 (28.3)	0.821	0.817
Bodily Pain	23.2 (17.4)	23.6 (17.7)	0.942	30.4 (16.2)	0.041*	19.5 (17.6)	0.084	0.068
General Health	39.8 (16.1)	33.4 (12.1)	0.175	43.1 (11.4)	0.406	33.6 (11.1)	0.803	0.019*
Vitality	29.4 (15.3)	27.7 (17.5)	0.762	41.8 (11.0)	0.009*	28.4 (17.3)	0.979	0.011*
Social Function	55.2 (22.9)	48.6 (16.5)	0.313	64.4 (23.7)	0.214	52.1 (20.5)	0.473	0.109
Emotional	53.3 (45.3)	45.6 (40.4)	0.588	71.5 (40.1)	0.273	51.8 (43.4)	0.454	0.176
Mental Health	51.3 (18.9)	44.0 (20.7)	0.274	60.1 (15.4)	0.035*	44.0 (23.6)	0.956	0.025*
BDI (0-63)	35.1 (14.1)	31.4 (12.8)	0.173	28.7 (13.6)	<0.001*	41.5 (11.3)	0.971	0.005*

Values as mean \pm sd and 95% confidence interval. GA: Exercise group; CG: Control group. *p < 0,05

Discussion

This study, based on a long-term (24 weeks)

exercise program combined with aerobic exercise, strengthening and flexibility, allowed FM patients to significantly increase their general health status, measured by the total score of the SF-36, and reduces levels of depression (BDI). These results are consistent with those reported in other studies in which exercise programs were combined in women with FM, providing evidence of the effectiveness in reducing the impact of the syndrome on functional ability, but also improving health status and patients' psychological dimension. One of these studies compared a 12 weeks aerobic exercise therapy with another of flexibility, after the intervention the physical component improved in both groups, while the mental component was unchanged (Richards and Scott, 2002). Soon after, Valim et al. (2003) compared the positive effects of a program based on walking with one of flexibility. After 20 weeks of treatment, the aerobic group improved the impact of the syndrome on the patient's daily lives, mainly in mental health and depression. In another study, Assis et al. (2006) compared a water exercise program with a land-based exercise program, showing that both therapies were effective for improving pain and functional ability, although the pool exercises were more effective on the emotional component. Finally, Bircan et al. (2008), concluded that both aerobic exercise and strengthening exercises, were equally effective in improving symptoms, physical and psychological components and HRQOL in women with FM.

In the current study the role emotional scale, which assesses the patient's QOL from the perceptions of their mental health improved significantly, was significantly reduced in GA patients at the beginning of the study; however, after 24 weeks improved more than 14 points, although probably due to the enormous variability between subjects, the differences were not significant. Several authors have reflected that a higher level of emotional well-being at baseline would predict a better therapeutic response, since the presence of this syndrome could delay the benefits in personal satisfaction (Birtane et al., 2007). Significant improvements in anxiety and depression, based on interventions with aerobic or combined exercises can be expected (Redondo et al., 2004; Gusi et al., 2006; Assis et al., 2006; Tomas-Carus et al., 2008). Previous studies showed no changes in BDI values after 8 weeks of mixed training (Redondo et al., 2004). However, longer periods of exercise results in decrements between 10-20% for depression (Häkkinen et al., 2001; Valim et al., 2003; Gowans et al., 2004; Assis et al., 2006), which include the 14% improvement achieved in this study.

It seems, in the light of these results that the positive effects of exercise on depression depend on the intensity, duration and frequency of training. In fact, correlations have been established between the amount of exercise and BDI at 12 months of exercise (Gowans et al., 2004). In this study, the exercise program was

conducted in groups, improvements in depression, as well as in QOL, may be partially explained by interactions between the women in the training sessions (Mannerkorpi and Gard, 2003).

In conclusion, the selected intensity, frequency and duration selected in the current study have showed to be safe and well tolerated by FM patients, but also effective for improving HRQOL and depression.

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Les avantages d'un programme d'exercices physiques de long terme sur la dépression et la santé comme partie de la qualité de la vie dans le cas des femmes au syndrome fibromialgique

Mots-clé: Fibromialgie, exercice, dépression, qualité de la vie

Résumé: L'étude porte sur l'évaluation d'un programme combiné d'exercices aérobiques de force et flexibilité sur les patients à fibromialgie.

Beneficiile unui program de exerciții fizice pe termen lung asupra depresiei și asupra sănătății ca parte a calității vieții în cazul femeilor cu sindrom fibromialgic

Cuvinte cheie: fibromialgie, exerciții fizice, depresie, calitatea vieții

Rezumat: Acest studiu are ca scop sa evalueze efectul unui program combinat de exerciții aerobice, de forță și flexibilitate asupra pacienților cu fibromialgie (FM) în raport cu sănătatea acestora văzută ca parte a calității vieții și cu starea sănătății mentale.

Patruzeci și două de femei cu FM au fost împărțite în mod aleatoriu în două grupe: un grup experimental care va efectua exerciții aerobice, de forță și de flexibilitate și un grup de control supus activităților obișnuite timp de 24 de săptămâni. Acestea au fost evaluate folosind Short-form Health Survey (SF-36) (Formularul Scurt de Anchetă a Sănătății), iar pentru starea sănătății lor psihice s-a folosit Beck Depression Inventory (BDI) (Evidența Depresiei a lui Beck) pentru a măsura nivelul depresiei. S-au observat îmbunătățiri semnificative după intervenția cu programul de exerciții combinate atât în calitatea vieții (SF-36) cât și în ceea ce privește starea sănătății psihice (depresia) și în special în sănătatea mentală SF-36, funcțiile fizice, în ceea ce privește durerea și vitalitatea, în timp ce pacienții din grupul de control au suferit chiar o scădere a anumitor variabile cum ar fi durerea. Rezultatele prezentate confirmă faptul că o combinație de exerciții aerobice de forță și flexibilitate este benefică pentru îmbunătățirea stării de sănătate psihică a pacienților cu FM. Prin urmare, această practică poate fi recomandată pacienților cu FM.

THE ANALYSIS OF THE SCIENTIFIC RESEARCH PROJECTS MANAGEMENT IN THE HIGHER SYSTEM OF PHYSICAL EDUCATION AND SPORT

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Abstract

Projects management comprises organization structure necessary for projects of the organization, internal organization of the project and correlations with organization structure of the institution, organization of the processes, and some aspects relate to manage of the project.

Unity of the team project and degree of the identification of team members can be positive influenced by: constitute the commune concepts about projects objectives; appreciate positive results of the team; repeatedly communication and interaction among team members and performing concurrence medium.

Key words: physical education and sport, higher education, management, projects, scientific research.

Introduction

The projects management comprises the

organizational structures necessary for the development of the projects at the level of the organization, the

internal organization of the project and its correlations with the organizational structures of the entire institution, the processes organization, as well as aspects related to the leading of the project.

The origin from different social areas or speciality domains of those implied in projects leads to different perceptions regarding the acceptance of a situation as being problematic, so also to a different perception of the necessity of a project development. In order to have a successful project it is first necessary a common conception of the problem and its defying together with the beneficiary.

The access to information and the quality of the information has a special importance in the development of the process. The information must be sufficiently comprehensive and qualitative in order to allow at any time a proper evaluation of the situation. They must get to those who use them in taking decisions or in some activities at time and in an adequate form.

Also, at the beginning of a project, a realist evaluation will be made to the existent facilities and to the necessary technique, in order to start the project.

One cannot start the project with the idea that some necessary facilities will be found in the future, when the achieving is imminent.

The developing of a project requires specific work methods, a systematic approach and adequate principles. The method and the approach structure of the projects has the origin in the systematic thought. The systematic thought allows in practice an integrated, complex approach of the project management, regarding:

1. the methodology of approaching the projects, so regarding the phases and processes of a project;
2. the methods used in different phases (for example from simple to complex, from known to unknown);
3. the including of different connected systems (social, communicational, cultural) in the project approach way.

The development of the projects in structures-phases and processes- reduces the uncertainty degree, allows the introduction of some decision points after each phase, a control over the development of the project, clear responsibilities and a differentiated assigning of the project budget. (chart 1)

Chart 1

The phases and the processes within the scientific research projects

	Project phases	The processes within a project
The life cycle of a project	The project initiation	Initialization
	Preliminary study	Planification
	Main study	Controlling
	Detailed study	Execution
	The concept elaboration	Closure
	Implementation	

All the projects, no matter the domain, have a similar life cycle- similar project phases: concept elaboration phase, fulfilling phase and the concept implementation phase, respectively, the proper utilizing phases. The staging and the inherent introduction of some evaluation and decision phases after each important stage reduces the risks and the uncertainty within the life cycle of each project.

The development of the project comprises several phases: each phase is characterized by clear

results which lead to decisions for the next phase. Each phase ends with the analyse of the results suggested for the respective phase, as well as of the results of the entire project in order to determine whether the projects will be continued or not, to discover the possibly errors or discordances and to correct them.

Depending on the fulfilled competences there are three fundamental, different, organizational types in the structure of the projects. (image 1)

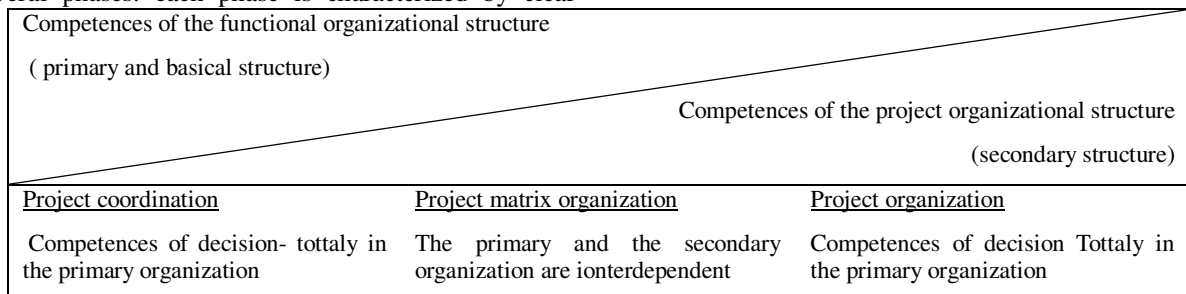


Image 1. Types of structural fundamental organization and establishment of the competences(after the Mocanu M., Schuster C. model, 2001)

There are few projects in which a single person develops the entire activity. Through the establishment of project team for the fulfilling of a certain task one wishes to exceed the needs of the primary organization, which does not allow the interdisciplinary fulfilling of certain project tasks, only in a reduced extend. This is why it is formed a team which, under the leading of the project manager accomplishes the established objectives.

The main rules which lead to the establishing of a team for the fulfilling of the work tasks are:

1. the work team usually manage to better fulfil a complex task;
2. taking decision is based on a rigorous grounding of a group of specialists;
3. the innovative spirit is better emphasized through confronting different team members' opinions;
4. the elaboration and the fulfilling of some new solutions is usually easier in the team, the team members sustain and motivate themselves mutually;
5. the acceptance of a new solution by the society is higher than if the proposals would be the result of a collective effort.

The project leader has leading tasks specific to the project team, of a real interest for the good development of the team work and for the fulfilling of the tasks. The project team, in order to be permanent, it must develop a minimum of cohesion, of identification with the project objectives. That is why the project manager has to be sensitive regarding the social interdependences and the

processes of forming the team, so, the team dynamic. The team forming process comprises, ideally, four different phases:

1. the mutual acceptance: after a distrust phase, the project team members search for common tasks and objectives and begin to accept each other;
2. decisions making: in an open atmosphere the common problems are discussed and each team member position/role is defined. The way of developing the common activities is decided together;
3. motivation: the team work gets to the phase of maturing, the members help each other in order to fulfil the common objectives;
4. control: the team work becomes efficient, the team members respect and control the established norms and rules for the team work. The non-compliance with the norms is punished.

In fact, the phases which are passed through by the team are much more complex and the result for the forming process of the team is not always positive for each member. (chart 2).

Even if, apparently, the time and emotional investment of the project leader in forming the project team is too big, it is justified by the fact that in this way, one can avoid postponing ambiguities, the unsolved problems or even some conflicts from an advanced phase of the project, which could lead to crisis during its development.

*Chart 2
Developing phases of the project*

The phase	Group/team structure	Attitude towards the work task
1. Forming	Uncertainty, dependence on the leader, the adequate behaviour testing made by the team members.	Defining the work tasks by the team members, choosing approaching methods/ cooperation rules
2. Storming	The conflict between the team members, rejection of the team leader, polarization of the team members' positions, denying their control.	Emotional denial in accepting the project task
3. Norming	The developing of the team cohesion, of the group norms, mutual helping, reducing the level of opposition and conflicts	Openly discussion of the team members' opinions and positions, discussion of the emotions, beginning of the cooperation
4. Performing	There are no interpersonal problems, the structure of the team is functional, the team members' behaviour is flexible and adapted to the team work requests.	Finding solutions, constructive attitude towards the project tasks, the energy is used in order to fulfill the project tasks.

Conclusions

The cohesion of the project team and the members' identification degree can be positively influenced through:

1. Supporting the forming of some common ideas on the project objectives to all the project team members.
2. Appreciation of the team positive results.
3. More frequent communication and interaction with the project team members also through a competitive and motivational environment towards other teams.

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L'analyse du management desprojets de recherché scientifique dans l'enseignement supérieur en éducation physique et sport

Mots-clé: éducation physique et sport, enseignement supérieur, projets, recherché scientifique

Résumé: Le management des projets porte sur la structure organisationnelle, l'organisation interne du projet et les correlations avec la structure de l'organisation, accompagnées par certains aspects visant le management.

Analiza managementului proiectelor de cercetare științifică în învățământul superior de educație fizică și sport

Cuvinte cheie: educație fizică și sport, învățământ superior, management, proiecte, cercetare științifică

Rezumat: Managementul de proiect se concentrează pe structura organizatorică, organizarea internă a proiectului și a corelațiilor cu structura de organizare, însoțită de unele aspecte de management.

STUDY ON ORIENTATIONS AND TRENDS IN UNIVERSITARY SCIENTIFIC RESEARCH IN THE FIELD OF EDUCATION AND SPORTS

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Summary

Romanian Physical Education and Sport in higher education is required to bring its contribution to creating the European Research Area, at various levels aimed at organizing, managing, updating and improving techniques and methods, involvement, development and innovation.

The main purpose of this paper is to provide a general overview of the university research in our field. The main task was to highlight guideline concerns, areas and directions as well as to identify potential trends.

The study revealed aspects of scientific research in our field, at the same time allowing us to draw conclusions meant to determine the improvement of this activity.

Keywords: *scientific research, education, physical education, sports*

Introduction

Romanian Physical Education and Sport in higher education, as a result of the application the Bologna process is in the midst of substantial transformation.

According to documents issued by Romanian authorities, "the creation and use of knowledge has become a vital source for stimulating global value. In addition, knowledge is the central element that determines competitiveness and, as such, countries of the world, especially the developed ones engaged in the systematic development of sophisticated national

systems and international interactions."¹⁰

In a world marked by competition and the process of globalization, university scientific research is required to bring its contribution to creating the European Research Area, as stated in the official documents from the ministerial meeting in Bergen.

The contribution of universities to achieve this

¹⁰ GUVERNUL ROMÂNIEI, MEC, ANCS, Strategia națională de cercetare, dezvoltare și inovare, 2007 - 2013

goal is expected at various levels aimed at organizing, managing, updating and improving techniques and methods, human resources involvement, development and innovation.

We believe that the major changes in our field, the efforts to harmonize and to match European realities and developed societies have highlighted the necessity of a greater focus on academic research. Universities are called to contribute to the transmission of knowledge and to the constitution of a society based on this.

Requirements concerning research and performance enhancement, the improvement of the quality for the services provided as well as that of the human resources involved in the process, competitiveness and expected results are sufficient grounds to determine the approach to this problem.

Objective and tasks

The main purpose of this paper is to highlight the current situation and provide a general overview of the university research situation in our domain.

The tasks of this paper consist of: highlighting guidelines, research areas, pathways and identifying potential trends.

Research Methods

The main method used in our observant scientific approach was comparative analysis of official documents and legislative fundamentals specific to this field of study.

Content and discussion

This study has shown that scientific research is part of the universities' activities that unfold a consistent teaching activity. Every **lecturer** has the obligation to conduct research work, as indicated in the job description.

The legislative and practical aspects of the university teaching activity are subject to the national laws applied to the entire system of higher education and research. Of these we mention:

- ORDINANCE no.57/2002 concerning scientific research and technological development.
- Decision no. 1004/2002 Research Fellowships for young PhD.
- LAW no. 324/2003 Research Law.
- Law no. 319/2003 on R & D Staff.
- Decision no. 442/2003 concerning measures to attract, train and stabilize the youth in the research area.
- Order no. 3893 from May 24th, 2004 concerning instructions for the equivalence of functions and degrees of research and development acquired prior to the enforcement of the Law no. 319/2003.
- LAW NO.206/2004 from May 27th, 2004 concerning good conduct in scientific research, technological development and innovation.
- Law no. 288/2004 concerning the organization of university studies.
- HG 567/2005 concerning the organization and

unfolding of doctoral studies.

- HG no.217/2007 Decision concerning the approval of the National Research, Development and Innovation Strategy, 2007-2013.
- HG no. 475/2007 concerning the approbation of the National Plan for R & D and Innovation II, for 2007-2013.
- HG no.551/2007 Decision for the approval of the criteria, standards and methodology for assessing and certifying the capacity to unfold R & D activities by units and institutions that have R&D in their plan of activities and for accrediting the units which part of the research-development system of national interest.

In addition to these, there are other laws as well, HG and MO, for the establishment and operation of various bodies (authorities, councils, committees, etc.) in the field of education and scientific research. We mention some that are significant to us: ANCS, UEFISCU, CNCSIS.

We believe that the scientific research in our area of activity is coordinated, directed, monitored and rigorously evaluated in close relation to the mission undertaken by the above-mentioned institutions.

All these indwell from the following attributions: management of the university scientific research, study elaboration, forecasts and programs, development, validation and application of the evaluation procedures and result analysis, funding management for programs and projects and monitoring of the latter, report elaboration, evaluation of publications and their inclusion in the international flow.

The study has shown that there are certain aspects common to all schools and departments/chairs, as follows:

- The general principles applied in international research have been adopted. We refer here mainly to:
 - o granting the freedom to choose the thematic;
 - o intellectual property;
 - o respecting the professional ethics when applying certain techniques and methods on human subjects as well as concerning health, safety, privacy or other personal rights;
 - o introducing the results of the research in the national and international flow of information.
- Research is conducted both on department/chair level as well as in research centers, either accredited or not and is unfolded by teachers, researchers, students, graduate and doctoral students; a separate component is the research on the doctor's degree level.
- There is a small number of centers in the area that have a personal staff scheme (researchers of various degrees), teachers representing the majority of the staff in most of these centers.
- There is a strong individual research orientation and a minor team research philosophy. (except for the case of grants).

- The thematic approach is oriented towards the problems in the field. The themes are very diverse, generally of small amplitude, without being included in Unique Research Plans at a university level. The thematic addresses issues concerning: training, learning, optimization, methodology improvement, techniques and methods used for various purposes (physical condition, prevention, technical training, relaxation, recovery, rehabilitation, physiotherapy, etc.).

- The research activity during the doctoral studies is varied, adapted to the competencies of the students and correlated with their areas of interest.

- The main research areas are correlated with the domain's majors; among the most frequent directions, we mention those targeting physical education, the human and his / hers abilities, leisure, relaxation and recovery, sports, performance in various activities and functional recovery and motor re-education.

- Interdisciplinary approaches are more and more frequent: we remark some applications from human and social sciences not only in the main research areas.

- New technologies and computer applications are important in carrying out the research, in the case of either individual or collective projects of various types.

- There's a significant improvement of the research material available and specific facilities for research in our field, innovations, adaptations and customizations to this specific activity.

- There is an increasing number of scientific events with a more and more diverse thematic and structure. All these facilitate the necessary conditions for the communication of the results and their inclusion in the national and international flow of information. In this respect, we note an improvement at administrative level (organizing and unfolding such events), faculties (departments or chairs take their responsibilities seriously and designated teams get involved in solving the assigned tasks), the general level of the presented papers has increased in terms of rigor, criteria for evaluating the scientific productions and structuring requirements have been clearly defined.

- In the last years efforts have been made to define a set of hierarchical criteria of the scientific events (national, national with international participation, international), especially for the international ones which bring benefits to the research and its evaluation, as well as for the organizing institution and the participants.

- Affiliation to international organizations, conducting scientific events under their patronage and that of the superior forums of Romania is more and more frequent; we considered that it represents a big step forward for our research, to increase its quality and visibility.

- The increasing number of projects accepted for funding according to the priorities of the national or international programs represents an important direction

for the development of research in our field. We mention here for example, projects unfolded under European communitarian programs Leonardo da Vinci and Socrates (Erasmus, Comenius, Grundwig) which have a research component, Tempus, **Phare 2004-2006 Economic and Social Cohesion and technical-vocational education (TVET), Sixth Framework Program (FP6) and Seventh Framework Program (FP7)**, the sectorial and regional development programs which benefit from Structural Funds and national programs such as **National program II (PN II), Excellent research program (CEEX)**, doctoral scholarships.

- The dissemination of the results through publications and publishers accredited by CNCISIS guarantee transparency, universal access to information and scientific rigor, ethical and professional deontology.

Conclusions

When speaking about scientific research, the schools follow the general line adopted by the university they belong to, which in turn complies with the general strategy in higher education. In spite of that, a general strategy in the field has not been delineated so far.

Our study revealed the diversity of research directions and thematic, without outlining a scheme of major areas of interest and priorities in the field neither on short **nor** or medium terms.

Furthermore, we have noticed efforts to improve the quality of scientific events, the evaluation and dissemination instruments of the research and of the publications **and** scientific productions.

However, the contribution of scientific research and its capitalization in the specific practical activity remains quite low in comparison to the desired outcome.

We believe that in order to improve our research it is necessary to:

- support training efforts / improvement of human resources dedicated to research;
- enhance the cooperation and collaboration between national and international universities in research, development and innovation projects;
- increase the support for teachers and researchers, specialists in **Physical education and sport**, facilitate their access to organizations, councils, committees, commissions involved in scientific research;
- continue to improve the quality of the scientific productions;
- improve the assessment tools;
- intensify efforts to increase visibility on a national and international level.

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Étude sur les orientations et les tendances dans la recherche scientifique universitaire dans le domaine de l'éducation physique et le sport

Mots-clé: Recherche scientifique, éducation, éducation physique

Résumé: L'éducation physique et le sport en Roumanie doit apporter sa contribution à la création de l'Aire de Recherche Européenne, visant l'organisation, le management, l'amélioration des techniques et des méthodes, l'implication, le développement et

l'innovation. L'article explore une vision générale de la recherche universitaire dans ce domaine.

Studiu privind orientări și tendințe în cercetarea științifică universitară din domeniul educație fizică și sport

Cuvinte cheie: Cercetare științifică, educație, educație fizică.

Rezumat: Educație fizică și sportul în România trebuie să contribuie la crearea Spațiului European de Cercetare, la organizarea, gestionarea, îmbunătățirea tehnicilor și metodelor, implicare, dezvoltare și inovație. Documentul explorează, o imagine de ansamblu a cercetării academice în acest domeniu.

PRELIMINARY DATA REGARDING THE ACTION OF COLLOIDAL SILVER ON STRIATED MUSCLE

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Abstract

Microscopic examination of the diaphragms of Wistar rats that have ingested daily for a month non-toxic doses of colloidal silver, show an increasing proportion of type II muscle fibers throughout the diaphragm and the appearance in the diaphragmatic costal part of a new type of muscle fascicles composed of type I fibers in center and type II fibers at periphery; these findings may be the premise of creating drugs to treat diaphragmatic ventilatory dysfunctions, neuromotor diseases, and sport nutrition supplements.

Keywords: colloidal silver, muscle fiber types

Introduction

Colloidal silver is attributed many therapeutic effects, being studied especially the action of various antibacterial and antiviral pharmaceutical products containing nanoparticulate silver, but also it was found a significant regenerative effect due to these nanoparticles [8]. Our previous research showed a stimulating action of hair follicle stem cells by silver nanoparticles, some results suggesting even the induced development of piloerector muscles [3, 4, 5].

Hypothesis

Since the repair, growth and maintenance of striated muscle trophicity is due by satellite cells activity, provenient from the primitive stem cells, we aimed to investigate the effects of colloidal silver on

this type of muscle. Researches were conducted on rat diaphragm muscle, because this species diaphragm is well studied in terms of functional anatomy and has the potential to change the distribution of muscle fiber types, even after birth [1, 6]. We also assume that late maturation of this newly developed muscles facilitates the study of the effects of silver nanoparticles on its morphology.

Materials and methods

The research took place in the Central Drug Test Laboratory, Iași, and has been conducted on 6 Wistar rats aged 1 year, average weight 150 g, who received for a month colloidal silver in drinking water, a tsp daily of product "Colloidal Silver" (solution 5 ppm colloidal silver), equivalent for a man of 75 kg, a dose

considered by producers of such as dietary supplements without side effects for a long time [8]. Control group consisted of 6 animals experienced the same age, race and weight. After a month the laboratory animals were slaughtered and were taken diaphragm muscle tissue from the costal part (characterized by tetanic contractions) and the crural part (characterized by tonic contractions). Tissue fragments were fixed one day in neutral formalin with concentration 15%, sectioned in microtome (section thickness 5 μ m) and then colored by the method Szekely (which turns red muscle fiber type I and type II muscle fibers green) for microscopic analysis.

Results

Microscopic analysis of histological sections from the control group showed a mixture of muscle fibers colored in green (type II) and colored in red muscle fibers (type I) both in the costal region and in the crural diaphragm, muscular fascicles being with different orientations. Muscular fascicles that were cut longitudinally seem to consist of type I muscle fibers mixed with type II muscle fibers (fig. 1).

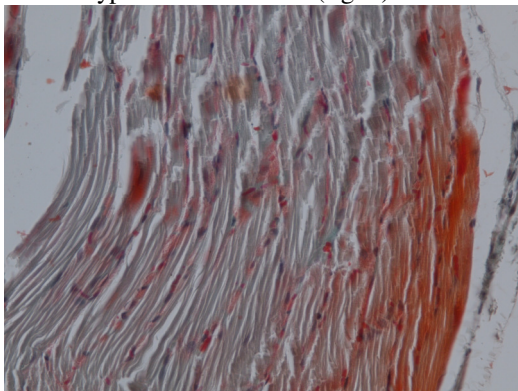


Fig. 1. Rat diaphragm, the crural part. Longitudinal section (Szekely-ob. 40X).

On cross sections there is clearly observed in the crural part of the muscle fascicles of type I fibers predominate (fig. 2) but also of rare muscle fascicles consist exclusively of type II muscle fibers (fig. 3), while costal region fascicles have a homogenous mixture of muscle fiber type I and II (with predominance of type II), being identified some bundles composed exclusively of type I fibers (fig. 4).

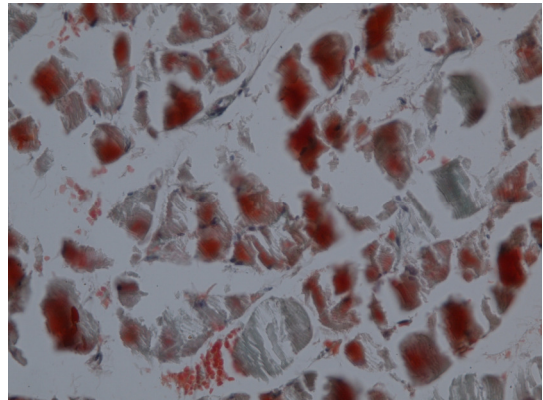


Fig. 2. Rat diaphragm, the crural part. Cross section (Szekely-ob. 40X)

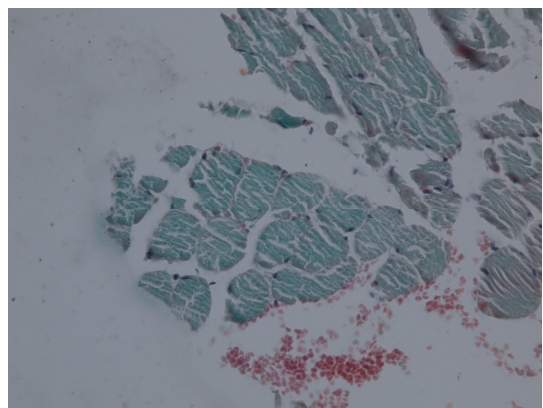


Fig. 3. Rat diaphragm, the crural part. Cross section (Szekely-ob. 40X)

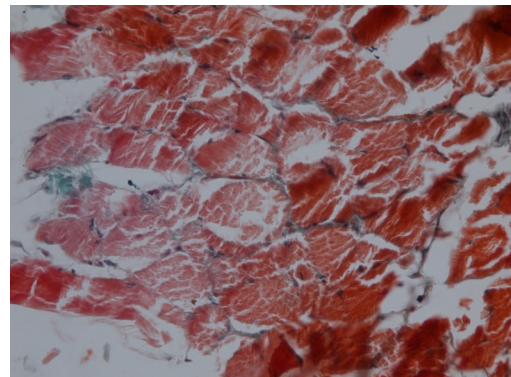


Fig. 4. Rat diaphragm, the costal part. Cross section (Szekely-ob. 40X).

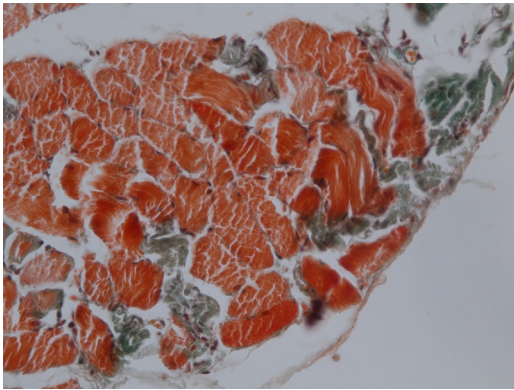


Fig. 5. Rat diaphragm, the costal part. Cross section (Szekely-ob. 40X).

Generally, the costal part of diaphragms studied were predominantly type II fibers and in the crural part predominated type I fibers. Diaphragm in rats of experimental group presented at the microscopic analysis a higher proportions of green colored fibers both in the costal and in the crural parts. In the costal part we found the presence of a separate categories of muscle fascicles consisting of a mixture of muscle fibers that prevailed colored in red and green colored fibers were not homogeneously distributed but were located relatively peripheral (fig. 5).

Discussions

Rat diaphragm is described in the literature as consisting of a mixture of muscle fiber type I, IIa and IIb, with fast fibers predominantly in middle and ventral parts and slow fibers predominantly in the dorsal part [6], as confirmed by this research. The existence of muscle fascicles composed exclusively of type I fibers in the costal part and of muscle fascicles consisting only of type II fibers in the crural part, found in this study, may be the consequence of different directions of muscularization during development or could be a functional necessity of limiting tetanic and respectively tonic function.

In rat diaphragm muscle fiber proportions of type I and type IIb increase with age, while the proportion of type IIa fibers decreases, which applies both to costal region and for the crural; for the costal part of the rat diaphragm the muscle fibers have homogenous disposition and no change after 4 weeks of age [1], so the new category of fascicles that appear at the costal part of diaphragm in rats experimental group, consisting of type I fibers in center and type II fibers at the periphery is not a consequence of physiological changes of proportion and distribution of the fast and slow fibers. The onset of type II muscle fibers at the periphery of muscular fascicles consisting of type I may be the result of stimulation by silver nanoparticles of the muscle stem cells (proliferation of type IIc fibers) or of stimulation of the neuromuscular transmission with innervation of slow fibers by axonal branches of fast

motor units in the neighborhood and fast fiber transformation (hypothesis which takes account of peripheral distribution of type II fibers). These results paves the colloidal silver treatment of diaphragmatic ventilatory dysfunctions, knowing that in heart failure, chronic hypercapnia, biliary cirrhosis, treatment with corticosteroids, fast diaphragm muscle fibers are destroyed [2, 7].

These preliminary experimental data open the possibility of creating medicines to recovering neuromotor patients but also for specific extrapyramidal degeneration at old age, because it can be assumed that the effects of colloidal silver on the diaphragm manifest on the rest of the striated muscle too. May be created nutritional supplements with added colloidal silver for sportsmen, since fast-twitch muscle fibers promotes rapid spurt or high intensity effort for a short time, thus developing a high proportion of fast-twitch muscle fibers is important for athletic evidence which runs short, sports that the speed of response is present (martial arts, boxing) and all physical activities performed by short-term efforts (sports games).

Conclusions

1. We identified in rat diaphragm muscle fascicles consisting of a homogenous mixture of slow and fast fibers, but rare muscle fascicles were composed exclusively of slow fibers or exclusively of fast fibers. The fast fibers were prevailed in the costal part and the slow fibers were prevailed in the crural part.
2. Microscopic analysis of the diaphragms of rats that have ingested daily for a month non-toxic doses of colloidal silver, pointed appearance in the costal part of a new type of diaphragm muscle fascicles, composed of slow fibers in center and fast fibers at periphery, and increasing proportion of fast fibers throughout the diaphragm.
3. The formation of fast-twitch muscle fibers by colloidal silver may be the premise of creating drugs to treat the diaphragmatic ventilatory dysfunctions, recovery of patients with motor neurone disease, but also of creating nutritional supplements for athletes.

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Données préliminaires sur l'action de l'argent colloïdal sur le muscle squelettique

Mots-clé: Argent colloïdal, types de fibres musculaires
Résumé: L'examen microscopique des diafragmes des rats Wistar ayant ingéré chaque jour pour un mois des doses non-toxiques d'argent colloïdal a relevé une augmentation de la proportion des fibres musculaires de

type II dans le muscle entier, et dans la partie costale, l'apparition d'une nouvelle catégorie de fascicules musculaires, ce qui constitue la prémise de la création des médicaments pour le traitement des troubles de la respiration diafragmatique et des maladies neuromusculaires.

Date preliminare privind acțiunea argintului coloidal asupra mușchiului striat

Cuvinte cheie: Argint coloidal, tipuri fibre musculare
Rezumat: Examinarea microscopică a diafragmelor unor șobolani Wistar care au ingerat zilnic timp de o lună doze netoxice de argint coloidal a relevat o creștere a proporției fibrelor musculare de tip II în întreg mușchiul iar în partea costală apariția unei noi categorii de fascicule musculare, formate din fibre de tip I în centru și fibre de tip II la periferie, ceea ce constituie premisa pentru crearea unor medicamente destinate tratării disfuncțiilor ventilatorii diafragmatice, a bolilor neuromotorii, dar și a unor suplimente nutritive pentru sportivi.

USING WHOLE BODY VIBRATION TO IMPROVE JUMP ABILITY IN YOUNG RECREATIONAL SPORTSMEN

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Abstract

The whole body vibrations (WBV) it is nowadays one of the most widely used methods for improving the explosive strength. In this study, 12 subjects participating in recreational physical activity were allocated to a 5 sets of 60 s training, using a frequency of 30 Hz, an amplitude of 2.5 mm. and a isometric position (110 ° bending knees) on a Galileo Fitness ® (Novotech, Germany) platform. The results showed an increase in SJ (+1.76 ± 4.05 cm) and CMJ (+1.10 ± 3.20 cm) in the post-test conducted just after the vibration. The values of the post-test performed 30 minutes after the squat jump remained above the ones of pre-test but just below the ones of the immediate post-test (+0.42 ± 4.43 cm). By contrast the values in the counter movement jump drop below the pre-test ones (-0.12 ± 2.45 cm). Based on these data it seems that when the frequency is not high it is necessary to use a greater amplitude in order to achieve the desired effects. The effect achieved after the vibration is transient, not remaining after 30 minutes.

Keywords: Whole body vibrations (WBV), Counter-Movement Jump (CMJ), Squat jump (SJ), Explosive Strength.

1. Introduction

Whole body vibration (WBV) is nowadays one of the main lines of research due to the multiple possible effects on the body (Cardinale and Bosco,

2003). Some studies have shown how the exposure to low amplitude and high frequency vibration can improve strength, balance and hormonal profile (Cardinale y Bosco, 2003; Kvorning et al., 2006).

The WBV methodology needs to define the characteristics of the vibration, so, it is necessary to define the frequency, amplitude, duration and magnitude used (Luo, McNamara and Moran, 2005). The frequencies used for these exercises ranging from 15 to 44 Hz, while the amplitudes between 3 to 10 mm. The acceleration values ranging from 3.5 to 15 g. With regard to the duration, short exposures, for example 4 to 5 min divided into sets of 1 min with the same rest period between series, are enough to improve muscle strength (Rittweger et al., 2000). With the increments in the length of vibration, the fatigue can appear faster and

become more important. Longer exposures with this device may trigger the inhibitory feedback (e.g. Golgi complex) or reduce the sensitivity of muscle spindles. In general, people are using intermittent programs for no more than 30 min.

In this way the aim of the study is to know the acute and residual effect (after 30 min.) of one bout with WBV on the explosive strenght assessed by jump test such as counter movement jump (CMJ) and Squat jump (SJ)

2. Materials and methods

Table 1
Descriptive data

GROUP 1	N	Minimum	Maximum	Mean	SD
Age (years)	12	18,00	36,00	22,90	5,06
Weight (Kg)	12	57,30	90,70	72,39	9,46
Height (m)	12	1,65	1,84	1,73	0,06
BMI (kg/m ²)	12	21,05	30,66	24,03	2,63

Procedures

All subjects in the study were invited to three pre-test sessions. The data were correlated in order to obtain the reliability of the ($r > 0.85$) and we take the third pre-test as baseline. After each intervention one post-test was carried out, analyzing the same parameters in order to identify possible variations between both test. The assesment it was performed just after the vibration and after 30 min in order to determine the residual effect. With regard to the protocol it was used the Galileo Fitness[®] platform (Novotech, Germany), with a frequency of 30 Hz and an amplitude of 2.5 mm. The gravity obtained was 9.1 g. The subject remained

standing on the platform adopting an isometric position with 110 degrees flexion on the knees. The duration of vibration used for this study was 5 sets of 60 s with another 60 s rest between series.

Every subject performed three CMJ and another three SJ in accordance with the protocol proposed by Cronin & Mali (2000). Each jump was recorded with precision of 0.1 cm. The rest time was 30 s between two consecutive jumps. If the difference between jump's height was more than 5% another attempt was done. The best of the three attemps was recorded. All the jumps were performed on a Ergo Tester[®] contact platform (Globus, Italy).

3. Results

Table 2
Comparison between the data obtained from the jump's acute effect after the test

Paired analysis	N	Mean	SD	Mean difference	SD	Sig
Pair 1 HSJpre3 (cm) HSJpostAG1 (cm)	12 12	26,13 27,89	4,33 4,63	+1,76	4,05	0,20
Pair 2 HCMJpre3 (cm) HCMJpostAG1 (cm)	12 12	34,05 35,15	5,38 5,15	+1,10	3,20	0,31

HSJpre3: Jump height in SJ from pre-test; HSJpostAG1: Jump height in SJ just after the test; HCMJpre3: Jump height in CMJ from pre-test; HCMJpostAG1: Jump height in CMJ just after the test.

Table 3
Comparison of the data obtained from the residual effect after the jump with the pre-test

GROUP 1	N	Mean	SD	Mean Difference	SD	Sig
Pair 1 HSJpre3 (cm) HSJpost301 (cm)	12 12	26,13 26,55	4,33 4,23	+0,42	4,43	0,77
Pair 2 HCMJpre3 (cm)	12	34,05	5,38	-0,12	2,45	0,88

HCMJpost301 (cm)	12	33,93	4,93		
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HSJpre3: Jump height in SJ from pre-test; HSJpost301: Jump height in SJ 30 min after the test; HCMJpre3: Jump height with CMJ in pre-test; HCMJpost301: Jump height with CMJ 30 min after the test.

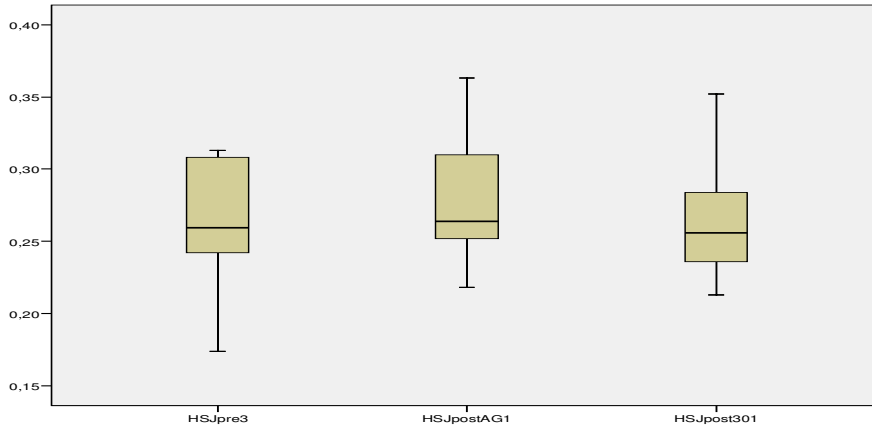


Figure 1. Squat jump height in pre-, post-, and 30 min. after the test

HSJpre3: SJ height in pre-test; HSJpostAG1: SJ height just after test; HSJpost301: SJ height 30 min after the test.

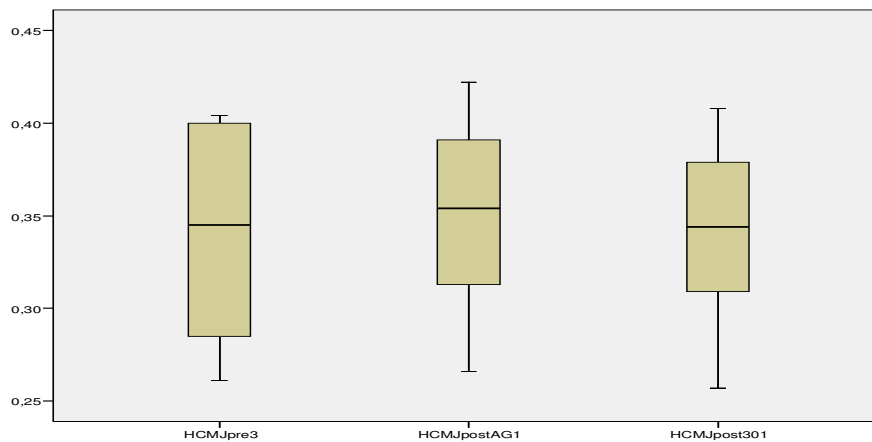


Figure 2. Counter movement jump height in pre-, post-, and 30 min. after the test

HCMJpre3: CMJ height in pre-test; HCMJpostAG1: CMJ height just after test; HCMJpost301: CMJ height 30 min after the test.

4. Discussion

SJ and CMJ are often used as an index of the explosive strength in the lower limb (Keogh, Weber and Dalton, 2003). Although our results showed a lack of significant effect, we found increments in both test (6.74% and 3.23% in SJ and CMJ height, respectively). Those results are in the line of other previously published (Torvinen et al., 2002a; De Silva et al., 2006; Martínez et al., 2007). Moreover, Cardinale y Lim (2003) studied the effect of WBV on SJ and CMJ jumps in 15 young people participating in recreational sports who underwent a protocol with a 4 mm amplitude and 40 Hz. Data from post-test were lower than those

obtained in the pre-test. While the decline observed in SJ was not statistically significant (- 4%, $p = 0.07$) the one in CMJ it was (- 3.8%, $p < 0.001$).

It seems therefore, that when the vibration does not produce fatigue and is of short duration it can produce an increase of nervous system signals and facilitate the strength generation (Cardinale and Bosco, 2003). On the other side, when we apply a stressful stimulus it can cause fatigue and then reduce the strength generation. The results suggest that when the frequency is 30 Hz we need a greater amplitude in order to get acute significant improvements in jump ability, whereas when the frequency is greater, it is necessary to

use a lower amplitude in order to avoid muscle fatigue.

Regarding the residual effect, some authors suggest that the vibration effect seems to be transitional on the muscle performance (Torvinen et al., 2002). These authors found in their studies that the higher increments founds 2 min after the CMJ were not present 60 min after them (Torvinen et al., 2002). In our case, the residual effect was measured at 30 min, showing an increment for SJ (1.61%) with regard to the pre-test, although just 6.74% was found in the immediate post-test. The CMJ drop below the pre-test level (- 0.35%). Similar results were observed by several authors (Torvinen et al., 2002; Cormier et al., 2006)

Showed results let us to go further in the study of WBV. In this way, we have seen when the frequency is not high the amplitude have to be increased in order to improve the explosive strength. In this way, the improvements found were not maintained after 30 min, so it can be said that the WBV effect is just transitory.

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L'utilisation des vibrations pour l'amélioration des sauts au cas des sportifs amateurs

Mots-clé: Vibrations du corps entiere (WBV), saut au sens oppose du déplacement, saut en position tapie, force explosive

Résumé: Les vibrations du corps entier (WBV) est une des methods les plus répandues pour l'optimisation de la force explosive.

Folosirea vibrațiilor pentru îmbunătățirea săriturilor în cazul sportivilor amatori

Cuvinte cheie: vibrații la nivelul întregului corp (WBV), săritura în sens opus deplasării (CMJ), săritura din ghemuit (SJ), forța explozivă.

Rezumat: Vibrațiile la nivelul întregului corp (WBV) sunt în zilele noastre una dintre cele mai larg răspândite metode de optimizare a forței explozive. În acest studiu, 12 subiecți care participă la activități sportive recreative au fost supuși la 5 seturi de antrenamente a câte 60 de secunde, folosind o frecvența de 30 Hz, o amplitudine de 2.5 mm. și o poziție izometrică (genunchii flectați la 110 °) pe o platformă Galileo Fitness ® (Novotech, Germany). Rezultatele au arătat o creștere a SJ (+1.76 ± 4.05 cm) și a CMJ (+1.10 ± 3.20 cm) în cadrul testului ulterior, efectuat imediat după aplicarea vibrațiilor. Valorile testului ulterior efectuat la 30 de minute după săritura din ghemuit au rămas superioare celor înregistrate în testul premergător, dar puțin inferioare celor din testul efectuat imediat după aplicarea vibrațiilor. (+0.42 ± 4.43 cm). Prin contrast, valorile săriturii în sens opus deplasării sunt inferioare celor realizate în testul premergător (-0.12 ± 2.45 cm). În baza acestor date se pare că atunci când frecvența nu este ridicată este necesar să folosim o amplitudine mai mare pentru a realiza efectele dorite. Efectul realizat în urma aplicării vibrațiilor este trecător, nemenținându-se după 30 de minute.

CUSTOMER SERVICES WITHIN MOLDAVIAN FACULTIES OF SPORTS AND PHYSICAL EDUCATION

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Abstract

The customer services provided by the secretariat and the teaching department within the public faculties of sports and physical education in the Moldavian region, having as target the domestic public – the students within the second, third academic year and second year of Master.

We also made a comparison between the customer service at the Faculty of Sports and Physical Education in Iași and the other Moldavian faculties.

Keywords: *Customer services, Faculty of Sports and Physical Education, secretariat, teachers.*

➤ **Research purpose**

The study aims at evaluating customer services (the customer service component) within the public faculties of sports and physical education in the Moldavian region.

➤ **Research objectives**

- Evaluating the level of customer service for the domestic public – students – within the public faculties of sports and physical education in the Moldavian region. We took into account:

- customer services provided by the secretariat;
- customer services provided by the teaching department;

- Assessing the level of the Faculty of Sports and Physical Education within „Al.I. Cuza” University in Iași concerning customer services in relation to the other public faculties in Moldavia.

➤ **Research hypotheses**

H1 Hypothesis: *Within the public faculties of sports and physical education in the Moldavian region other are precarious customer services targeting the domestic public – students (average 1.2 or 3 on a scale from 1 to 7).*

H2 Hypothesis: *The customer services provided by the Faculty of Sports and Physical Education within „Al.I. Cuza” University in Iași are the same as those provided by the other faculties of sports in Moldavia.*

➤ **Method and instrument**

In this research we used the survey method. We are talking about a personal survey administered to each public faculty of sports and physical education in Moldavia. The research instrument is represented by a questionnaire divided into three sections:

- *Section A* – to assess domestic customer services intern – for students;
- *Section B* – to assess the visual identity (name, acronym, symbol, colours);

- *Section C* – to collect socio-demographic data regarding the respondents.

For this paper we only used the data collected for section A.

The questionnaire was then given to a professor specialized in marketing issues and there was also a pre-test (pilot test) on a pilot sampleformed of 30 respondents within the Faculties of Sports and Physical Education in Iași. After the pilot test we gave up on several questions, and we reformulated other; thus, we arrived to a questionnaire made of 22 questions.

We used open questions, dichotomous closed questions, multiple choice closed questions. In most of the situations we ask the evaluation of a sentence on a Likert scale from 1 to 7, the extremes having various significances, from case to case: very bad / very good; very inadequate / very adequate; very hard to understand / very easy to understand; very hard to pronounce / very easy to pronounce.

➤ **Collecting the data**

We collected the data between December 2009 and January 2010. The respondents completed the questionnaire within each public faculty of sports and physical education in the Moldavian region, during lectures / seminars breaks and sometimes during lectures / seminars, at the beginning or at the end, depending on the professor.

➤ **Sample description**

In this research we used four different groups, belonging to four different faculties of sports and physical education, but having in common the fact that they attended day education. Within each public faculty of sports and physical education in the Moldavian region (Iași, Suceava, Bacău, Galați) we had a sampleof about 15% of the students within the second, third academic year and second year of Master.

In order to choose the sample we used the stratified random survey. We considered that each study year within the research could be seen as a well defined and homogeneous stratum. After the stratification

(which is an institution-directed process), we applied a stratified random survey for each stratum (15% of the students within every year), thus constituting the final survey sample.

Table 1.
Sample presentation

No. of crt.	INSTITUTION	STUDY YEAR	No. of STUDENTS	SAMPLE 15%
1	Faculty of Sports and Physical Education SUCEAVA	II Bachelor studies	111	17
		III Bachelor studies	94	15
		II Master	44	10
		Total	249	42
2	Faculty of Movement, Sport and Health Sciences BACĂU	II Bachelor studies	241	36
		III Bachelor studies	207	31
		II Master	123	19
		Total	571	86
3	Faculty of Sports and Physical Education GALAȚI	II Bachelor studies	216	32
		III Bachelor studies	180	27
		II Master	110	17
		Total	506	76
4	Faculty of Sports and Physical Education IAȘI	II Bachelor studies	232	35
		III Bachelor studies	186	28
		II Master	106	16
		Total	524	79

➤ **Presenting the research results and their interpretation**

All the results within this research were calculated in SPSS 10.

In order to obtain the average values of sample 1 (Faculty of Sports and Physical Education Iași – FEFS Iași) with those of sample 2 (Faculty of Sports and Physical Education Suceava – FEFS Suceava), sample 3 (Faculty of Movement, Sport and Health Sciences Bacău – FSMSS Bacău) and sample 4 (Faculty of Sports and Physical Education Galați – FEFS Galați) we used the *z index*.

This research comprises independent samples with more than 30 subjects. In this case, we estimate that the repartition of differences between average values follows a normal law. Thus, we can use *the centred and reduced normal law* and calculate the *z index* through the following formula:

$$z = \frac{| \text{Sample average 1} - \text{Sample average 2} |}{\sqrt{\frac{\text{Sample variation 1}}{\text{Samplesize 1}} + \frac{\text{Sample variation 2}}{\text{Samplesize 2}}}}$$

The null hypothesis tested is H0: Average 1 = Average 2.

We interpret the *z index* calculated using the table of centred and reduced normal law. To this purpose, we look for the trust threshold corresponding to the *z* value we found, as follows:

- If it is higher than 0.05, there is too much error risk and we conclude that the difference between averages is not significant;
- If it is lower than or equals 0.05, we assume the risk of rejecting the null hypothesis predicting the absence of a difference between averages. Thus, they are considered significantly different.

Results of the research

Table 2

Average values of customer services provided by the secretariat

Q_A_1 You find the customer services provided by your <i>faculty secretariat</i> : very good –		– very bad 1 2 3 4 5 6 7							
	FEFS IAȘI		FEFS SUCEAVA		FSMSS BACĂU		FEFS GALAȚI		
N	Valid	79	Valid	42	Valid	86	Valid	76	
	Absence	0	Absence	0	Absence	0	Absence	0	
Average		4.46		5.42		5.11		5.28	
Median		4.00		6.00		5.00		6.00	
Module		6.00		7.00		6.00		7.00	
Standard deviation		1.51		1.50		1.29		1.53	

Table 3

Average values of customer services provided by the teaching department

Q_A_3 Your communication / relations with the professors is:		– very bad 1 2 3 4 5 6 7 very good –							
	FEFS IAȘI		FEFS SUCEAVA		FSMSS BACĂU		FEFS GALAȚI		
N	Valid	79	Valid	42	Valid	86	Valid	76	
	Absence	0	Absence	0	Absence	0	Absence	0	
Average		5.94		5.57		5.39		5.84	
Median		6.00		6.00		6.00		6.00	
Module		7.00		6.00		6.00		7.00	
Standard deviation		1.14		0.88		1.10		1.20	

Interpreting the results of the research

We will analyze the customer services (C.S.) within FEFS Iași with those within FEFS Suceava, FSMSS Bacău and FEFS Galați.

- *C.S. secretariat*:
 - FEFS Iași vs FEFS Suceava, $z = 3.69$. We rapport to the table of centred and reduced normal law and we look for the frequency corresponding to the value obtained for z , which we note as p , with a value of 0.00022. This value is much lower than the 5% (0.05) error threshold. Thus, we may conclude, with a minimal error risk, that the two averages are significantly different and that the customer services provided by the secretariat of FEFS Iași are a lot worse than those provided by the FEFS Suceava secretariat.
 - FEFS Iași vs FSMSS Bacău: $z = 3.82$; $p = 0.00014 < 0.05$. The two averages are significantly different. Customer services provided by the secretariat of FEFS Iași are a lot worse than those provided by the secretariat of FSMSS Bacău.
 - FEFS Iași vs FEFS Galați: $z = 3.72$; $p = 0.00020 < 0.05$. The two averages are significantly

different. Customer services provided by the secretariat of FEFS Iași are a lot worse than those provided by the secretariat of FEFS Galați.

- *C.S. professors*:
 - FEFS Iași vs FEFS Suceava: $z = 2.64$; $p = 0.00829 < 0.05$. The two averages are significantly different. The relations with the professors within FEFS Iași are better than those with the professors within FEFS Suceava.
 - FEFS Iași vs FSMSS Bacău: $z = 3.92$; $p = 0.00009 < 0.05$. The two averages are significantly different. The relations with the professors within FEFS Iași are better than those with the professors within FSMSS Bacău.
 - FEFS Iași vs FEFS Galați: $z = 0.71$; $p = 0.47770 > 0.05$. The two averages are significantly different. The H_0 hypothesis is confirmed: the averages are equal. The relations with the professors within FEFS Iași are the same as the relations with the professors within FEFS Galați.

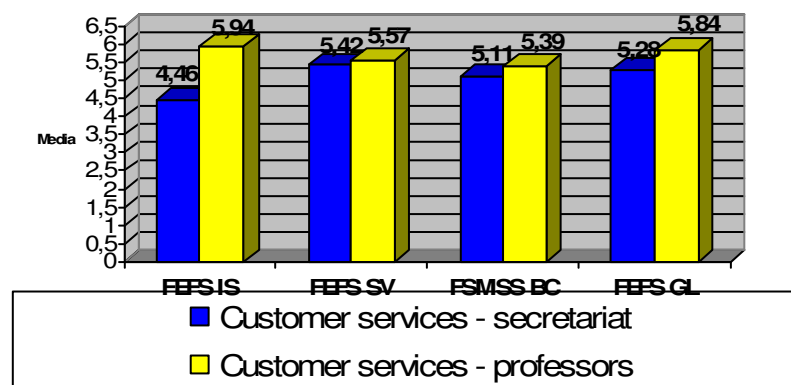


Figure 1 Average values – Customer services

➤ Conclusions of the results

The C.S. provided by the secretariat within FEFS Iași has the lowest value in comparison to the other three institutions included in the study. The average value of the C.S. – secretariat FEFS Iași is 4.46 (of 7), in comparison to 5.11 for the secretariat of FSMSS Bacău, 5.28 for the secretariat of FEFS Galați and 5.42 for the secretariat of the faculty in Suceava.

The C.S. provided by the professors within FEFS Iași has the highest value in comparison to the other three institutions included in the study. The average value of the C.S. – professors within FEFS Iași is 5.94 (of 7). A very close value is that of the C.S. provided by the professors within FEFS Galați with 5.84, then, with 5.57 the C.S. provided by the professors within FEFS Suceava and with 5.39 the professors within FSMSS Bacău.

The aspects presented above invalidate the H1 hypothesis, according to which: *Within the public faculties of sports and physical education in the Moldavian region other are precarious customer services targeting the domestic public – students* (average 1.2 or 3 on a scale from 1 to 7).

The H2 hypothesis is also invalidated. It said that: *The customer services provided by the Faculty of Sports and Physical Education within „A.I. Cuza” University in Iași are the same as those provided by the other faculties of sports in Moldavia.*

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Les relations publiques dans les facultés d'éducation physique et sport dans la region de Moldavie

Mots-clé: Relations publiques, facultés d'éducation physique et sport, secretariat, professeurs

Résumé: L'article présente une enquête regardant les relations publiques au niveau du secrétariat et des chaires/ départements de professeurs dans les faculties d'éducation physique et sport dans la region de Moldavie, visant le publique interne—les étudiants.

Relațiile cu publicul în cadrul facultăților de educație fizică și sport din Regiunea Moldovei

Cuvinte cheie: Facultatea de educație fizică și sport, profesori, relații cu publicul, secretariat.

Rezumat: În cadrul acestei lucrări este prezentată o anchetă privind relațiile cu publicul prestate de secretariat și catedra/departamentul de profesori din cadrul facultăților de educație fizică și sport de stat din regiunea Moldovei, având ca țintă publicul intern – studenții din anii de studii: Licență II, Licență III și Master II. S-a urmărit, de asemenea, realizarea unei comparații între relațiile cu publicul de la Facultatea de Educație Fizică și Sport din Iași și celelalte facultăți de profil din regiunea Moldovei.

FILE OF HISTORY IN SCHOOLS GREEK-ORIENTAL GYMNASIUM FROM BRAD (COUNTY ZARAND)

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Abstract

A series of works from the past century have discussed the important role of gymnastics in the complex education students.

A normal development and beneficial to the individual/could not only achieve intellectual and moral component. All progressive ideas of some people who had come into contact with teaching systems at fashion schools in Europe were often struck by the conservatism of Romanian society. For this reason, education body will go through a rather cumbersome and tortuous route to the position of law in the curriculum.

Initially, the curriculum there is always a footnote stating that the gym will be the afternoon outside of the courses, being mostly a game, a "harmful fun" or unimportant.

Keywords: gymnastics, school, exercise, fitness, equipment, education

Introduction

The first draft statute relating to the establishment of a gymnasium at Brad, dates from the years 1863 and 1864, but their approval delays occur¹¹. Brad gymnasium statutes were developed in accordance with the law since 1868 by a panel of Moses Lazarus dean, Dr. Joseph Hodos, G. Secula, I. Groza, Dean and Tobias Hălmaşului Mikhailovich.

Establishing project was approved by the Ministry of Education and Religious Affairs, the Metropolitan Andrei Saguna intervention. She was composed of 8 chapters and 53 paragraphs and was written in Romanian and Hungarian. In accordance with the statutes in the curriculum of the gymnasium were provided the following items: religion, languages (Romanian, Latin, Greek, Hungarian, German), geography, history, mathematics, natural history, physics, philosophy, calligraphy, drawing, singing and gymnastics.

Objects divided by class teachers and the hours between teachers and then submit them for approval Consistory.

Since the school building was located downtown streets were some shortcomings such as noise and lack of students in court for relaxation breaks and conduct physical education classes¹².

Were opened in turn: in 1869/70 Class I-II, Class III in 1870 the gymnasium and in 1871/2 grade IV

gymnasium¹³.

Gymnasium patrons were St. Constantine and Elena. Gymnastics was introduced to Brad, just in school year 1881/2. With XXX/1883 law for secondary schools, is introducing a uniform curriculum in the country and establish ministerial commissioners to control education in denominational schools.

For example, during the verification in school year 1884/5, I Elischer Commissioner is satisfied how instruction takes place, but found some gaps where the building (rooms too low, lack of exercise pavilion), the museums, the number and salaries of teachers, teacher qualification in accordance with Article of the law¹⁴.

To conduct gymnastic classes during the winter, the tree was built in 1890 a modern flag, located at 200 m from the gymnasium. Fl 4174 the building construction cost. landless, since it was donated by the church garden. Tel. local. The layout room was occupied Vienna in 1892 I Plaschkowitz from which 194 were purchased necessary equipment for gymnastics, in exchange for the sum of 935 fl. and 18 cr. Flag size was 17, 8 x 7, 35 m = 130, 83 m², height was 6, 4 m, had a door with two wings and six windows of 2, 4 x 1, 35 m = 3, 24 m².

A lobby (4,9 m x 4 m = 19,6 m²) near the existing flag, served as butler to students. Institute gymnasium and gymnastics pavilion were valued at the sum of 30,000 fl. were insured against fire and the

¹¹ A XX-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolaric 1895/6, Sibiu, Tiparul tipografiei archidiecezane, 1896, p. 5.

¹² Ioachim Lazăr, învăţământul românesc din sud-vestul Transilvaniei (1848-1883), Editura Argonaut, Cluj-Napoca, 2002, p. 266-274.

¹³ A XIX-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolaric 1894/5, Sibiu, Tiparul tipografiei archidiecezane, 1895, p. 25.

¹⁴ Ioan Radu, Monografia gimnaziului român gr. or. din Brad- scrisă din incidentul jubileului de 50 de ani al gimnaziului, Tipografia „Libertatea”, Orăştie, 1920, p. 139-143.

mutual insurance company "Transylvania" University of Sibiu¹⁵.

Gymnastics is proposed between the other subjects studied in class III and IV normal tree in the school gymnasium in 1876 / 7. In secondary classes III-IV were only two special subjects (quantity and calligraphy) but normal school (grades III-IV), gymnastics is among the 13 subjects offered¹⁶.

In the 1878-1881 school years it is extraordinary trials (calligraphy, singing and gymnastics) and to be taught two hours per week, with all four secondary school. Were provided free body exercises and other exercises in gymnastics apparatus. Normal school, classes I and II together with the school people had one hour per week of exercise, and classes III and IV separated by one hour.

Between gymnastics teachers mentioned Nicolau Margineanu and Peter Rimbasu. Scoring was done on this subject with the digits 1-4: 1 = distinsu, 2 = good, 3 = 4 = suficientu and nesuficientu¹⁷.

In 1894, teachers have created a 12 călușeri band, led by foreman Peter Rimbașiu, learning Călușerul and beaten. Of revenues from performances they purchased 13 suits călușeri. The purpose of this band was to develop a union, gymnastics and songs¹⁸.

In the 1895-7 school year, gymnastics was taught by John Radu Vasile Boneu and John German. Get to class gymnasium had to teach two hours of exercise per week. These consist of 'military exerciții, positive, looks, welcoming, întorcerea, exercitarea body limbs, body and free weights, walking în paș iuțit common in iuțită run smoothly and in line duplu simple. Cațiararea the ropes and relatives.

The second class of gymnasium was provided

the same number of hours per week. Expected "military exercises, training patruplu string, sitting and other developments underway. Formation of bands in line desvoltată, necklaces, etc. training. Skills relatives, exerciții the yoke floating, jumping, etc."

For classes III-IV secondary in affected gymnastics classes were made "exerciții military skills to scroll between the various columns on the beam with ropes, the parallel skills to yoke floating weights, wrestle and run emulation.

Regarding classes III and IV normal exercise were similar, but were affected only one hour per week¹⁹.

In school year 1906 / 7, Michael Stoia was finally ordinary teacher, priest and teacher of gymnastics and singing. He proposed to Get religion class gymnasium, gymnastics and playing the classes I to IV, the calligraphy class Ia and II primary, Romanian, singing and gymnastics in primary school. He had grade 3 o'clock gymnastics gymnasium. Free exercise position, arm exercises, marching, escape and assault. Exercise order. Training front lines and flanks. Forming rows of 2, 3 and 4. Countermarch. Circle. Exercises on machines. Jumping high and far away and with enthusiasm. Exercises in parallel, relatives, ropes and ladders. Games gymnastics.

Similar exercises are planned and class II gymnasium which were affected by 3 o'clock. Class III gymnasium have one 2 hours per week of exercise machines and free policy, and class IV 3h²⁰.

A Disciplinary Regulation on student behavior gymnasium Brad was published in the academic year 1904 / 5. Article VIII states that "Buildings Gymnasium: The gymnasium and gymnastics are the temple, where students with diligence and good conduct its illuminate the mind ... developed and strengthens its body ...". Article XIX was equally explicit: "... Or, the games only happen outdoors and when possible supervised gym teacher²¹.

In April 1908, the gymnasium was inspected Adâmy Brad Gyula Secondary gym teacher in

¹⁵ A XX-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolastic 1895/6, Sibiu, Tiparul tipografiei archidiececane, 1896, p. 15-16.

¹⁶ I-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolastic 1876/7, Sibiu, Tiparul tipografiei archidiececane, 1877, p. 3-46.

¹⁷ II-a Programă a Gimnasiului publicu romanu greco-orientalu din Bradu pe anulu scolasticu 1877/8, Sibiu, Tiparul tipografiei archidiececane, 1878, p. 3-22; III-a Programă a Gimnasiului publicu romanu greco-orientalu din Bradu pe anulu scolasticu 1878/9, Sibiu, Tiparul tipografiei archidiececane, 1879, p. 3-14; V-a Programă a Gimnasiului publicu romanu greco-orientalu din Bradu pe anulu scolasticu 1880/1, Sibiu, Tiparul tipografiei archidiececane, 1881, p. 3-11.

¹⁸ Ioan Radu, Monografia gimnaziului român ar. or. din Brad-scrișă din incidentul jubileului de 50 de ani al gimnaziului. Tipografia „Libertatea”, Orăștie, 1920, p. 56.

¹⁹ XX-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolastic 1895/6, Sibiu, Tiparul tipografiei archidiececane, 1896, p. 3-62; XXI-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolastic 1896/7, Sibiu, Tiparul tipografiei archidiececane, 1897, p. 3-52.

²⁰ Anuarul XXXI al Gimnasiului roman Greco-oriental din Brad și al școalei primare anexate acestuia pe al 38-lea an școlar 1906/7, Sibiu. Tiparul tipografiei archidiececane, 1907, p. 1-40.

²¹ Anuarul XXIX al Gimnasiului roman Greco-oriental din Brad și al școalei elementare anexate gimnaziului pe al 36-lea an școlar 1904/5. Sibiu, Tiparul tipografiei archidiececane, 1905, p. 11-13.

Budapest, as a ministerial delegation. The conference of 23 February, he noted delighted with the quality and method followed in this discipline²².

In the 1910/11 school year, Michael Stoia was gymnastics instructor at gymnasium of Brad and sing. Back then, the collection included 176 subjects apparatus 1874 worth choir²³. Collection exercise value will reach the 1989 school year 1916/17 choir. 72 sons²⁴.

During World War I, the gym was made available to local police detachment, to conduct training classes²⁵.

From February 7, 1917, M. Stoia gymnastics instructor is ill and then fired, school hours throughout the year dedicated to this subject have been occupied with other things. Michael Stoia will serve as gymnastics instructor at gymnasium of Brad, between 1898-1919²⁶.

Theoretical perspectives:

Theoretical research on the occurrence of teaching gymnastics object itself in schools in Transylvania, reveal a "magister ludi" the Romanian School of Beius (1836-1837), but the occurrence of physical education in the curricula of schools was not until Oradea 1868 and 1883 to Beius. Instead, the Greek Civil Catholic School girls Beius gym was provided from its inception (1896).

The curriculum is completed only in 1903 and contained in addition to numerous disciplines (hygiene, geography, calligraphy, drawing, etc..) And gymnastics, two hours per week to four classes. Gymnastics is assigned the same number of hours and curriculum of the school year 1915-16. For now it will increasingly focus on tours and lessons in nature. In each school year under the leadership of teachers, students undertaking

trips to surrounding areas or on a longer route. For example, in 1910 we organized a trip itinerary: Arad-Deva-Sibiu Saliste-inari-Brasov-Predeal-Teiuş-Arad.

Personal approach:

Since the nineteenth century, physical education curriculum will gradually penetrate in Transylvania.

With the publication plan for effective school gymnasiums and in Austria (September 1849), secondary schools of the German population in Transylvania were reorganized, and gymnastics was introduced as optional subject along with music and art. Depending on local possibilities, could be introduced as a compulsory subject.

The importance of this discipline is justified if we consider higher position Consistory of the Evangelical Church in Transylvania, to submit a note to the delegate of the Ministry of Religious Affairs and Education in Transylvania to reorganize the school gymnasium and real.

Here is emphasized the requirement that gymnastics, music and drawing objects to become mandatory.

The schools Transylvanian Saxon towns had merit in gymnastics growing in around 1848. This is observed by Austrian journalist Hermann Wagner, who notes that in Austria there were only isolated attempts to introduce gymnastics in schools. He emphasized that the Saxons of Transylvania were grown in school gym since before 1848.

Despite this approach, gymnastics remains optional in secondary schools object Saxon.

Following the example of Saxon schools at the initiative of Metropolitan Andrei Saguna and Romanian gymnastics in schools was introduced as a subject in school curriculum in Section 10.

Conclusion

- There is a special importance given to gymnastics, which is supported both by building a particular flag but growing number of sports equipment to the Greek Gymnasium - Brad Oriental.

- Commissioners school visits over time in the gymnasium of Brad conduct closely followed the activities of the school gym gymnasium Brad.

- Development of physical education in the curricula of schools was only in 1868 in Oradea, in 1883 and 1896 to Beius Civil Greek Catholic School for girls in Beius.

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²² Anuarul XXXII al Gimnasiului roman Greco-oriental din Brad și al școalei elementare anexate gimnaziului pe al 36-lea an școlar 1904/5 . Sibiu, Tiparul tipografiei archidiececane, 1908, p. 3-47.

²³ XXXV-a Programă a Gimnasiului public gr. or. român din Brad pe anul scolastic 1910/1911, Sibiu, Tiparul tipografiei archidiececane, 1911, p. 1-39.

²⁴ Anuarul XLI al Gimnasiului roman greco-oriental din Brad și al școalei primare anexate acestuia pe anul școlar 1916/17. Sibiu. Tiparul tipografiei archidiececane, 1917, p. 15.

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Pages de l’histoire de la gymnastique au gymnasium gréco-oriental de Brad (département de Zarand)

Mots-clé: *Gymnastique, école, exercice, fitness, équipement, éducation*

Resume: *La gymnastique a un rôle important dans le développement complexe de l’individu, comme l’ont souligné une série de travaux du siècle dernier. L’éducation corporelle a eun trajet difficile et sinueux à parcourir jusqu’à atteindre sa position actuelle.*

File din istoria gimnasticii la gimnaziul greco-oriental din Brad (Comitatul Zarand)

Cuvinte cheie: *gimnastică, școală, exerciții, sală, aparate, învățământ*

Rezumat: *O serie de lucrări din secolul trecut au dezbătut rolul important al gimnasticii în cadrul educației complexe a elevilor.*

O dezvoltare normală și benefică a individului/nu se putea realiza doar cu componenta intelectuală și morală. Toate ideile progresiste ale unor persoane ce intraseră în contact cu sistemele de pedagogie aflate la modă în școlile europene, s-au lovit deseori de conservatorismul societății românești. Din acest motiv, educația corporală va parcurge un traseu destul de greoi și sinuos până la ocuparea poziției de drept în programa școlară.

La început, în programele școlare exista mereu o notă de subsol în care se specifica faptul că, gimnastica se va face după-amiaza, în afara orelor de cursuri, fiind considerată mai ales un joc, o „distracție dăunătoare” sau lipsită de importanță.

THE DEPENDENCY OF THE ATTACK EFFICIENCY ON THE SETTER'S CHOICE IN MEN'S VOLLEYBALL

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Summary

The present study investigates the dependency of the attack efficiency on the setter's choice after a perfect reception of the serve in Men's Volleyball. The study sample was comprised from all the phases from the 2009 C.E.V. Champions League and Cup final four games. The results showed that there were 618 perfect receptions, but the setters made the right choice in only half the cases.

The attack efficiency after a right choice was significantly greater after a right than after a wrong choice (60.8% versus 48.4% respectively). Setters can receive special training to improve their setting technique.

Keywords: attack efficiency, setting choice, volleyball

Introduction

Volleyball is one of the most difficult team games because it demands from the players the handling of the ball only in specific attacking and defensive techniques. Since the primary purpose of the game is to realize successful attacks, it is obvious that the setting of the ball from the setter to the hitters is of crucial importance.

The setter should perform the pass with both hands quickly, up to 0.6 sec (Boucherin & Hefti, 1978) and send it accurately to a hitter (Selinger & Ackermann-Blount, 1986). It was found (Nishijima, Ohswawa and Matsuura, 1987) that the setting and the attack are the most important skills.

Certainly the setting pass in its turn depends on the reception. A perfect reception is considered when it ends high near the set between positions 3 and 2 (Selinger & Ackermann-Blount, 1986).

Before the setter performs the pass, he should receive information from the environment, not only on the trajectory of the ball, but also on the relative movements of the middle players, both of his own and the opposing team. The information about the ball trajectory is realized by the focal vision, while the information about the players is accomplished by the peripheral vision (Rose, 1997).

Therefore the decision of the setter for a quick or an outside attack should be the result of the correct evaluation of the above information (Ahrabi-Fard & Huddleston 1996) and are also an integral part of the attack tactics planned by the coach for the specific opponent.

The present study focuses on the analysis of the action of the setter after a perfect reception. Specifically the primary purpose of the study is to compare the outcome of the subsequent attack depending on the setter's choice.

Method

Every year the European Volleyball Confederation (C.E.V.) organizes two competitions between the top ranking club teams of European countries. These are the C.E.V. Champions League and the C.E.V. Cup. In 2009, the final four phases of these tournaments were held in Prague at 04-05/04/2009 and in Athens at 21-22/03/2009 respectively. In each final phase four games were held. These games, as table 1 shows, comprised the sample for the present study.

Table 1

Study sample

Tournament (2009)	Games	Sets	Phases
C.E.V. CHAMPIONS LEAGUE	4	16	737
C.E.V. CUP	4	14	735
Total	8	30	1472

The final standings of the two tournaments were as follows: for the Champions League 1. Trentino Italy 2. Iraklis Greece 3. Iskra Russia 4. Macerata Italy and for the Cup 1. Belgorod Russia 2. Panathinaikos Greece 3. Cuneo Italy 4. Almeira Spain

All games were videotaped at 25 frames/sec. Subsequent analysis was performed with the use of the VirtualDub software. For the duration of each phase, starting from the serve and ending with one of the two teams winning the point, every action with the ball and the specific time frame was recorded. These recordings included the kind of action, the specialty and the position of the player and a qualitative evaluation of the specific action.

The serve was divided into three categories – the jump serve, the floating jump serve and the floating

serve. The reception was divided into four categories: perfect reception that allows the setter to choose any of the available settings, non-perfect receptions that limit the options of the setter especially the setting to the center spiker, receptions that give a free ball to the opposing team and faulty receptions.

After a perfect reception the setter's choice of setting was divided into two categories: right choice when the setter chooses the center spiker only when the opposing center blocker is out of position and time to attempt the block, otherwise the pass goes to an outside hitter. The setter makes a wrong choice when the center is blocked and he receives the pass, or when the center is free and he does not receive the pass.

In order to enhance the validity the setter passes were judged by two independent observers, stopping the frame just before the setter makes the pass and judging from the relative positions of the middle hitters and blockers, they decided what the right pass should be. Afterwards the frame was allowed to run and based on the setter's choice it was categorized as right or wrong.

The attack (spike) outcome was divided into four categories: successful attack- a point is scored for

the attacking team, unsuccessful attack – a point is scored for the defending team, game continues for the attacking team, game continues for the defending team.

The block was categorized according to the number of players participating in the block.

Statistical analysis of the data was performed with SPSS v.18 and it included chi-square tests for independency of the attack outcomes from the setter's choice. The significance level was set at 0.05.

Results

The overall proportion of perfect receptions after subtracting the 266 lost serves was 51.2% (618/1206). Table 2 shows the distribution of the outcome of the attack depending on whether the setter's choice of setting was right or wrong. The chi-square test showed that the distribution of the spike outcome was significantly dependent on the setter's choice ($\chi^2=20.6$, $df=3$, $p<0.001$).

Specifically the proportion of unsuccessful attacks after the setter's right decision was only 9.0%, while after the setter's wrong decision was as high as 19.8%. Conversely the proportion of successful attacks after the setter's right decision was 60.6%, while after the setter's wrong decision was only 48.4%.

Table 2

Absolute and percentage distribution of the spike outcome depending on the setter's choice

Attack outcome	<i>Setter's choice</i>		Total
	Right	Wrong	
Unsuccessful attack	28 (9.0%)	61 (19.8%)	89 (14.4%)
Game continues for the defending team	75 (24.2%)	66 (21.4%)	141 (22.8%)
Game continues for the attacking team	19 (6.1%)	32 (10.4%)	51 (8.3%)
Successful attack	188 (60.6%)	149 (48.4%)	337 (54.5%)
Total	310	308	618

The dependency of the attack efficiency on the setter's choice was further investigated after dividing the settings into two categories depending on whether the setter made a pass for a quick attack or for an outside attack.

Moreover the analysis can be focused on only those attacks that either successful or unsuccessful, not taking into consideration of the attacks after which the game continues, the proportion of which seems to be

constant. Figure 1 displays the attack efficiency of quick and outside attacks depending on the setter's choice. The attack efficiency is expressed as the percentage of successful attacks to the sum of successful and unsuccessful attacks efficiency.

The difference in the attack efficiency between the setter's right and wrong decisions are in both cases significantly different (chi-square test, $p<0.05$), but it is more evident in the case of quick attacks.

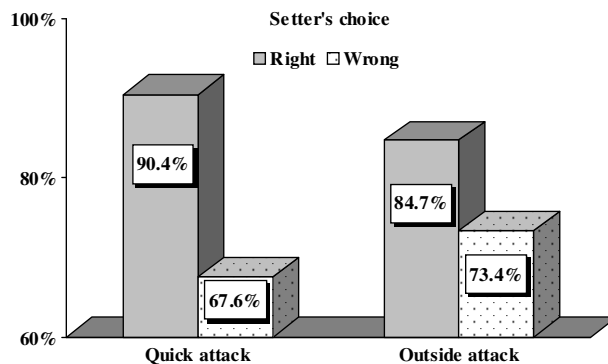


Figure 1. Attack efficiency of quick and outside attacks depending on the setter's choice.

Conclusions

The relatively not large proportion of perfect receptions mirrors the improvement of top level Volleyball teams in their serving techniques. However it seems that the setting techniques have not kept up to the same improvement, since, as the present study reveals, the setters, even after having received a perfect ball, make a correct decision for a quick or an outside attack only in half the cases.

During the past years emphasis has been given to the tempo and accuracy of the pass to outside hitters, neglecting the fact that the first choice should always be the quick attack in the center when the circumstances allow. These circumstances are difficult for the setter to perceive, since they depend entirely on the relative positions and timings of his teammate middle player and the opposite central blocker.

Taking the above into consideration, the present findings of the dependency of the attack efficiency on the setter's choice are not surprising. Setters can be trained to improve their peripheral vision, so that they can track simultaneously the trajectory of the ball coming from the reception, and the relative timing (or better its absence) of the middle hitters and blockers.

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La dépendance de l'efficacité de l'attaque sur la sélection du setter dans le volleyball masculin

Mots-clé: l'efficacité de l'attaque, sélection du setter, volleyball

Résumé: L'étude porte sur la dépendance de l'efficacité de l'attaque de la sélection du setter dans le volleyball masculin.

Legătura dintre eficacitatea atacului și deciziile ridicătorului în voleiul masculin

Cuvinte cheie: Eficacitatea atacului, decizia ridicătorului, volei.

Rezumat: Studiul arată legătura dintre eficacitatea atacului și deciziile ridicătorului în voleiul masculin