the application of auxiliary equipment in the training of rugby players of the experimental team. This once again demonstrated the effectiveness of the proposed methodology in attaining athletic performances, in our case rugby players' performance.

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IDENTIFICATION OF SOME TECHNICAL PARTICULARITIES IN WEIGHTLIFTING ATHLETES

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Abstract

Among the most important elements of the barbell lifting technique, we can mention the positioning of athletes' soles on the competition platform. This technical element is called the initial or starting position and represents the first element of the barbell lifting algorithm. In this research, we shall try to identify (through measurements), in performance (world class) athletes, the position and the stability of their soles on the support surface, in relation to sports performance.

Keywords: *identification, technical particularities, weightlifters*

INTRODUCTION

The technique joins together the procedures and the means that assure the materialization of each weightlifter's potentialities [1]. It is well-known that in weightlifting there are two styles for the barbell lift, namely the snatch and the clean and jerk. Each style is characterized by structures and, respectively, movements through which the proposed objectives can be efficiently fulfilled. On the one hand, the succession of phases composing the style structure and, on the other hand, anything that accompanies this structure (the biological, psychic, biomechanical and physiological aspects) contributes to the achievement of the expected results [2], [3].

Among the most important technical elements of the barbell lift, we can mention: the starting position, the bar pulling, the lunge, the body rising upward after lunge, the bar holding overhead, the bar lowering etc. [4]. In exchange, their objectivization remains a constant preoccupation in the activity of any specialist in the field [5]. The present paper valorizes, on the one hand, the experience of some top performance athletes and, on the other hand, some observations made by the authors of this study. Thus, through this paper, we shall try to identify some correlations between the sole position and stability on the support surface and the sports performance.

RESEARCH DESIGN

Purpose

In this research, we shall try to identify (through measurements), in performance (world class) athletes, the position and the stability of their soles on the support surface, in correlation with sports performance (regarded from the sports class point of view).

Methods

In order to conduct our research, we selected 4 athletes (boys), performers, class: master of sports.

The athletes were aged 26 to 34 years old and had a sports experience comprised between 13 and 26 years. All of them were weightlifters belonging to the Steaua Sports Club of Bucharest.

The research was developed on many stages: subject selection; athletes' participation in a

program of instruction, measurement and evaluation of the sole position characteristics; athletes' participation in a program of instruction, measurement and evaluation of the barbell position characteristics, in relation to the sole position.

We mention that our research is an intermediate phase, in which we evaluate the sole position characteristics.

We underline the fact that all the measurements and evaluations were performed for two successive positions: the sole fixation under barbell, in the initial or starting position (the moment preceding the barbell lift) and the position fixation (the moment when the barbell is held overhead).

In order to fulfill our objectives, we used some materials (cardboard sheets, tools for the length measurement: ruler, compasses, square rule) that allowed us to identify the sole position on platform and, respectively, to measure the sole characteristics (distance between the sole centers, distance between the tip toes, distance between the heels, differences between the positions of the soles in relation to their centers etc.).

RESULTS AND INTERPRETATIONS

Table 1. Subjects of the research

Crt. no.	Surname and name	Year of birth	Sports classification	Height	Weight class	Sports experience
1.	A.M.	1979	Master of sports	1.75 m	105 kg	22 years
2.	O.S.	1981	Master of sports	1.65 m	62 kg	19 years
3.	B.T.	1987	Master of sports	1.70 m	79 kg	17 years
4.	P.V.	1985	Master of sports	1.76 m	77 kg	13 years

Table 2. Distances between the sole centers

Crt. no.	Surname and name	Initial or starting position	Final or fixation position	Difference between the initial and final positions
1.	A.M.	515	570	55
2.	O.S.	330	457	127
3.	B.T.	425	500	75
4.	P.V.	390	510	120

The subjects of our research position their soles (one in relation to the other) so that the distances between the center of each one correspond to the initial or starting position, namely between 330 and 515 mm, while for the fixation position they are between 457 and 570 mm. Thus, the difference between the initial position and the final position is comprised between 55 and 120 mm.

Table 3. Distance between the tip toes

Crt. no.	Surname and name	Initial or starting position	Final or fixation position	Difference between the initial and final positions
1.	A.M.	610	410	200
2.	O.S.	374	290	84
3.	B.T.	535	315	220
4.	P.V.	447	335	112

Table 4. Distance between the heels

Crt. no.	Surname and name	Initial or starting position	Final or fixation position	Difference between the initial and final positions
1.	A.M.	720	420	300
2.	O.S.	424	390	34
3.	B.T.	665	345	320
4.	P.V.	595	435	160

The support polygon, made up of the two soles, is trapezoidal, with the short side at the heels and the long side at the tip toes. This situation generates different distances between the tip toes and the heels.

As to the distances between the tip toes, we mention that they correspond to the initial or starting position, namely between 374 and 610 mm, while for the fixation position they are between 290 and 410 mm. Thus, the difference between the initial position and the final position is comprised between 84 and 200 mm.

The distance between the heels is 296 mm and the differences are between 424 and 720 mm. Thus, the difference between the initial position and the final position is comprised between 34 and 300 mm.

Table 5. Sole deviations in the frontal and sagittal planes

Crt. no.	Surname and name	Sole deviations for the two positions (in relation to their center), in the frontal plane (initial or starting position)		Sole deviations for the two positions (in relation to their center), in the sagittal plane (fixation position)	
		Left sole	Right sole	Left sole	Right sole
1.	A.M.	23	30	60	13
2.	O.S.	75	55	0.2	0.2
3.	B.T.	35	40	13	25
4.	P.V.	55	57	30	65

The sole deviations for the two positions (the initial and final ones) and, respectively, the two planes, are different. Thus, in the frontal plane, all the subjects have different deviations (the left sole as compared to the right sole). In the sagittal plane, except for one subject (O.S.), all the other subjects have different deviations for both of the soles.

The greatest differences between the two soles (in the frontal plane) are comprised between 75 and 55 mm, while the smallest differences between the two soles are comprised between 55 and 57 mm.

The greatest differences between the two soles (in the sagittal plane) are comprised between 60 and 13 mm, while the smallest differences between the two soles (except for those which are identical - subject O.S.) are comprised between 25 and 13 mm.

CONCLUSIONS AND RECOMMENDATIONS

There are differences among the tested subjects in relation to the support polygon dimensions (in both the initial position and the fixation position), for all the investigated parameters.

Generally speaking, the more the athlete has a superior height and weight, the greater the support polygon dimensions, and conversely.

We can notice important deviations in the frontal plane, but also in the sagittal plane as to the difference between the two positions (initial and fixation positions).

Except for a single weightlifter (O.S., in the sagittal plane), all the other athletes have different deviations for both of the soles, with reference to the sagittal and frontal planes.

Although the athletes' values are close, we think that their dimensional values for both of the soles should be relatively identical after the passage to the fixation position.

This inconstancy seized in the fixation position (in the frontal and sagittal planes) may generate major unbalance moments in the final position holding.

We consider that further studies focused on other technical parameters specific to weightlifting would be necessary.

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OBSERVATIONAL ANALYSIS OF THE TYPES OF CEREBRAL DOMINANCE ON HANDBALL PLAYERS H.C. PLOIESTI

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Abstract

This study aims to identify the level of functional dominant brain hemispheres handball players, in this respect being tested using specific psychological tests such as male athletes. The purpose was to highlight the psychological configuration of the two dominant profiles and their percentages. Also, for more extensive research were used tests to identify the level of creative attitudes and nonverbal intelligence in order to see if there are correlations with the level of cerebral dominance.

The general conclusion of this analysis drew attention to the fact that the majority of athletes have a dominant left hemisphere, something that has meaning adapted for sporting activities.

Keywords*: athletes, test, hemispherical, profile, meanings;*

INTRODUCTION

Special results are obtained in sports games in the world shows that this outstanding performance are not accessible to any individual, as well as the preparation and organized independently of the methods used in the training. At present, professional sports are practiced near the limit of human possibilities, making this level of demand to be inaccessible to those who are not sufficiently equipped and trained to do so. Athletes training requires significant efforts and financial human nature, so that preparation involves both aspects as potential aptitude and psychological self-becoming. Referring to the last, it may be said generally aimed at psychological preparation for sport performance improvement due to the peculiarities of individual psychic proper knowledge of the subjects, adapting and adopting proper training and competition, disturbance and removal of potential limiting factors in achieving desired sport and proper management of failures and victories.

The concept of dominance functional of the cerebral hemispheres indicate the specialization of these structures, meaning that under certain conditions a hemisphere may be more active in achieving a function than the other. In one synthetic approach to the concrete and the particular mode of operation of the two hemispheres can display the following characteristics [4, 6, 8, 9]:

The left hemisphere is the seat of language, speech, involves linguistic aspects of writing, is the seat of the calculation logic, numbers, reasoning, analysis and abstraction capacity. Through it, any perception translates into logical representation, semantics and phonetics. Communication with the outside is based on a logical-analytical code oriented to name objects and classes, preoccupied with details, the logical facts. Does preference relations and cause-effect analysis, has the art of sentence structure. It also seeks to have explanations for everything, is convergent thinking, algorithmic and analytical. Characteristic of the subjects of this category is convergent thinking abilities include the type: the ability to compress a number of varied brands and semantic structures in a relatively limited, the ability to form concepts based on attributes of objects and phenomena, the ability to restrain and correct name classes, relationships, the ability to discover and restore order logic in a multitude of words.

The right hemisphere is the seat of thought without language, understanding of nonverbal, recognition of forms, spatial perception. She is responsible for the tone and voice intonations, the rhythm, music, imagination, sense of color dreaming. This activation causes the person to solve the problem situations with the "help" of imagination and intuition. Thinks the overall picture, ignores the details and rules, perceive the whole. The person judge things depending on the context, undifferentiated, prefer to make as many analogies in addressing scheme of the universe, synthesizing and expressing knowledge results in images. Is predisposed to artistic activities, inclined towards spirituality, it has many passions and ideas. Characteristic of the subjects of this category is shown in probing divergent thinking by topic capacities such as generating ability as many products, the ability of combining elements to get as many variants of exploration and activation of many verbal structure .

Specialists in the field [4, 6] believe that the means of hemispheric knowledge are:

- Traditional surgical Extreme is a way that can only be used for people who have suffered a stroke, being in a position to use only parts of the cerebral hemispheres.
- Electroencephalogram (EEG). Unlike the above method, allows the study of EEG in normal subjects by placing electrodes around the head and measure

the electrical activity of the hemispheres. Alpha waves indicate a degree of rest is in register 8 to 13 hertz, and brain activity requires activation at around 40 hertz. It is known that you can not measure all outputs from the limbic system because it is located in depth.

- Electrooculogram consists of recording the electrical activity of eye movements during the completion of activities.

- Inventories & questionnaires have become reliable tools for understanding hemispheric after correlating responses from a questionnaire results from EEG. The questionnaire may only finding hemispheric dominance.

In the literature, the activity of the cerebral hemispheres in sports performance is an issue relatively less studied, most references being oriented on analysis of laterality and less for individual hemispheric type. Of great interest in this respect are the works of Beilock S. and his colleagues [1], who have shown that movement experience has the effect of significant changes in the scope of behavioral changes occurring in the neuronal processes. Experience of motor skills and watching sports activities result in improvement in the area of language (understanding) through a particular configuration of neural networks. The latter include active brain areas that are responsible for the realization of sport specific movements. Without such experience performance uninitiated (or beginners) in sport are not able to process the information correctly (internal language) about the execution of a motric act, which are active only at lower levels sensory-motor.

Other authors [2, 3, 5] divide individual sports into several categories according to the laterality influences. In the first class are found disciplines: karate, judo, wrestling, boxing and laterality effects exercised on the dosage strength, precision strike and alternate defense systems. Another category includes sports: tennis, table tennis, fencing, badminton which influences aimed at placing the individual in space, high-speed handling of objects, precision execution. Groups that include athletics and swimming sports or the use of a means of transportation (biking, boating, motorcycling, racing cars) do not seem to influence laterality due to their symmetrical on one hand, and on the other hand because it depends exclusively human potential. In light of the same criteria are analyzed and collective sports (handball, volleyball, rugby, basketball, water polo, soccer), where refers to the influence of the specific game rules, the type and shape of the balls used, the limited space of the game.

Still referring [7] to laterality is also a know it is revealed that it consisted of a right hemispheric dominance for sports where executions are carried out generally in smaller spaces, configuration right hand (handy) - left eye dominant - dominant right hemisphere offers several advantages tennis players, baseball and shooting accuracy in terms of movements and reaction time, which can add a trend towards ambidextrous among sports practitioners compared to subjects "unsportsmanlike".

MATERIAL AND METHODS

This research is a descriptive and ascertaining study about the level of cerebral dominance identified to the senior handball players (men) from the HC team Ploiesti. Athletes were interviewed were 16, aged between 18-32 years.

Battery of psychological **tests** included two questionnaires used to identify the level of hemispheric dominance and two specific tests necessary to have a more thorough psychological configuration of the athletes, as follows:

A Test to determine the level of functional cerebral hemispheres;

B.Test hemispherical personal preference;

C.Questionnaire creative attitudes;

D. Raven Progressive Matrices Test.

Description of the tests:

1. *Test to determine the level of functional cerebral hemispheres* contains 50 items. Items grouped in odd numbers refer only current left hemisphere, and those numbers appear to the right hemisphere. Response options are on the range 1-5, where 1 is disagree or agree very low, and 5 total agreement item.

2. *Test hemispherical personal preference (Richi Lindsman)* consists of 36 items, each with 3 possible answers a, b or ab. Allegations type a is corresponding to the left hemispheric predominance and b - the right hemisphere. The two relevant meetings preferably mixed responses.

3. *Questionnaire creative attitudes* contains 50 items that measure 16 attitudes: energy, concentration, orientation to new ideas argumentation, independence, nonconformity, self-confidence, moral values, orientation towards a future as distant completion risk preference - attraction to trouble difficult, diversity of interests, values, spiritual, practical values, the scale of lies. Each response is scored with points from 1 (completely untrue) to 5 (completely true). All attitudes presented (except lies scale) are objectified of 3 items each.

4. *Raven Progressive Matrices* Test contains 60 items or incremental. Each item consists of an abstract design, often in a block of figures ("matrix") which lacks a part (an element). After examining the matrix subject must decide which single figure (of 6 or 8 provided on the same board as matrix) suitable for "completion" matrix correction. Simple samples are grouped into sets of 12 matrices, the series is rated from "A" to "E". Each series develops a different theme ("A" - the

stability of the structure matrix of relationships continue, "B" - analogies between pairs of figures of matrix "C" - gradual changes in Figures matrix, "D" - permutations, ie groups figures within the matrix, "E" - decomposition matrix elements of the figures). Test m.p. (s) though comprising a single type of task, the variety of its themes can highlight, closely related to general intelligence, ability restructuring (mobility - mental rigidity) and transfer as the subject to practice their technique in solving the par ¬ flow samples. Each sample begins with an easy task (whose resolution seems "self"), followed by 11 problems increasing difficulty. Some research shows, however, that the order of difficulty of the items is not thoroughly progressive and propose reordering of items in the test. Series in order of increasing difficulty succeed degrees, which fosters real learning over the problems.

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RESULTS

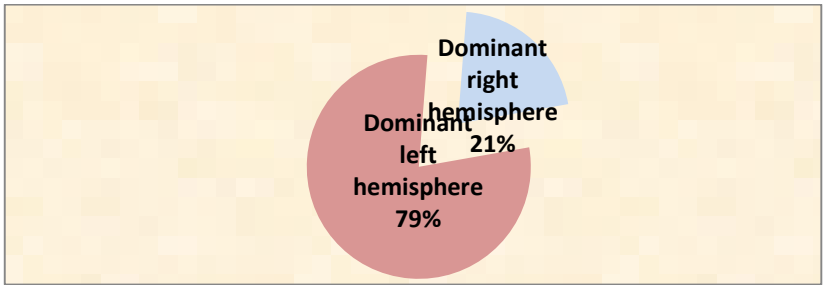

Figure 1. The share of the players on the two hemispheric dominance profiles

Tabel 1. The activation level of creative attitudes on the two profiles of cerebral dominance

Values for **LEFT** dominant profile	**Creative Attitudes**	Values for **RIGHT** dominant profile
9	Energy	10
8	Concentration	11
6	Orientation for new	8
10	Rationale ideas	10
7	Independence	13
9	Nonconformity	7
8	Confidence in their own forces	11
8	Moral values	10
7	Orientation to distant future	8
7	Shooting	12
9	Risk	9
6	Attraction for difficult problems	9
8	The diversity of interests	10
8	Spiritual values	11
11	Practical values	9
8	Scale lies	9
129	**← ∑ sum of creative attitudes →** **Δ = 28**	**157**

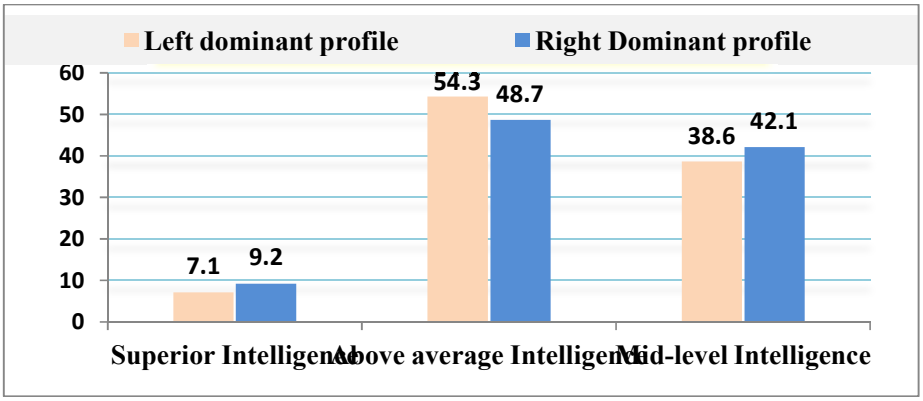

Figure 2. The nonverbal intelligence on the two profiles hemispheric dominance

From the analysis of Figure 1, it can be seen that 79% of the team's players have a dominant left hemisphere and 21% right dominant.

Observing Table 1 it is found that the dominant right-athletes have higher values on the dimension of creativity, which objectified by higher scores in investigating creative attitudes.

The values shown in Figure 2 indicates the percentage distribution of the level of superior nonverbal intelligence, above average and average.

CONCLUSIONS AND DISSCUSION

1. Adapting the general characteristics of cerebral dominance in sport correlated with the value of 79% for left dominant profile, it can be said that most of this team handball players are meant to prolonged effort, addressing training and competition seriously, are disciplined, meticulous in preparation and game solving tasks, generally use algorithms, works on the principle of "all is solved step by step, stage by stage." These athletes are well suited for typical tasks (tactical combinations, in the prior establishment of a tactical plan), do not resonate with an hostile audience or wrong decision of the arbitrator. In general, all their actions are planned, designed, prefer to communicate with coach, peers, always ask details and may have difficulty when they do not understand why they have to perform a certain task of the game.

2. 21% dominant right profile reveals that almost a quarter of the players investigated, it focuses very well on the field, it demarcate easy, "feel" and often anticipate the correct location and movement of teammates and opponents. They are not very concerned with respecting spoil a tactical level, perception matters a whole relies heavily on imagination and intuition. Are generally those players who find solutions to solve unique and surprising game situations, are created and dedicated to a goal. Not very well percept time, may delay at the training session, can be very upset when losing a match or very exuberant to victory.

3. Creative attitudes that are more pronounced in athletes with dominant right profile, give them more pronounced predisposition for innovation, an increased capacity to associate and combine items in finding solutions to problematic situations. The difference between the amounts of the two sections is 28, and comparative differences in each creative attitude enroll between 1 and 5.

4. Although the purpose of this study was not primarily aimed at identifying the level of intelligence, however the distribution of scores on the two profiles draw attention to the fact that athletes are more superior intelligence level for the dominant right and more with above average intelligence for the left profile. Also, mid-level intelligence is most significant in the dominant right profile. For each of their respective levels of intelligence found in the same order of IQ scores between 120-140, 110-119, 100-109. Comparing the two profiles athletes on the basis of nonverbal intelligence, it can be said that the dominant left with a homogeneous level of development on this component.

5. Knowing the characteristics of cerebral dominance is an advantage for coaches as he can accommodate the demands of training and playing better to individual peculiarities of the athletes and to improve communication and existing relationships between players, or coach-athletes.

6. It is indicated that this psychological testing to be performed by a competent specialist in this regard, in collaboration with sports coach. After collecting data and understanding of the significance of the results obtained will take those decisions that lead optimization sports training and finally getting notable sports performance.

7. Knowledge of specialized nature and the way of functioning synergistically

hemispheres, is a very relevant step for a more objective prediction of how the individual's particular mental operation. Action anticipation of human behavior takes on a great importance, especially when you want to obtain great results in a field, where the stakes, the desire for success and prevent the existence of variable costs that can not be controlled. Since the statement aimed especially athletic activity, the need to improve knowledge and this component becomes more acute as the global performance level is increasingly high, and finding and applying the psychological benefits of data is a secondary concern to practitioners in Romania (training is directed primarily focus on the physical, technical and tactical).

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ECONOMIC EXPEDIENCY OF MARKETING ACTIVITY OF ORGANIZING COMMITTEES FOR OLYMPIC GAMES (OCOG)

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Abstract

Marketing in Olympic Sports represents strategy and tactics of participants' behavior and, first of all, of organizational structures of the Olympic Movement within market environment, as well as the totality of managerial technologies that make it possible to ensure performance of commercial activity taking into account interests of Olympic Sports.

Features of marketing in Olympic sports derive from the principles of its organization. They include, first of all, the basic organizational principles of sports marketing with marketing in Olympic sports being one of its varieties.

Key words*: marketing activity, Olympic Games, organizing committee for the Olympic Games, arrangement and running of competitions.*

INTRODUCTION

Olympic Games are the global sports celebration. Unlike to any other international event, they attract enormous interest among various layers of the population all over the world [5]. In modern conditions, operation and further development of the Olympic Movement implies the constant search for additional sources of financing with sponsorship activity being one of them.

Today, television is still the main source of incomes during running of the Olympic Games, and this fact raises concerns within management of the International Olympic Committee (IOC). At his time, J.A. Samaranch was explaining this concern by the IOC dependence on mass-media representing possible threat for the Games to be transformed into a TV show instead of to remain an international holiday of youth. At that moment, all this has forced the IOC to pay much attention to marketing. [1,2,6,7,10,14]. Organizational structures of the Olympic Movement pay more and more attention to advertising and sponsorship activities considering them as the most promising direction of business activity development , which, with due attention,

can in the nearest future not only come up by profitability to cooperation with TV, but get ahead of it [3,4,5,7].

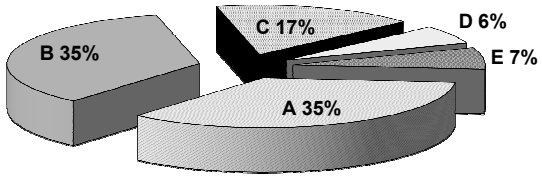
PURPOSE OF STUDY.
To identify specific features, structure and ways for improvement of the OCOG marketing activity.

SOLUTION OF PROBLEM.
Structure of revenues derived from implementation of marketing programs of organizing committees for the Olympic Games is their important feature (Figure 1.). As seen from presented diagrams, in the 1990's of XX century, priority in the marketing strategy of organizing committees for the Olympic Games was placed on TV companies. Agreements concluded with them were providing 34% to 67% of their income. However, there is no significant merit of organizing committees in it, since agreements with TV companies were concluded by the International Olympic Committee.

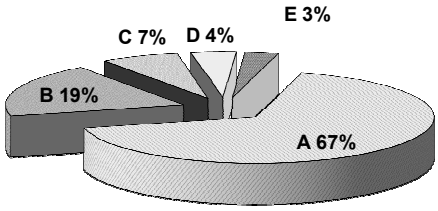
XXV Olympic Games (Barcelona, 1992)

	А 34%	Б 27%	В 5%	Г 2%
	34%	27%	5%	2%

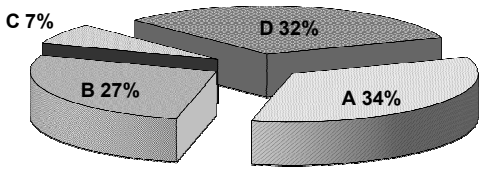
XXVI Olympic Games (Atlanta, 1996)



XVII Winter Olympic Games (Lillehammer, 1994)



XVIII Winter Olympic Games (Nagano, 1998)

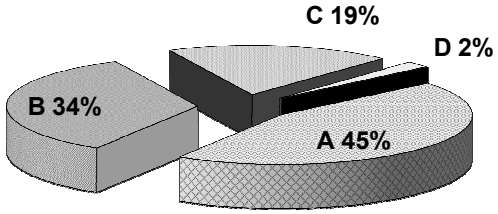


A – revenue from sales of rights to TV broadcasting;
B – sponsor funds;
C – revenue from sales of tickets;
D– revenue from licensing;
E– revenue from implementation of other marketing programs

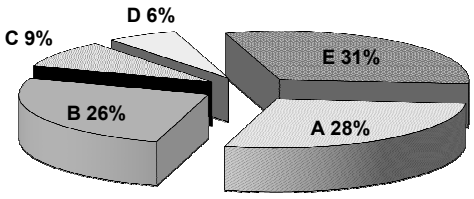
Fig.1. OCOG incomes structure in 1990's

The beginning of XXI century has not brought significant changes to the structure of incomes derived from the Olympic Games (Fig.2). Revenue from sales of TV rights was still holding leading position within the OCOG incomes. At the same time, their share in total revenues decreased slightly varying from 28% to 53%. Share of the revenue received from sponsors (16 - 37%) did not change practically. Against this background, incomes obtained by OCOG's from other sources became more stable. For example, 13.5% of revenues of the Organizing Committee for the XXVIII Olympic Games in Athens (2004) were constituted by state subsidies, while 10.8% represent the external financial assistance (Table 1). [8,9,11].

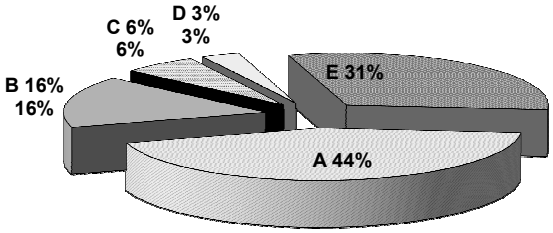
XXVII Olympic Games (Sydney, 2000)



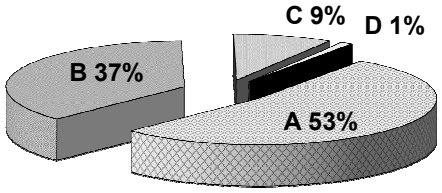
XXVIII Olympic Games (Athens, 2004)



XXIX Olympic Games (Beijing, 2008)



XIX Winter Olympic Games (Salt Lake City, 2002)



A – revenue from sales of rights to TV broadcasting;
B – sponsor funds;
C – revenue from sales of tickets;
D– revenue from licensing;
E– revenue from implementation of other marketing programs

Fig.2. OCOG incomes structure in 2000's

Table 1 Main revenue items of the Athens Organizing Committee

Revenues	Sum (millions Euro)	%
Sale of rights to TV broadcasting	578.7	27.6
Sponsor funds	536.7	25.6
State subsidies	282.5	13.5
External financial assistance	226.0	10.8
Sale of tickets	194.1	9.2
Licensing services	119.7	5.7
Hotel accommodation services	113.7	5.4
Other revenues	47.0	2.2
Total:	2,098.4	100.0

Preparation and holding of the Olympic and Winter Olympic Games require the set of economic activities implying significant monetary costs to be implemented. They consist of two main types:
1) capital costs for the creation of sports and social infrastructure (investments);
2) current costs related directly with the Games holding.

Costs of the first type are borne usually by governments, authorities of the Games host cities, as well as sponsor companies. Costs of the second type are borne by organizing committees for the Games. In this case, OCOG's have to back up the financial resources to resolve the significant number of problems.

The idea on composition of costs of organizing committees for the Games is given in Table 2 demonstrating expenditures of the Organizing Committee for the XXIX Olympic Games (2008) in Beijing [15]. The main expenditure items are: operating costs, as well as expenses for the provision of activity of the Main Press Centre and the International Broadcasting Centre and for the running of sports events.

In the OCOG budget, only part of the funds that are necessary for preparation and holding of the Games is reflected. The total sum of costs is determined by the number of factors. Main factors include availability of sports facilities corresponding with modern requirements, social infrastructure, conditions for accommodation of the Games participants and their provision with all requisites (food, transport, various services). Therefore, when the Olympic Games capitals are located in cities, where necessary conditions are already available, it is possible to deal with relatively low expenditures. This is evidenced by data shown in Table 3.

Table 2 Structure of expenditure budget of the Organizing Committee for the XXIX Olympic Games

Item	Mount of expenditures	
	million US$	%
Investments	190	11.69
Sports facilities	102	6.28
Olympic village	105	6.46
Main Press Center and International Broadcasting Center	405	24.92
Video picture library	13	0.80
Operating costs	1,419	87.32
Costs for running of sports events	275	16.92
Ceremonies and programs	100	6.15
Medical services	30	1.85
Supplies	51	3.14
Transport services	70	4.31
Security	50	3.08
Paralympic Games	82	5.05
Advertising and sales	60	3.69
Administrative charges	125	7.69
Pre-Olympic events and coordination	40	2.46
Other costs	101	6.22
Total:	1,625	100.00

For example, costs for preparing and holding of the XXIII Olympic Games in Los Angeles (1984) were relatively small - 469 million USD. Organizers of these Games have confined mainly by reconstruction of sports facilities then available in the city, while during construction of new ones, an intention to save money was noticeable clearly. Existing student dormitories and similar facilities were used as the Olympic village.

At the same time, preparation and holding of some other Olympic Games have required often more significant material costs. For example, during preparation and holding of the XVIII Olympic Games in Tokyo (1964), it was spent approximately 3 billion USD; the XX Olympic Games in Munich (1972) has cost to their organizers 2 billion DM; the XXI Olympic Games in Montreal (1976) - 1.4 billion USD; the XXIV Olympic Games in Seoul (1988) - 2.5 billion USD [8,9,13].

Table 3. Total costs for preparation and holding of the Olympic Games

Year	Site of the Olympic Games	Costs, billion USD
1964	Tokyo	3.0
1976	Montreal	1.4
1980	Moscow	1.3
1984	Los-Angeles	0.469
1988	Seoul	2.5
1992	Barcelona	1.8
1996	Atlanta	1.72
1998	Nagano	1.14
2000	Sydney	1.5

2002	Salt Lake City	1.9
2004	Athens	12.0
2006	Turin	3.19
2008	Beijing	44.0
2010	Vancouver	1.8

Currently, many representatives of cities applying to host the Olympic Games understand already that the Games mean not only organization of competitions, which will attract attention of the whole world, but also the development of these cities for decades to come. That is why the number of candidate cities is growing.

Also, amount of expenditures is influenced strongly by political situation established in the country with a city authorized to be the capital of the Olympic Games. High costs of Tokyo (1964), Seoul (1988), Athens (2004) and Beijing (2008) were conditioned in significant degree by the fact that governments in these cases decided not to spare funds for the Olympic Games and use them maximally in order to enhance image of their countries on the international stage, to bring them out of partial political and economic isolation, etc. [8,9,11].

The XIV Olympic Games in London (1948) - first once since end of the World War II - were held at a modest organizational and logistical level, and, due to this fact, brought a small profit.

Situation has changed in connection with holding of the XXIII Olympic Games in Los Angeles (1984), when idea of the private organizing committee for these Olympic Games has appeared.

In March, 1979 - 1951days prior to the opening day of the Games, the private organizing committee of Los Angeles has started its activities without a cent on current account and with rather weak idea on the Olympic Games and requirements of the IOC. Peter Ueberroth, the Chairman of the Organizing Committee for these Games, remembered that all activity of the Organizing Committee from the very first day of preparation for the Olympic Games was subjected to the only purpose: to hold the Games being cheapest for the last 25 years and to extract from them the greatest possible profit.

Analysis of the results of the work on preparation and holding of the Olympic Games in Los Angeles has shown that such a work could be performed only by competent and enterprising professionals in the field of business being deeply indifferent to the Olympic traditions and spiritual values of the Olympism. However, it is the economic program of the XXIII Olympic Games that became a good school of the Olympic marketing and sponsorship for specialists from different countries being in need of such an experience.

Along with the sale of rights for the Games broadcasting, sponsorship activity was considered as one of the most important funding sources for the Olympic Games in Los Angeles. Moreover, if the basic principles are considered, there is a record on holding of the least commercialized Games for recent years. The number of sponsor companies involved in the Olympic Games was the criterion of correctness of this principle. At the initiative of P. Ueberroth, their number in Los Angeles was limited to thirty (as compared with 380, for example, at the XIII Winter Olympic Games in Lake Placid, 1980). Only companies that guaranteed donations of at least 4 million USD were included in the number of sponsors of the XXIII Olympic Games, whereas the number of companies acted as official suppliers of these Games amounted to 50. Purposeful work of the Los Angeles Organizing Committee with sponsors has allowed to get from them 140 million US Dollars.

After all, the "least commercialized» XXIII Olympic Games in Los Angeles has brought unprecedented profits. According to the "Sports Illustrated" magazine, revenues have amounted to 619 million US Dollars, including 239 million from the sale of the rights to broadcast the Games, 151 million from sale of tickets to competitions, 121 million from sale of goods with the Olympic symbols, 28 million from the Olympic coins, and 80 million US Dollars from bank interest charges on capital [8,9].

The costs for the XXIII Olympic Games holding amounted to 469 million US Dollars, including salaries of approximately 40,000 employees involved in the Games, 31 million US Dollars of administrative costs, 91.7 million USD for the construction of sports facilities, 37 million USD for preparation of the Olympic facilities, and 30 million USD for preparation of student dormitories.

As a result, judging by presented data, the Organizing Committee for these Games has got profit in amount of 150 million USD, i.e. about 10 times more than scheduled one.

The experience of the XXIII Olympic Games in Los Angeles (1984) was developed in Seoul during the preparation and holding of the XXIV Olympic Games (1984). Directive of leaders of the Republic of Korea was extremely simple: when it comes to prestige of the country, the amount of expenditures does not matter. However, a well-developed economic program made it possible to gain total revenue from the holding of these Games in the amount of 987.5 million US Dollars, including 332 million from the sale of rights to broadcast, 175.8 million from sale of

tickets and lottery, 199.8 million from sales of commemorative medals and balls, 118.4 million from sales of badges and souvenirs, and 161.5 US Dollars from the sale of apartments in the Olympic Village after the Games. In addition, the Organizing Committee for the XXIV Olympic Games in Seoul has received grants from the patriotic Koreans - residents of the Republic of Korea and other countries of the world - for the total sum of 355.4 million US Dollars. [12,13,15].

Thus, the total income of the Organizing Committee for these Games has amounted to 1 billion 342.9 million US Dollars. Costs of the Organizing Committee (excluding subsidies from the Government of the Republic of Korea) have amounted to 847.7 million US Dollars. Consequently, the XXIV Olympic Games Organizing Committee has received the net profit of 495.2 million US Dollars.

Under budget of the XXV Olympic Games in Barcelona (1992), revenues of 1.073 billion USD were provided. This budget was formed in order to address the dual challenge: to ensure costs related with holding of these Games to be covered by revenues obtained from the, on the one hand, and to make funds invested in these Games to be contribution to the development of the Barcelona infrastructure, on the other hand. Costs for holding of the XXV Olympic Games in Barcelona amounted to one billion 63 million US Dollars. It means that expenditures for these Olympic Games were compensated.

The above data evidence the complexity and labor intensity of economic programs for organization and holding of the Olympic Games. Each such program is implemented for a number of years, and its preparation begins long before the International Olympic Committee selects one or another city as a capital of the next Olympic or Winter Olympic Games. Fundamentals of economic program are developed at the moment when city is nominated as an organizer of the upcoming Games.

There are economic problems that remain unresolved following completion of the Olympic Games as well. This is because cumbersome, complex and expensive sports facilities require high costs for their maintenance. Therefore, the effective use of such sports facilities requires the high level development of sports in the concerned country and high enough economic potential of society.

There is one more important detail: the analysis of economic programs of the modern Olympic Games makes it understandable why they have been never held on the African continent and why cities of economically developed countries are the prospective ones to obtain rights to host the Games.

In order to cover enormous expenditures for preparation and holding of the Games, their organizers have to seek appropriate sources of funding. Taking into account that the funds of the federal and local authorities are always strictly limited, the main way to solve financial problems of the Games is to use possibilities of the private sector companies [13].

CONCLUSIONS

1. Analysis of the literature has demonstrated that preparation and holding of the Olympic Games is not possible currently without effective marketing activities of the OCOG's. Various aspects of this variety of the Olympic marketing are reflected in numerous publications. At the same time, emphasis on practical aspects of the OCOG marketing prevails in papers of the majority of authors.
2. It was established that, during holding of the Games, television occupies the leading position by profitability from the very beginning of implementation of marketing programs with sponsorship playing supporting roles, being a wallflower in cooperation with mass-media and rarely advancing to leading parts.
3. The study of the OCOG marketing activities has made it possible to assert that sponsors have no equal by the importance in organization of the Games, the development and implementation of cultural, entertainment and educational agenda of the Olympic Games.
4. It was established that fundamentally different approaches may be used during organization and holding of the Olympic Games: commercial and sportive one as during the Games in Atlanta with main purpose to make profit from the sale of sponsorship programs; or sportive and commercial one as in the case of the Sydney Games, when higher attention in the work with sponsors was paid to elaboration and implementation of programs directed toward support for athletes, spectators and mass-media.

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THE OPPORTUNITY OF APPLYING STATISTICAL SOFTWARE PROGRAMS IN EVIDENCE QUALITY OF THE II LINE ATTACK, IN VOLLEYBALL GAME

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Abstract
The process of teaching represents the educational-instructivePerformance sport has experienced a boom in recent decades, the results made possible by appealing to the advanced techniques for the investigation of various aspects of the field. Modern sports training, is today the support of modern technologies, especially statistical information technologies (hard and soft). It can be asserted, however, that in our country, their practical use is relatively sporadic, with low incidence, for objective reasons, but also subjective, on the one hand, generated by financial reasons, and/or the absence of specialized personnel, and on the other hand, the lack of sufficient benefits and possibilities of their use or the sources where they can be purchased.
Keywords*: Software, volleyball, Click and Scout, analysis;*

INTRODUCTION

Click and Scout is the new statistic software for Indoor and Beach Volleyball that allows you to use touch screen devices at their maximum potential, it can also be used on PC's and laptops and runs with Windows, Windows Tablet and Mac OS [9].

With Click and Scout you simply need to touch the court on the screen to scout the serve, reception, attack and block from the first to the last point. If you don't have a touch screen device you can do so by using the mouse. The appealing and user friendly interface is one of the main points of Click and Scout as it was developed to us directly on the bench.

The court dominates the screen of the program, by clicking on the relevant zone of the player on the court you can scout the rally [10].

At every point the receiving team will position its players on the screen according to the usual standard schemes in order to immediately reproduce the situation on court. This allows the scout man to scout regardless of the player's number because the direction of the serve corresponds to the position of the receiver on court. Needless to say the scouting code can be modified at all times to stay in line with the complete versatile philosophy of the company. The possibility to analyze the match in real time is what we define the finishing touch to Click and Scout! You can call a time-out and replay the serve directions of the other team to your team or you can focus on the attack directions in a specific rotation. All in a few seconds and just one click away! [5].

The match file generated by Click and Scout can be imported into Data Volley Professional, Data Video Professional or Data Video Essential in order to create a detailed and in depth analysis of the match (figure 1).

Figure 1. Click and Scout (a)

THEORETICAL BACKGROUND OR PROBLEM STATEMENT

In the literature, especially in the vernacular, these issues are not studied in detail, the manuals of volleyball stopping more experience coaches, we have to admit, it's not negligible but in order to keep up with the current level of volleyball, it requires the integration of sport activity of modems, and cutting-edge technologies must make place among concerns continued professional development of coaches in volleyball [2,3].

The difference in value between the international and the national volleyball, is perhaps one of the fundamental arguments in this complex, difficult and necessary upgrading and also the conceptual and methodological improvement [1].

In the case of sports games in general, and volleyball, in particular, the analysis of the effectiveness of the technical and tactical behavior in competition, the team as a whole, but also of each player in the hand, is considered to be the most effective way of:

- Diagnosis of each factor affecting athletic performance;
- Selecting quantization parameters and quantitative-qualitative weighting;
- Dynamic-adaptive ranking of priorities to address the components of the training process;
- Development of the conception of training of technical staff;
- Addressing strategies in official competitions, in particular.

All of this will end a feedback regulator of the whole process of sports training, throughout an annual cycle of training in relation to the specific characteristics and the level of players, with the objectives of the proposed performance, with specific requirements for each phase and the preparatory period [4].

An integrated component of this field is constant development of sports training assisted by specific computer software – statistics, taking into account their ability to accurately reflect the data of great importance and, especially, the ability to directly control the whole process of intervention – preparation and high performance sports performance. This involves:

- Performance criteria and ranked priority;
- Preparation of differentiated categories of problems so identified;
- As appropriate, individualizing interventions coach, in relation to the results achieved through the software in question;
- Influencing effective control system command ↔ (↔ feedforward feedback), learning processes within the technical-tactical training;
- As appropriate, reconfigurări of the conception of the game;
- Efficient use of flexible working attitude and information obtained through statistical records computer-aided configuration;
- New actions and interventions, tailored and appropriate needs and problems, often volatile, from training and competition.

In this context, the efficient preparation of the team shall be subject to the development and implementation of programmes with an appropriate content in relation to the desiderata contained, which may be carried out only to the extent that those in charge of their development have the necessary information and logistical means, to make these new information, extrapolate them from theory in the practice of athletic training.

On these grounds, it can be said that the performance in training and competition is closely linked to the introduction, development and improvement of statistical techniques and resources, and their inclusion, permanently, in training programmes.

DISCUSSION

The aim of this discussion consists in using statistical type of information, which is offered by Click and Scout software, during a volleyball game, which may facilitate the provision of technical and tactical information, about the opposing team and tactical behaviorof your own team (individually and collectively), with regard to the settlement in the court, the layout of the teams in each rotation, the organization of defense system and the individual

directions of attack, so that, they reached in real time to the head coach, will allow him to conduct the appropriate tactics of its own team and effectively counteract adverse game [6].
This assumes the existence of a portable peripherals (inkjet printer) at the disposal of the coach, operated in wireless mode, whereby the person who records the progress of players forward in a timely manner, even in the middle of the match [7]. To point out though, that maximize the performance of a team depends increasingly on how coach (technical staff) manages to provide an efficient and careful preparation of the entire educational process, on the basis of additional information, objectified by the records assisted software Click and Scout (figure 2).

Figure 2. Click and Scout (b)

Thus, it becomes a component and contributory factor in the process of sports training, indispensable in the current context of international volleyball. Advanced team assisting the preparation and producing high level performance is complemented by new hard and soft "components", human and logistics.
The use of multimedia tools (as we mentioned above, slow motion or stop-action analysis) in learning, analysis and systematic assessment of the technical and tactical actions, individual and collective, in relation to specific performance models and functional profile (physical-technical-tactical) of volleyball, optimised to the maximum level possible of individual potential depending on the tactical situation (most often unpredictable)is a priority requirement in preparing the team [8].
In this context should be added two more reference items of utmost importance, which maintain all of the assistance and contribution of specialised IT multimedia, in the process of sports training, as follows:

- First, it is the information which may be obtained in advance, about teams, recorded in matches with other analytical teams;
- Secondly, talk of recordings for competition matches with an international dimension and high value, which is the standard models (ideal and operational), both for staff and for the players, in the context of the theoretical lessons of technical and tactical analysis.

Thus, it is necessary to develop methods of training assisted by intuitive means, advanced IT technologies, computer-based, for checking the efficiency or inefficacy of the technical-tactical actions and use of the data obtained in the performance of the objectives of training and performance of the team.
In this regard, the improvement of sports training methodology will need to include additional and complementary models of physical and technical training, through the use of modern tools, allowing a nearly full control of:

- Content and training methods;
- Individual level;
- The driving skills required.

All of these, hypothetically, lead at:

- Subsequent shortening and streamlining the learning process (through the reduction of energy costs of an extensive preparation);
- Increase the relationships role within the ball-player-opponent;
- Increase the role of the individual in the context of collective bargaining tactic (of teams and team-player);
- Increase the personal responsibility of each technical implementation, within the framework of their own actions with ball (receive-pass-attack) and without the ball, move → positioning → (block, dubbing, assistance, etc.).

It is necessary that all those novelty items to find their place alongside traditional means, who have proven its worth over the years, a system of means of the highest efficiency, as the central focus, goal that we want to achieve and to apply in the practical-applicative research (experimental).
Preparing, watching psycho-physical capacity maximization of sportsmen, team training and education is carried out in a suitable framework, specifically, proper training. This should be seen as a complex, interdisciplinary and transdisciplinary, performed lately by teams of specialists, with the elite media and special equipment of last

generation, including in the field of statistical information (figure 3).

The process of preparing specific performance, sport is a complex system that involves the existence of a mediator capable of providing a positive influence of the phenomenon. Through the concepts, principles, laws and their axioms, the general theory of systems and Informatics, can ensure this influence, qualitatively, through an interdisciplinary approach, by increasing the information fields, through the improvement of information systems and information technologies (software, tailored to specific issues).

Figure 3. Click and Scout (c)

Computerization of the work of the technical staff of sports teams in the tracking, recording and storing digital sports gaming performance, it becomes a necessity in order to obtain precise and objective information, processing, transmission and their use, in a manner consistent with the objectives of sports training, but also with the longitudinal ones occurring in relation to the conduct of the competition to be held and to be studied and prepared properly. Obtaining and manipulating data in this way in sports games, represents an advantage of part of the systemic and interdisciplinary approach to the game, through all the slides and the operating systems.

Currently the role of Informatics applied to sport performance, refer to the support for the preparation and the conduct of competitions. The level of development of computer and statistical techniques relate to the following areas in the practice of athletic training major (figure 4):

- Introspection and analysis;
- Design and planning;
- Organization and implementation;
- Diagnosis and monitoring;
- Assessing and adjusting, reconfiguration, adaptation and the adequacy of the assistance.

Figure 4. Click and Scout (d)

Of these, Click and Scout program, take components that store digital records, evaluate and provide feedback information, to the technical staff, in particular, with effects on the behavior of the team, and sportsman for greater effectiveness, in terms of tactical and technical efficiency.

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ORIENTATION OF THE HIGH PERFORMANCE HANDBALL PLAYERS ON OFFENSE

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Abstract
1. The analysis of the data obtained experimentally allowed us to work out an objective evaluation of the high performance handball players' orientation activity
2. The high performance player's game model includes all the statistical data of the offensive game components.
3. Using the model showed positive results in the Romanian handball championship in the first league.
Key words: *performance, player game, orientation.*

High development of world handball reflects the teams' special preparation. In the same time the European handball tends to develop. A telling example is the Male Handball World Championship which took place during the period 11th -27th of January 2013 in the four cities of Spain. Group "A" in Granollers with the participation of Germany, Brazil, Argentina, Montenegro, France and Tunis. Group "B" was located in Seville and the participants were Macedonia, Chile, Island, Russia, Denmark and Qatar. In group "C" in Saragossa took part Serbia, South Korea, Slovenia, Saudi Arabia, Poland and Belarus and in group "D" from Madrid the participants were Spain, Alger, Croatia, Australia, Hungary and Egypt.
Analyzing the finalists' geography, designated after the qualification competitions, we can initially reach the following conclusions:
- From the 24 teams in the final part of the world championship, 14 are from Europe, distributed in compliance with the Championship Regulations approved by the Handball World Federation and only 5 (!) were from the former Yugoslavia: Montenegro, Macedonia, Serbia, Slovenia and Croatia. Retrospectively considering the European Male Championship in 2012, we emphasized that on first and second place are Serbia and Croatia and on the fifth and sixth place are Macedonia and Slovenia, out of 16 finalist teams.
- In the World Male Championship in 2013 Croatia was on the third place, Slovenia on the fourth and Serbia – on the tenth, Macedonia – 14th place, Montenegro – 22nd place out of 24 participants in the final stage.

An almost similar situation can be noticed in the female handball, too. In the World Championship in 2012 which took place in Serbia during the period 4th – 16th of December, the Montenegro female team wins over Spain in the final with the score 34-31 and from the countries of the former Yugoslavia, Serbia takes the 4th place, Croatia comes 13th and Macedonia 16th.
Here comes the normal question: "What lies behind the Yugoslavian success?" The answer is rather difficult, as it is a complex one, but firstly the genetic element could be taken into account, arisen during the historical development of these peoples, which did not have a very happy destiny.
The natural and social conditions which influenced the religion and the subjects' body development and also the countries' social and economic condition and their political system, marked their physical and spiritual strengthening.
From the sports activity point of view, the success is due to the national physical education and sports system and especiall the training methods and the the improvement of the sportsman' skills, as the high game pace as well as the intensity of the physical and psychic actions which need a rather advanced thinking process and especially an advanced orientation action.
In handball, the game consists of a quick and permanent change of confrontations and extreme emotions, of some conflict situations between the players, of some spontaneous incidents, of some minimal time limits to act in order to have results.

In the situations of rivals' serious confrontations, when the central nervous system receives a large quantity of information about a complex of dynamic objects (ball, partner, rival etc.) the game procedures must be executed correctly and quickly. In such game conditions, the orientation capacities are vital, and in the teams' special preparation the most important is the tactical talent. The tactical actions were tried to be modeled through the start on offense [2], by using exercises that model the game situations, by using performance tactical preparation means. All this had positive results, but could not solve the most difficult issues of the specific game preparation.

By theoretically analyzing the handball game, the tactical activity is devised in three main stages:

- sketching the game situation;
- analyzing the game situation;
- the motive decision of the game situation.

Lately, the specialists have considered the players, and especially the left back as an operator of the tactical actions who must correctly and rapidly:

a) range properly the game situations;

b) appreciate in advance the rivals' game situations; c) select the most rational decision.

There have been made complete game models [3] regarding the working volume, the intensity, activity, diversity and efficiency and we can quote here the Romanian specialists N. Alexe, 1998, I. Bota, 2009 etc. who present theoretically and practically these elements in their works.

The contemporary requirements regarding the high performance handball players are characterized by a high intensity reflected in the special preparation. From a historical point of view, even from 1973 at the Soviet Union championships and in other less important competitions, there were introduced amendments in the game rules regarding the time limitation in attack, canceled later, but WHF modified the game rules and returned to the soviet practice of those times.

The Romanian specialists P. Voicu and I. Constantinescu (1976) think that the individual models reflect:

- the distance covered by the player during the game and during his participation to the game;
- the quantity of confrontations on offense and on defense (with and without results)
- the number of throws in the final stages of the game (with and without scoring)
- the goals marked from different distances and from the offense types;
- the number of interceptions;
- the number of errors in defense;
- the number of regulation breaches;
- the number of goals marked through different procedures from different distances because of the goalkeeper's fault.

They became a model in creating the tactical diagrams and in the working out of the complete game models [1] which have two aspects:

- on defense – confrontation, attacks in the game space, interaction, commutation to the player who has the ball, without the ball, blockage, screening, assurance, shifting, the number of these elements, diversity, defensive procedures efficiency, game rules breaches;
- on offense – number of attacks, number of game situations, time of attack and execution of the game procedures, number of throws from different distances, the diversity of the attack (flank, 6 meter line, second line), number of errors, detours, passes, dribbling, the goalkeeper's actions).

Emphasizing these aspects helped creating real possibilities of working out the game models and the competitions showed which of them have an orientation action on offense and on defense.

The practical activity in this field allowed us to structure the orientation actions on offense of the high performance handball players (diagram 1).

In the practical given succession, the orientation actions influence the offense, and especially the team's shift from defense to offense, the actions organized on defense or those of rapid attack. It is important to specify that even in the high performance players' game it is not necessary to ask for a positive result or a victory from the beginning. It is more correct to execute in a slow pace all the procedures and game diagrams announced by the trainer, and then with intensifications close to those of the game, they consolidate and in time become stereotypes and will allow the manifestation of individual capacities for reaching the team and group objectives.

To properly end the game models working out, the results obtained in the special preparation are compared to the most successful models in the world. This is confirmed by the above mentioned teams from former Yugoslavia.

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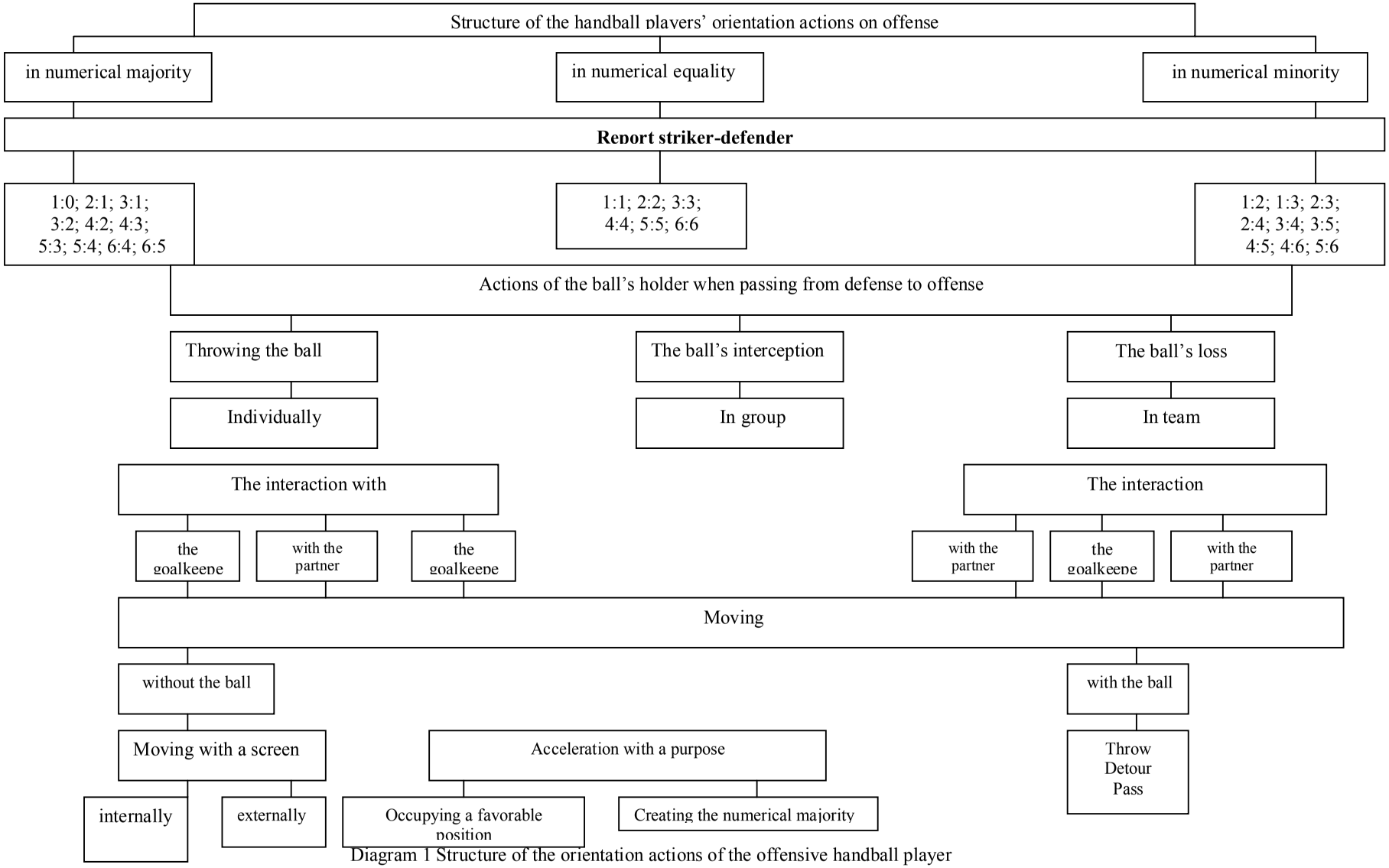

Diagram 1 Structure of the orientation actions of the offensive handball player

ON THE INFLUENCE OF MOTOR QUALITIES IN SECONDARY SCHOOL PUPILS' PERFORMANCE OF GYMNASTICS ACROBATIC ELEMENTS

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Abstract

The present paper starts from the assumption that introducing activity planning and rational motor structures for the development of motor qualities in the instruction of secondary school pupils also favours the development of the motor skills required for the performance of the basic acrobatic elements and increases the quality of the learning process.

Keywords: *motor qualities, acrobatic elements, sports and physical education class*

INTRODUCTION

Physical education, a compulsory discipline at all learning levels, is meant to ensure the development of students' bio-psycho-motor skills and to form their ability to act in view of maintaining the best physical health, of ensuring a balanced development and of proving motor skills which favour their present and future social and professional integration.

Physical education provides specific knowledge and motor skill and abilities, factors that determine the physical, technical and tactic qualities through the appropriation of the rules of various sports, methods, and means and organisation forms of practising sports.

Acting on the motor qualities development should start before the process of formation of basic motor skills, both applicative-utilitarian and specific. It is one of the most important ends of physical education in schools, from the point of view of balanced physical growth, as well as with regard to the control of the deficient physical attitudes.

OBJECTIVES

- to select and apply the most efficient means and methods for the development of motor qualities during the teaching process;
- to help secondary school students learn acrobatic elements;
- to develop the ability of coordinating their own bodies in various movements and positions.

ASSUMPTION

The grounds for the working hypothesis are as follows: considering that rational motor structures for motor qualities development are used during the physical education classes in secondary schools, the possibility for the students to learn basic acrobatic elements increases. At the same time, the performers' motor ability for performing various tasks also increases.

MATERIALS AND METHODS

a. Research protocol

The research was conducted in the gym hall of 28 Secondary School, Galați from September 17, 2012 to March, 22, 2013 (a 6-month period); 2 classes a week; 50 minutes each.

b. Subjects

The tests were conducted on a sampling of 24 students (12 boys and 12 girls) in the 8th grade, aged 14-15.

c. Groups

The boys group (BG) and the girls group (GG) consisted of students in the 8th grade, under the same class circumstances and having access to similar equipment.

d. Evaluation tests

The motor indices that have been tested were as follows:

- *abdominal muscles strength 30"* (lying on the back, bent straddle, bent arms, hands on the backhead – body lifts for 30 seconds – repeats) (**A30"**);
- *back muscles strength 30"* (lying, face down, bent arms, hands on the backhead - body stretching for 30 seconds – repeats) (**E30"**);
- *arms muscles strength 30"* (propped, lying face down - boys / propped, lying face down, on knees with raised legs - girls – press-ups in arms – repeats) (**F30"**);
- *legs muscles strength 30"* (straddle standing, bent arms, hands on the backhead – squats 30 seconds – repeats) (**G30"**);
- *the acrobatic elements structure* provisioned in the secondary school curriculum (**SA**) – table 1.

Table 1 Acrobatic elements assessment grid

BOYS		GIRLS	
1	forward squat roll - 0,50 p	1	forward squat roll - 0,50 p
2	backwards squat roll - 0,50 p	2	backwards squat roll - 0,50 p
3	forward straddle roll - 1,00 p	3	forward straddle roll - 1,00 p
4	backwards straddle roll - 1,00 p	4	backwards straddle roll - 1,00 p
4	hang in balance (forward) - 1,00 p	4	hang in balance (forward)- 1,00 p
5	shoulder blade standing - 1,00 p	5	shoulder blade standing - 1,00 p
6	backwards roll with stretched body – cylinder - 2,00 p	6	bridge from the floor/from standing - 2,00 p
7	head stand - 1,00 p	7	head stand - 1,00 p
8	handstand - 2,00 p	8	handstand - 2,00 p
	TOTAL: 10 Points		TOTAL: 10 Points

e. Planning and types of exercises

Following the analysis of the results recorded in initial testing, more systems have been designed and applied for the development of students' motor abilities, aiming, at the same time, at acquiring balanced physical growth, as well as formation and improvement of basic motor skills, both applicative and specific.

The experimental training programme for attaining the instruction and performance objectives has been designed for a 6-month period, in 4 weekly cycles, 2 classes a week (see Table 2).

Below, there are a few examples of the algorithms proposed for acquiring and improving performance in acrobatic elements by the 14-15 years old students:

- squat – forward roll in squat position;
- squat – backwards roll in squat position, rolling back with bent body, shoulder blade standing and back to squat position;
- torrent of 3-6 forward rolls in squat position,
- straddle sitting – forward straddle roll, head standing, forward roll in straddle sitting position;
- squat – forward roll in squat position, backwards roll in squat position, 180 degree spin jump, forward straddle roll, lying with face down, lateral roll with the body stretched to the left/ right, backwards straddle roll;
- sitting on a leg with the other leg propped, stretched, arms up – hand standing, roll in squat, backwards roll, cylinder/ bridge.

f. Statistical method

The results' statistical processing has been conducted with the help of Microsoft Office Excel 2007 software.

RESULTS

The results recorded in final testing are superior to the ones recorded in initial testing. If in initial testing the boys had recorded an average of 18 repeats in determining abdominal muscles strength, in final testing the average was of 23.5 repeats, which represents an average increase of 5.5 repeats. Significant progress was recorded in other trials as well: 9.4 repeats in testing the back muscles strength; 9.3 repeats in testing arms muscles strength; and 5.7 repeats in testing legs muscles strength.

The girls group also recorded improvements, most significantly in the case of leg muscles strength testing, the average of the results increasing by 8.2 repeats.

As far as the results' homogeneity degree is concerned, one may notice that there is a higher degree of results homogeneity in testing abdominal, back and legs muscles strength, both for boys and girls, and a medium homogeneity in testing arms muscles strength in the boys group and lack of homogeneity in the girls group – as shown in Table 3.

Table 2 6 months schedule for students (14-15 years old)

Learning units			Semester	Semester I													Semester II									
			Month	September		October					November				December			January			February				March		
			Week	17-21	24-28	1-5	8-12	15-19	22-26	29-2	5-9	12-16	19-23	26-30	3-7	10-14	17-21	14-18	21-25	28-1	4-8	11-15	18-22	25-1	4-8	11-15	18-22
			Lesson	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Physical qualities		Speed		x	x	x	x																				
		Handiness						x	x	x	x									x	x	x	x	x	x	x	x
		Strength										x	x	x	x	x	x	x	x								
		Stamina		x	x	x	x																				
		Mobility										x	x	x	x	x	x	x	x								
Motor skills and abilities specific to various sports	Athleticism.	Speed running																									
		Resistance running																									
		Throwing the *oina* ball						x	x	x	x																
	Gym.	Acrobatics										x	x	x	x	x	x	x	x								
		Jumps																		x	x	x	x	x	x	x	x
	Games.	Football (boys)		x	x	x	x	x	x	x	x																
		Handball (girls)		x	x	x	x	x	x	x	x																
		Motor games																		x	x	x	x	x	x	x	x
Assessment							+				+								+								+

Table 3 Initial and final results in motor testing

Dynamics of motor indices for 14-15 years old students																				
Trial	**A30”**		**E30”**		**G30”**		**F30”**		**SA**		**A30”**		**E30”**		**G30”**		**F30”**		**SA**	
Group Nr.crt.	**Boys**										**Girls**									
Test	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***	IT	***FT***
1	17	***23***	26	***38***	22	***28***	3	***9***	5,25	***7,50***	17	***22***	23	***30***	16	***22***	1	***6***	5,50	***7,85***
2	16	***21***	24	***37***	20	***27***	6	***11***	6,00	***8,50***	18	***23***	20	***29***	20	***28***	3	***8***	5,85	***8,50***
3	22	***25***	27	***33***	18	***26***	4	***9***	5,45	***8,50***	17	***22***	26	***33***	20	***25***	0	***5***	5,50	***6,80***
4	21	***25***	27	***36***	20	***29***	2	***8***	5,50	***6,70***	19	***24***	24	***34***	18	***24***	4	***9***	6,55	***9,35***
5	14	***20***	20	***28***	20	***30***	5	***11***	6,25	***8,65***	16	***20***	24	***33***	21	***26***	2	***7***	5,35	***7,90***
6	20	***25***	28	***34***	21	***29***	8	***12***	6,50	***9,20***	16	***21***	30	***37***	17	***24***	3	***8***	6,55	***8,75***
7	15	***22***	24	***34***	19	***30***	4	***10***	6,45	***8,40***	17	***19***	27	***35***	18	***26***	0	***5***	5,75	***6,80***
8	19	***23***	25	***38***	20	***30***	7	***12***	6,35	***8,70***	17	***22***	24	***30***	19	***26***	1	***6***	5,15	***7,70***
9	18	***24***	28	***36***	20	***29***	3	***9***	6,40	***8,35***	24	***25***	30	***34***	18	***30***	4	***8***	6,65	***9,05***
10	20	***26***	24	***35***	18	***28***	6	***11***	5,85	***8,50***	22	***23***	29	***33***	16	***28***	2	***7***	5,75	***8,45***
11	17	***23***	22	***32***	19	***30***	2	***9***	5,75	***5,95***	18	***20***	30	***35***	17	***29***	0	***5***	5,75	***8,00***
12	17	***25***	27	***34***	20	***32***	7	***14***	6,05	***8,50***	18	***23***	24	***30***	20	***30***	3	***9***	6,60	***9,00***
∑	216	***282***	302	***415***	237	***348***	57	***125***	71,8	***97,4***	219	***264***	311	***393***	220	***318***	23	***83***	70,9	***98,1***
x	18	***23,5***	25,1	***34,5***	19,7	***29***	4,7	***10,4***	5,9	***8,1***	18,2	***22***	25,9	***32,7***	18,3	***26,5***	1,9	***6,9***	5,9	***8,1***
σ	±2,4	±***1,8***	±2,4	±***2,8***	±*4,8*	±***3,6***	±2,5	±***1,7***	±0,7	±***0,9***	±2,4	±***1,7***	±3,2	±***2,4***	±6,8	±***6,2***	±1,1	±***1,5***	±1,0	±***0,8***
Cv%	13,6	***7,8***	9,8	***8,1***	***8,4***	***5,3***	43	***16,6***	10,3	***11,5***	13,2	***7,9***	12,6	***7,6***	8,6	***4,6***	58,6	***21,7***	14,0	***10,1***

As far as the degree of learning the acrobatic elements is concerned, mention should be made that in initial testing the boys, as well as the girls, recorded low results in performing the compulsory elements, the average being of 5.9 for both groups. The improvement recorded in the final testing was significant, both groups attaining an average of 8.1., that is, a 2.2 points higher value, with a medium homogeneity of the results.

CONCLUSIONS

6. After processing and interpreting the data collected from the comparison of the two groups of 14-15 years old students, the assumption that motor qualities may influence the performance of the acrobatic elements provisioned by the secondary school curriculum has been proven valid.
7. The motor qualities development also contributes in the balanced physical growth of the performers and in the formation and development of motor skills. At the same time, learning and performing acrobatic elements help in increasing the performers' motor qualities, ensuring easiness in accomplishing various specific tasks.
8. Assigning actual motor tasks, in accordance with students' age, sex and learning level, careful activities planning, and using carefully selected means and acting systems contribute in acquiring and improving specific motor skills and in the accomplishment of the proposed aims.
4. The means of acrobatic gymnastics used in the technical-material conditions available in the school in which the research has been conducted have contributed to an increase in the number of motor skills and abilities transposed in "acquisitions" and have led to the consolidation of students' physical and psychic balance.

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A STUDY ON THE LEVEL OF PHYSICAL, TECHNICAL AND ARTISTIC TRAINING OF JUNIOR GYMNASTS

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Abstract
The present paper aims at finding the opinions of the experts in the field of gymnastics with regard to the level of physical, technical and artistic training of junior female gymnasts by applying a survey.
Keywords: *gymnastics, trainers, technical, artistical, physical level*

INTRODUCTION

Describing the direction of the feminine gymnastics evolution, N. Vieru (1997) asserted that *"it develops in the sense of constant increase in the difficulty of exercises, by introducing a large amount of difficult and extremely difficult elements, by increasing amplitude and dynamism in execution, and by the originality, complexity and momentousness of the movements"* (Vieru N., 1997*).*

The group of experts questioned has consisted in a number of 83 professors and specialised trainers who carry out their activities in specialised centres in the country. The gender distribution is 60% female trainers, 40% male trainers.

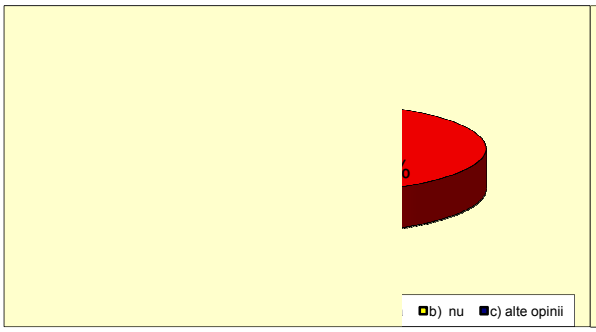
The questionnaire contains 10 questions with 3, 4, 5 or 6 predetermined choices, the respondent opting for one single choice in relation to the issue's relevance and his/her personal opinions with regard to sport training in gymnastics – see Table 1.

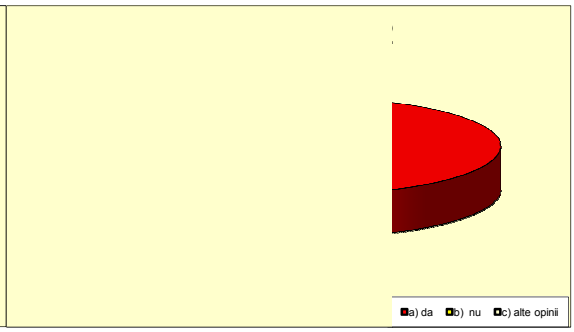
Table 1

No.	Question	Choices	No. of responses	Percentage (%)
1.	Do you consider that the technical training level of junior women gymnasts in our country is satisfactory?	a) yes b) no c) other opinion	51 20 12	62% 24% 14%
2.	Do you think that elaborating a unique curriculum for training gymnasts in various classification sports categories is necessary?	a) yes b) no c) other opinion	51 2 -	98% 2% -
3.	Do you think that such a curriculum would influence the working routine and training efficiency?	a) yes b) no c) other opinion	41 12 -	73% 27% -
4.	In your opinion, could gymnasts training be made in the absence of previous careful planning?	a) yes b) no c) other opinion	7 75 1	8% 91% 1%
5.	What is, in your opinion, the most rational ratio of sports training in artistic women's gymnastics?	a) physical training b) technical training c) tactical training d)theoretical training e) artistic training f) psychological training	17 40 1 10 8 7	20% 49% 1% 12% 10% 8%
6.	What is, in your opinion, the best workload for junior women gymnasts during a weekly cycle?	a) 10 – 12 hours b) 18 – 20 hours c) 20 – 30 hours d) more than 30 hours	4 24 40 15	5% 29% 48% 18%
7.	What is the time that needs to be allotted for rest between executions?	a) under 30" b) 30" c) 45" d) 60" e) more than 90"	18 44 10 10 1	22% 53% 12% 12% 1%
8.	How many training sessions do you consider necessary per week in order for the junior gymnasts to attain the best performance?	a) 5 training sessions b)7 training sessions c)10 training sessions d) more than 10 training sessions	19 36 21 7	23% 44% 25% 8%
9.	Are the requirements of the RGF with regard to the performance of compulsory technical elements useful in your opinion?	a) yes b) no c) other opinion	64 19 -	77% 23% -
10.	What is the optimal number of technical elements that have to be performed by junior gymnasts during a weekly cycle?	a) 375-450 b) 500-850 c) more than 1000	24 38 21	27% 43% 25%

For *question 1*, concerning the "junior gymnasts' technical level of training", 51 experts have opted for choice a), considering that the technical training level is satisfactory, 20 experts have opted for choice b), considering the technical training level unsatisfactory, while 12 experts have chosen c), having other opinions – fig. 1.

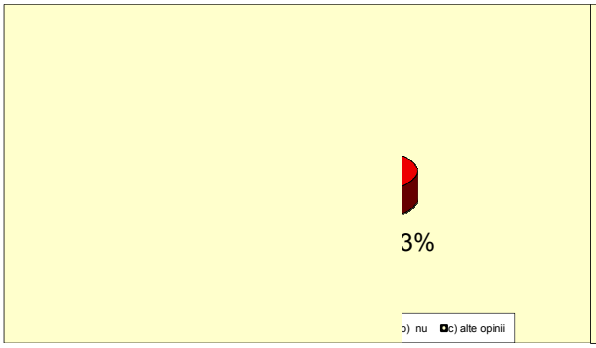
With regard to *question 2*, concerning "the elaboration of a unique curriculum for training gymnasts in various classification sports categories", 98% of the respondents have chosen a), that is to say they considered the elaboration of a unique curriculum useful, while 2% of the specialists have opted for b), considering that the elaboration of a unique curriculum for training junior women gymnasts is not necessary – fig. 2.

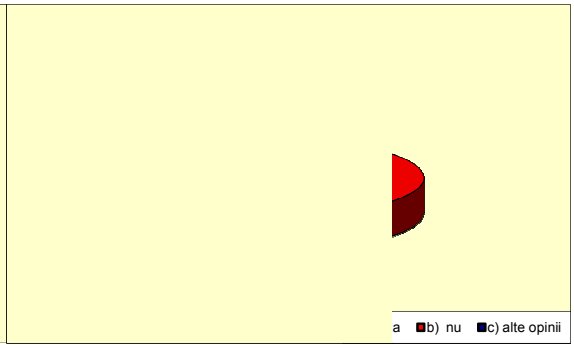




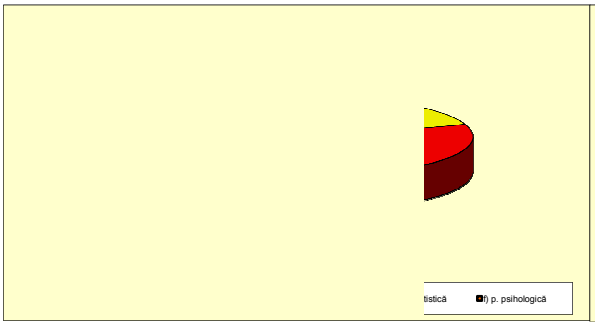
For *question 3*, most of the experts (73%) consider that a unique curriculum for training on various classification categories would be beneficial, while 27% of the respondents consider that it would not influence their training routine and the training efficiency (fig. 3).

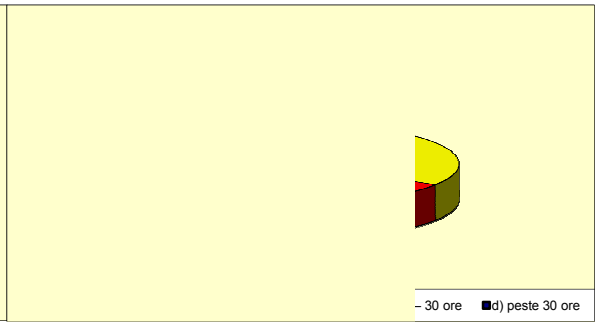
Question 4 – "whether gymnasts' training can be realised without previous planning", 7 experts have chosen a), which means that 8% of the trainers consider that they are able to conduct training without previous careful planning. 91% of the specialists consider planning necessary and have opted for choice b), while 1 expert has a different opinion – fig. 4.





After processing the answers received for *question 5*, concerning the ratio of factors of the sports training in women's artistic gymnastics, it has been observed that the experts' opinions were as follows: 40 experts (49%) considered that technical training is of the essence in acquiring performance in gymnastics, while physical training got 8 votes. In 8 experts' view, artistic training is the most important, while other 7 consider psychological training as the most essential in training women gymnasts. One trainer has chosen tactical training and other 10, theoretical training – fig. 5. The choices made for *question 6* are very relevant, as they verified the experts' opinion with regard to "the optimal workload during a weekly cycle" – fig. 6.





In order to discover the "optimal time for resting between repeats", 18 experts (22%) have chosen a) for the *seventh question*, allotting less than 30" for the resting time between repeats, 44 experts (53%) have opted for b), considering that 30'' should be allotted for resting between repeats, 10 of them (12%) have chosen c) (45'' rest between repeats), other 10 (12%) have chosen d), considering that 60'' are necessary, and one expert

has chosen e), opting for a time of over 90'' for rest between repeats (fig. 7).

Concerning the number of training sessions that need to be conducted per week in order to acquire performance – *question 8* – 19 experts have opted for choice a), considering that 5 training sessions per week should suffice, 36 experts have chosen b), asserting that 7 training sessions are sufficient for acquiring performance with children; 21 of them have selected c), considering that 10 training sessions should be ideally conducted in view of acquiring performance, and other 7 have opted for choice d), more than 10 training sessions per week with this purpose – fig. 8.

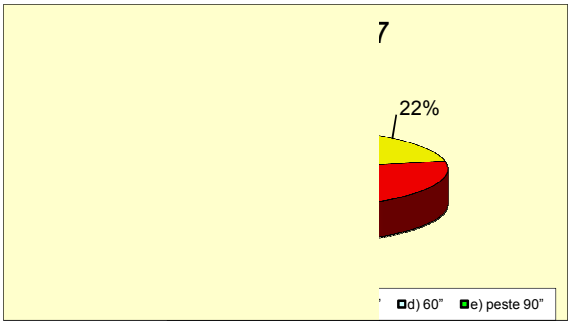


Fig. 7 The best period of time between repeats

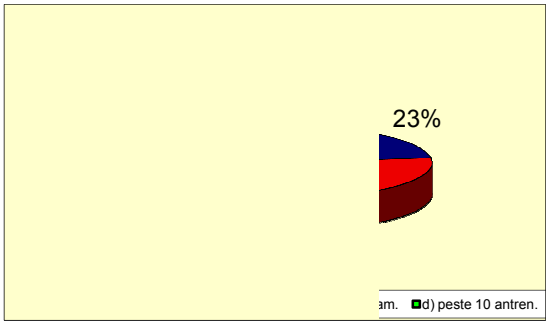
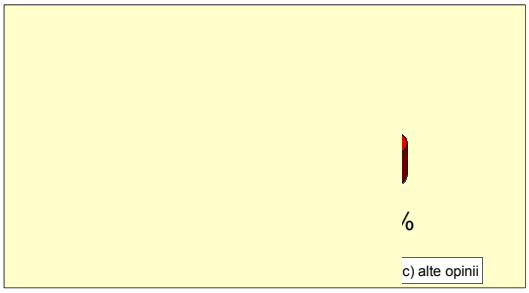
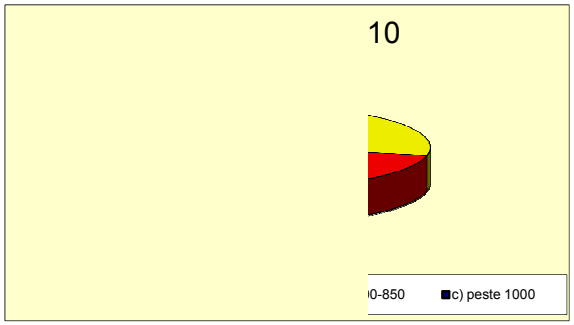


Fig. 8 The number of training sessions per week

In reference to the RGF (Romanian Gymnastics Federation) requirements for the execution of compulsory technical elements, the experts have opted for the following choices when responding to *question 9*: 64 of them have selected a), and 19 of them have opted for b), claiming that the RGF requirements are not useful – fig. 9.

The answers for *question 10* show that 41% of the respondents have opted for choice a), considering that 175-200 elements per week are necessary, 58% have chosen b), which means that they consider that 300-350 elements should be performed weekly, whilst 1% have chosen c), a number of 400-600 elements per week, as shown in fig. 10.





To **conclude**, after analysing the experts' opinion, one may notice that most of them consider that drafting contents for the training curriculum would be necessary, allotting various percentages to the factors of sports training and arguing that the gymnasts' training level is not satisfactory at this moment.

With regard to the number of training sessions and elements that need to be performed weekly, in accordance with the responses recorded, most of the experts consider that 7 training sessions per week and repeating a number of about 850 elements/ week would be necessary for increasing performance in junior women's artistic gymnastics.

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