4. Within this study are presented morphological indices which are typical for skilled basketball players. The test technology is also included, thus allowing the determination of special training for basketball players.
5. The generalized experience of pedagogical monitoring of the training of professional basketball players allows composing the most effective tests for the working-training process.

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Means and Methods of Strength Training of Middle Distance Runners during Initial Sports Specialization

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Abstract

Training aimed at development of endurance, the mode of muscle work, the nature of the developing efforts determine the appropriate transformation in the muscles themselves, which are formed by all content of the training process. In providing the necessary level of development of endurance namely strength training has an important role to play because it is impossible to resolve the problem solely by means of cross-country athletics. With the aim of identifying features in the means and methods of strength training of middle distance runners in the study was carried out a survey of experts (n = 21), which were provided with a list of 46 physical training means. The means and methods of strength training were examined as well within the context of analysis of the loads of this group of means, developed by runners on average distances at SISS. The study analyses the records of 14 coaches. The results of the analysis have allowed identifying the most frequently used means and methods of strength training of middle distance runners aged 13-15 years.

Keywords: a stage of initial sports specialization, means, methods, strength training, runners on average distances

Introduction

Among the factors determining the state of efficiency of middle distance runners, it is often included the adaptation of muscle to stress, which manifests such physical quality as endurance. According to many authors, the development of this quality will not only contribute to improving the system of oxygen transportation to the muscles, but also cause changes that are directly related to its more full utilization [1, 4, 7 etc.].

At the same time specialists admit the need for adaptation of muscles in middle distance runners to adequate or excess effects according to their efforts that they manifest in terms of competitive activities [3, 6, 8, 9]. The authors agree that the contractile and oxidative properties of the muscles of the athlete can to a large extent determine his motor capabilities, while the remaining physiological systems of the body functionally support and provide the required level of muscle activity [2, 3, 4, 5, 8, 9, 10 etc].

This point of view is shared by V. Sirenko [9, p. 68], who states that when exercise is primarily aimed at the development of endurance, the mode of the muscle work and the nature of efforts developed determine the

appropriate transformation in the muscles, which are formed by means of all the content of the training process. He notes that the means of strength training can play an important role in providing the necessary level of development of endurance in middle distance runners, because it is impossible to resolve the problem solely by means of cross-country athletics. Consequently, the purpose of their strength training is to achieve by runners high-level strength endurance, i.e. the ability to multiple manifestation of required value of motor efforts. The formation of this ability is primarily related both with an increase of a power component of movement and the ability to perform prolonged physical activities, maximizing the aerobic way of energy movement action, as well as recuperation of energy of muscles, i.e., energy of elastic deformation of muscles [3, 9].

It should be noted that in recent decades the importance of strength training for increasing a special capacity in middle distance runners is not called into question. The use of training tools of strength orientation has become commonplace. At the same time there is a reason to say that the above is relevant only to the process of preparation of the runners of high qualification. The opinions of experts about the use of means of the group in training young athletes is not so clear [5, 6, 7, 10 etc.]. As a result, the place of methods and means of strength training in the structure of the training impact is causing some interests, which are developed by young runners on average distances and their impact on the growth of sportsmanship.

Methodology and research organization

Given that specialists-practitioners in most cases pay significantly less attention to technical-tactical training of middle distance runners than to the physical one, The knowledge about the tools of training methods they use from the arsenal of the latter is of particular interest. In consequence of this study an attempt was made to get the information of interest, by interviewing experts (n = 21) on this issue. In this regard, respondents were presented a list of means of physical training (n = 46) recommended to use by runners on average distances on SISS (the stage of initial sports specialization) [3, 5, 8, 9]. The list represented a wide range of tools with different focus. The respondents in the study involved practitioners, including coaches: 2nd category - 3; 1st category - 7; the highest category – 11. The composition of respondents included 4 of the Deserved trainers of the Republic of Moldova.

It should be noted that in special literature, quite often, there are discrepancies in relation to the age range of people involved at various stages of their long-term training [7, 8, 10]. Considering the opinions of experts, as well as objectively existing fuzzy of temporal boundaries between stages, as a guide to explore the content of strength training in middle distance runners on SISS, the age of 13-15 years was adopted.

Results of the study and their discussion

According to the results of a study, from the arsenal of training means recommended by experts for use in training middle distance runners on SISS, respondents, as a rule, 71.5% apply in practice. Further differentiation of sample on the basis of prior use of this group of means in one or another area of power supply, we were allowed to reveal their correlation.

The results of the study indicate a fairly wide variety of tools used in the training process of young runners both in aerobic-anaerobic (53.3%) and anaerobic (41.7%) areas of power supply, and a narrow range of application of aerobic orientation (7.0%). It should be noted that the detected ratio of training means should not mislead the experts, because it reflects only the preferences of respondents in relation to the diversification of exercises used with the purpose of improving the mechanisms of energy supply of muscular work.

In the context of the problem discussed, the knowledge about the peculiarities of the content of power training of young middle distance runners acquire great importance. In the presented to respondents a list of training means was also included the block of means of strength orientation (n = 29). It should be recalled that their use in training middle distance runners on SISS caused for quite a long time the fundamental differences among experts, defending different points of view in regard to the appropriateness of their use in practice [5, 6, 8 etc.].

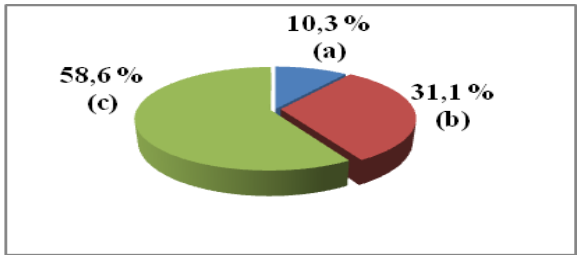
It was considered that the effectiveness of the system of preparation of runners on average distances was connected with the development and improvement of features of the oxygen transport system [1, 4, 6 etc.]. However, the results of several studies indicate that the running capacity of the muscular system plays a less significant role in getting the athlete on the predicted level of sports achievements. It was found that the muscular components act as a determining factor, purposefully influencing on which you can achieve a

significant increase in motor potential of the runner and ensure his efficient performance in terms of competitive activity than in the framework of using traditional means of training [3, 8, 9 etc.].

As confirmation of the above here are the survey results that indicate that 100.0% of the respondents, in varying degrees, use the means of strength orientation in the training process of their pupils.

Based on the conditions, nature and magnitude of the manifestations of muscular efforts, the strength ability is accepted to classify on the basis of the forms of their motor manifestations. In the most simplified form they can be differentiated on the proper strength and speed-strength abilities and strength endurance [2, 8, 9].

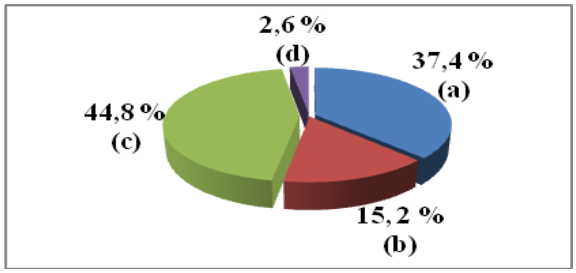
In accordance with this classification, the means of strength training are also usually differentiated. Consequently, the differentiation of the means of strength orientation in the study focused on the above classification. The results of this analysis are presented in Figure 1.



Conventional signs: a – proper strength; b – speed-strength; c – strength endurance

Fig. 1. Ratio of training means aimed to develop different forms of motor manifestations of strength abilities in training middle distance runners aged 13-15 years, %

According to the results of the analysis, the means directed to the development of strength endurance are used the most in training of middle distance runners (58.6%), and least of all - developing proper strength abilities of young athletes (10.3%). The results obtained in the course of the study do not point to the importance of a group of means, but merely state the fact of their correlation.



Conventional signs: a – anaerobic-alactate area; b – anaerobic-lactate area; c – aerobic-anaerobic area; d - aerobic area

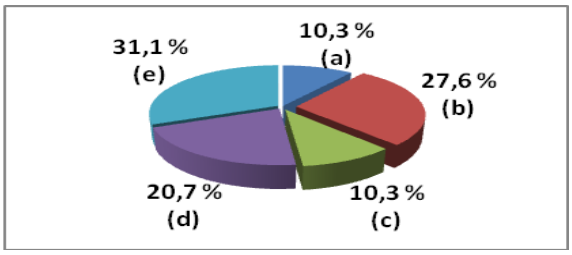
Fig. 2. Ratio of means of strength training in the area of energy supply in training middle distance runners aged 13-15 years, %

Differentiation of the complex of means of strength training of middle distance runners performed on the basis of preferential use in different areas of energy supply, allowed to reveal their correlation, which largely coincides with the data previously obtained during a similar analysis of the means chosen by respondents from the initial list. In both cases, preference is given to means that are performed in mixed and anaerobic-alactate areas of energy supply. More “poorly” is represented the arsenal of means used in the aerobic area of energy supply. A coincidence is observed in an effort to reduce to a minimum the use of means of glycolytic zone of energy supply (Figure 2).

The above classifications of means of strength training are not quite convenient in practice to differentiate the exercises aimed at the development of various forms of musculoskeletal manifestations of strength abilities. Consequently, the study used a different classification of this group of means. The results of its use are presented in Figure 3.

The use of this approach allowed to establish that in weight training of young middle distance runners, the preference is given to means aimed at the development of strength and speed-strength motor manifestations of

endurance (51.8%) and speed-strength abilities (27.6%) developed with an emphasis on speed component. To the less degree are applied the proper strength exercises as well as speed strength ones, which are used in practice to increase the strength component of movement (up 10.3%).



Conventional signs: a – proper-strength; b – speed-strength with emphasis on high-speed component; c – speed-strength with emphasis on power component; d – speed-power with emphasis on endurance; e – strength endurance.

Fig. 3. Ratio of training means aimed to develop various forms of musculoskeletal manifestations of power capabilities in middle distance runners aged 13-15 years, %

Researching the content of strength training of young runners it is impossible not to mention methods that determine the focus used for this purpose effects. In this regard, respondents were offered a list of methods recommended for use in the implementation of the tasks of strength training of middle distance runners. The list included the following methods: shock; dynamic efforts; repeated-serial; interval; conjugate; variable; repeated; circular. The results of the analysis are presented in Figure 4.

According to the results of this analysis, the application of the above methods is mostly legitimate. However, in the case of proper-strength abilities the use of circular method is not always justified, since this method is generally regarded by experts as one of the varieties of interval method used for any other purpose. It should be noted that the most popular method used among trainers in strength training is repeated-serial methods (43.3%) and shock (5.3%) - the least. Other methods vary in the range of 10.8 to 14.2 %. Depending on the need of development of a particular form of motor manifestations of power the demand of methods is changing. It should also be noted that respondents tend not to use conjugate and variable methods.

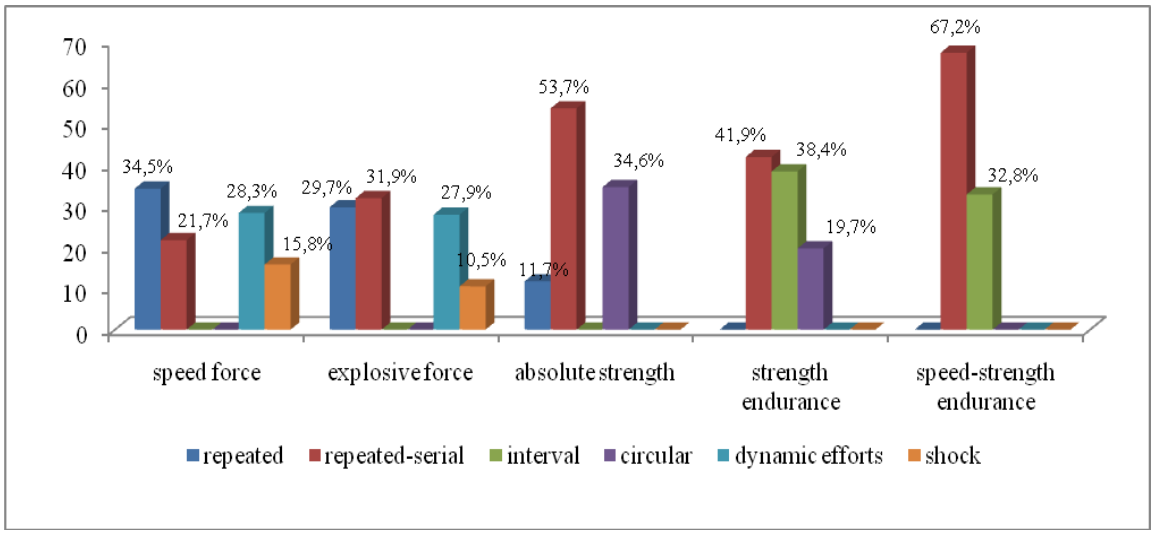


Fig. 4. Ratio of training methods used to develop strength capacities in middle distance runners on SISS, %

In the aspect of studying the content of strength training of middle distance runners there is a natural interest in training loads of this group of means, developing them on SISS. With this aim, the study analyses the records of 14 coaches, practicing the training of athletes of this specialization. These studies are presented in Table 1.

Table 1. Ratio of means of strength character by areas of energy supply and signs of primary focus, %

№	The analysed parameters	Survey data of coaches	Data of analysis of training loads
	Energy supply areas	100	100
1	Anaerobic-alactate	37.4	35.5

2	Anerobic-lactate (glycolytic)	15.2	16.7
3	Anaerobic-aerobic (mixed)	44.8	45.8
4	Aerobic	2.6	2.0
	Primary focus	100	100
1	Proper strength capacity	10.3	11.8
2	Speed-strength capacity	37.9	36.6
3	Strength endurance or LME	51.8	51.6

The comparison of the results of a survey of experts on the question of the content of strength training, differentiated by areas of energy supply and its preferential orientation on the one hand, and on the other, data analysis, training loads, suggests that the proportions revealed have no significant differences. The obtained results may also be evident of the correctness of the approach taken as an instrument of the research.

As expected, the effects aimed at the development of strength endurance (51.6 %) dominate in the structure of training loads of strength nature. At least significantly loads were mastered in means aimed at the development of speed-strength (36.6%), and the proper strength (11.8 %) abilities.

The study of the structure of loads, differentiated by areas of energy supply, to a certain extent, reflects the ambition of coaches to minimize the use of means of strength training in a glycolytic mode (16.7%). It should be noted that the bulk of the loads of this group of means is done in an anaerobic-alactate and mixed areas of energy, respectively 35.5% and 45.8%. The assertion is reckless that certain forms of motor manifestations of strength abilities develop only within any one zone of energy supply. Despite the fact that the guidelines sometimes include such practical instructions, it is quite natural that in this case the question is about the exercises in traditional modes, and not about limiting the range of applications of a particular area.

For this observed discrepancy can be quite subjective in nature, because not all respondents can see differences between the means of training and motor tasks, and thus do not take into account the effect of their performance through various methods. This fact would allow, though not essential, but to change the structure of the content of strength training, not according to the complex of its means, but to their primary focus. At the same time, the results of the study give grounds to speak of a sufficiently high degree of objectivity of the obtained data.

Conclusions

It was found that accentuated effect on the muscle component of the athlete allows achieving more significant development of its motor capacity and a more efficient implementation of the latter in terms of competitive activity than when using traditional means of training. However, the importance of strength training to increase the level of special capacity in middle distance runners is not questioned only in relation to highly skilled athletes. In relation to the use of the group in the training process of young athletes, the opinions of experts are not so clear.

The data obtained indicates that 100% of coaches use in training young runners the means of strength nature. Preference is given to means applied in mixed and lactate areas of energy supply. It is identified the ambition to reduce the use of means of glycolytic nature to the level of necessity. It is established that in strength training of young runners the preference is given to means aimed at the development of strength and speed-strength motor manifestations of endurance (51.8%) and speed-strength abilities (27.6%) developed with an emphasis on speed component. At least the proper strength and speed-strength exercises are used to increase the strength component of motion (10.3%). The most popular part of strength training used to repeated-serial method (43.3%), and impact the least (5.3%). Other methods vary in the range of 10.8 to 14.2%. Analysis of the structure loads of strength character allowed to reveal the dominant role of actions aiming at the development of strength endurance (51.6%). Part of loads in means aimed at the development of speed-strength and proper-strength capabilities were equal to 36.6 and 118%. In the structure of loads, differentiated by areas of energy supply, also reflected the ambition of coaches to minimize the use of means of strength training in a glycolytic mode (16.7%). The bulk of the loads of strength character was developed in the anaerobic-alactate and mixed areas of energy, respectively 35.5 and 45.8%.

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Raising Effectiveness of Specialist Professional Training through the Course "Managerial Research in Physical Education and Sport"

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Abstract

This article is based on an experimental study that we have conducted on the efficiency of the course „Managerial research in physical education and sport" for the vocational training of the specialist in the field. The scientific research is the key lever in the development of the physical education and sport field and has a decisive influence on the adaptation of sports organizations to the international changes.

"Managerial Research in Physical Education and Sport" is an educational discipline that substantially contributes to the formation of the general and specific competencies necessary for the specialist in his professional activity. It contributes to shaping the future specialist profile by forming the managerial scientific working skills necessary for all organizing forms of sports activities.

Keywords: managerial research, specialist, vocational training, physical education, university curriculum, university course, competencies, didactic strategies

Introduction.

The vocational training of students in higher education institutions of physical culture and sports has been and remained the key problem for a large number of specialists [1, 2, 3, 4, 5, 6, 9, 11], being one of the main objectives of higher education.

The instructional and educational process of higher education needs to adapt to a changing world. This is achieved in all the fields of society and knowledge seems to expand with a higher speed than understanding. It is necessary for students to learn how to navigate through the vast amount of information, to analyze, to make decisions and to master new fields of knowledge, in a society in constant progress.

Solving the new issues faced by higher education studies in physical culture and sport involves adapting the curriculum to international standards and rethinking the teaching-learning-evaluation methodology.

Returning to the kinetic structure of the imbalance process, for example, we find that it has three phase phases, which have a special temporal and dynamic character, being independent and autonomous, but dependent on two factors:

- the purpose/goal;
- the dynamic stereotype formed in the process of practical training through exercise and training.

I. Pavlov speaks of the necessity of *"ordering the forces in the connection space of the dynamics with the cerebral structure"*, which leads us to the idea of that cortical mosaic without which the movement would not be so varied in its manifestation.

From this perspective, we can consider the fighting techniques as acyclic movements, with a three-dimensional structure: spatial-temporal; dynamical-temporal movement and pace of movement, their learning being motrically intelligent.

The kinetic structure in phases of the imbalance process is determined by the static/dynamic balance of the two athletes. Improving the training process thus involves selective routing of the functions of the vestibular apparatus, starting from the fact that the walking device is the one that has the task of producing the movement, which fully justifies the biomechanical approach to the training process, both while its components are also biomechanical elements.

Starting from the function that the anatomical elements fulfill and their morphology can be deduced the biomechanical aspect, because between form and functions there is a close connection.

Ideal with regard to the technique of combat balancing is the use of a minimal force to design the opponent who is thus brought out of the stable static equilibrium position and brought into an unstable equilibrium to execute a process.

Combat sports are sporting disciplines where the basic technique of executing basic movements is a very important part, essential being the stability of the bodies, the force and moments of the application of force.

Stability is a relative concept - in the same situation stability may have more or less equilibrium, defining the basis of support and the height of the center of gravity (Gutiérrez, 1998). The condition that a body is in balance is the result of external forces to or equal to the moment of force applied to the body.

The formula for calculating the stability coefficient is:

$$CS = \frac{G \cdot d}{F \cdot h}$$

Where:
C.S. is the coefficient of stability; G - gravitational force; d -distance to the limit of the support base; F - applied force; h - the height at which the force is applied.

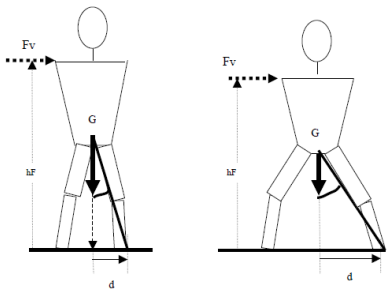

Figure 3. Parameters for determining the stability coefficient and the angle of stability
(after Donskoiand Zatiorski, 1988)

The support base is a **supporting polygon** (Figure 4a) - formed by joining points that delimit the outer edges, fingertips and calcaneus. The higher the area of the polygon perimeter - in the defense position, for example, the greater the stability and maintaining the contact of both legs of the athletes with the combat surface gives it more stability than if only one foot is on mattress. The stability degree in this situation is given by the angle of stability (Figure 4b), which is the design of the center of gravity on the surface of the support polygon and the oblique line joining the center of gravity to the side of the polygon in the direction in which stability is determined. The higher the stability angle, the greater the stability of the athlete.

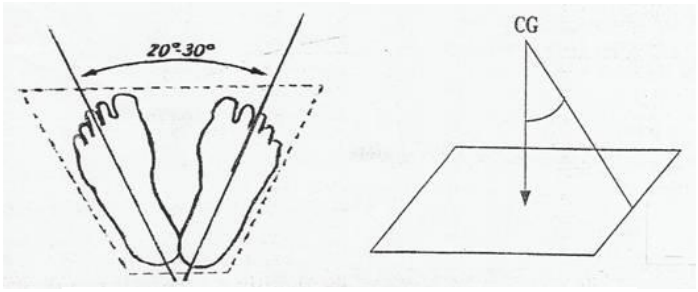

Figure 4. a. Supporting polygon and b. Stability angle

However, beyond the supporting polygons, the position of the body and limbs of the athlete, as well as the weight center projection, can determine their stability. Thus, in Figure 5, for example, the position of the athlete in red is advantageous, its stability being achieved by placing the body outside the support polygon and supporting the opponent's shoulder blades.


Figure 5. Athlete's position in favor (in red)

Generally, the exit of the center of gravity outside the support pole adversely affects the stability of the fighter, and this happens when the fighter performs torso flexions during the fight, so the body segments change their position and hence the center of gravity. Fortunately, this relative instability is offset by the ability to support the opponent. In fact, during the fight, we are talking about the presence on the battlefield of two athletes, and the problem of individual equilibrium is at one point turning into the issue of the balance of the couple formed by both athletes, which is not given by the sum of the individual support surfaces, the area bounded by the lines passing successively through the support points. As a result, the center of gravity of the couple's athletes passes through them as long as they are in contact. Abrupt breakage of the contact destroys this type of torque equilibrium and can even endanger the individual balance. The solution, in the latter case, would be for the athlete to step elastically towards the direction in which it would be unbalanced, trying to attenuate the opponent's movement by adequate muscle strength at the level of the segments with which they are in direct contact with the opponent. If he wants to balance his opponent then he must reduce all his possibilities to rebalance.

Also, according to Gheorghe Cismaş (1988), the particulars of the neuro-muscular system (kinetic analyzer) are important. From this perspective, the ground positions are those that are characterized by the highest degree of stability due to the support points and the center of G.

Changing the center of gravity by moving from static to motion will also cause biomechanics of the body to change, with muscles, joints, tendons, ligaments, etc. The human body's center of gravity under normal conditions - the body in orthostatic position - is located on the axis of vertical symmetry of the body in a plane parallel to the ground that intersects the body at the lower abdomen (about 3 cm below the navel) or at the level of the second sacral vertebra, equivalent to 58% of the height of a man and 56% of the height of a woman (Luttgens and Wella, 1982).

When the center of gravity projects to one side of the support polygon, the balance decreases in that direction.

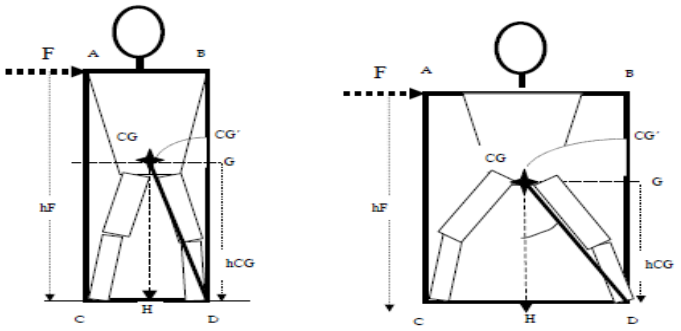

Figure 6. Changing the center of gravity and stability of the human body
(Watanabe and Aviakan 1990)

The position of the center of gravity depends on the state of equilibrium, and in order for it to be optimal, the following requirements should be met:

- the distribution of human body weight at the sole should be symmetrical - requirement met when C.G. is in the optimal center-center position;
- the center of gravity must be as close to the ground as possible, the projection being within the soles formed by the soles;
- the ground support surface at ground level is perfectly flat.

Among the objectives of biomechanics in sport, we have to mention the instruments for the evaluation of technical executions (García-Fojeda, Biosca and Vàlios, 1997) and criteria for determining the effectiveness of applying the laws of classical mechanics in the execution of movements (Walker, 1980).

Practically, the correct use of biomechanics can become an important point of support in understanding the basic components of technical training, which can determine performance. Thus, sports practitioners, physiotherapists, coaches and sports scientists have to work together to structure training programs that improve performance and prevent casualties specific to each sporting sector.

The morpho-functional components, which are nothing but the organs of the walking system (bones, joints, muscles) and the organs of the nervous system (receptors, sensory nerves, spinal cord, encephalus, motor nerves, motor plates, gamma systems), are the basis of human body motions. The moving organism should be regarded as a whole, as a whole, the movement being the result of the action of all the morpho-functional components mentioned. The entry into action of these factors and their mechanisms are stereotyped and can be considered as principles. The biomechanical features of the movement must always be linked to the tactical intention of the fighter. The coach should offer the fighters the opportunity to experience how the technique will be applied in the most effective way in the combat situation.

Conclusion. There is a close connection between the two areas, mechanical and biomechanical, but also an interdependence between them in the field of physical education and sport. Thus, knowledge of biomechanical problems allows coaches and specialists in the field to act:

- on a deeper understanding of the sporting technique and the realization of programs that have the purpose of acquiring a correct and varied technique;
- on improving the primary selection criteria for performance sports;
- in order to avoid and prevent accidents in sports performance.

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Correction of Faulty Attitude and of Physical "Kyphosis" in Children Using Specific Means of Gymnastics and Swimming

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Abstract

This work aims to submit a complex programme of specific means of gymnastics and swimming for the purpose of correcting posture and rectify spine Kyphosis in children (12-14 years old) as the number of people suffering from obesity is getting higher and their sedentary lifestyle has become one of the characteristics of the daily life. Doctors warn that more and more children weigh more than normal since they show no desire to practice a sport and prefer the TV or the computer as ways of spending spare time. The lack of any physical activity shall be reflected in the deficiencies in the physical development, particular in the spine. The main purpose of this research is the improvement of the detailed rules for the application of some specific exercises in gymnastics or swimming in order to correct the kyphotic attitude and to rectify kyphosis.

Keywords: deficiencies physical, specific means, swimming, gym

Introduction

The correction of the attitudes and physical shortcomings in the aquatic environment and on land is a problem of topical interest, taking into account the small number of specialized publications in this field. A series of physical deficiencies are well-known and there is a longing for positions of the body to be influenced by beneficial swimming and gymnastics specific exercises. Explaining the purpose of these exercises, using the means and methodical indications of the actuator in water and on land, I watched the standing committee compliance with the principle of hippocratic "primum non nocere".

The exercises are arranged in an easy and accessible form, knowing their influence over the musculo-skeletal system, cardiovascular disease, respiratory, the nervous system and metabolism. The implementation of these programs in water and on land means for those interested useful models and sources of inspiration (Mergheş and Țeghiu, 2006).

Objectives of the research:

- general body tonification;
- a better toned spinal in the dorsal area;

- formation of stable reflex of attitude and a correct straight position of the body;
- toning in conditions of shortening of the muscle groups from the dorsal area of the trunk;
- toning in conditions of lengthening of the muscle groups (of chest);
- preventing the installation of a compensatory bends lordotics;
- the correction of the attitudes of the deficiencies of the shoulder, thorax, basin, the lower limbs, head and neck, accompanying kyphosis (correct alignment of the segments);
- development of respiratory function.
- establishment of the risk factors at this level of development and bio-physical particularities of the organism children (12 to 14 years).
- development of the models in the, with a view to the application of the specific means of gymnastics and swimming.
- scientific argument forthe implementation of the models of specific exercises and gymnastics.

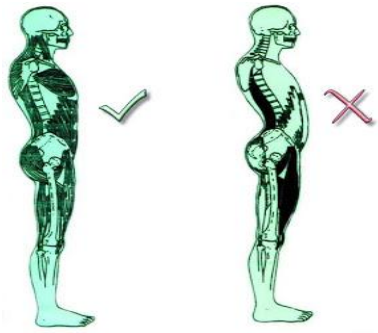
Hypothesis of the research:

Development of multiple forms for the application of the physical exercise creates the possibility to improve the state of health of the human body. In this respect it is to be assumed that, by the application of the combined specific means of gymnastics and swimming, the correction of the attitude and the physical rectified kyphosis in children (12-14 years) can be achieved.

Motivation and premises of the choice of grounds:

In the past few years the physical health of children is threatened by sedentary lifestyle, obesity, insufficient food or improper operation. All these contribute to the decrease of the physical vigor and resistance to disease. From these considerations we can see that the specific means of gymnastics and swimming contribute to a large extent to improve the state of health of its development from the point of view of the operational aspects, driving psihomotrice, and psychological of children, creating the premises for the correction of faulty posture and the physically rectified kyphosis in children (12 to 14 years).

Kyphosis is a deviation of the spine in the plan to the antero-posterior, with the convexity of the bending located in the dorsal plan. Depending on its amplitude, kyphosis is short, medium and long. Short kyphosis is below the angular shape and comprises only a few spine; average kyphosis comprises an entire region of the vertebral column (dorsal, lumbar), and the long in the curvature of the entire spine (Sbenghe, 1999).



Research subjects:

For the verification of the assumptions of the work, 12 subjects presenting attitude and physical deficiencies of the spine, aged between 12-14 (Table 1) were selectedto participate in the study.

Table 1. Characteristics of the batch of subjects

	First and last names	Gender	Age	Occupație	Condition
1	R.A.	F	14 years	student	Kyphotic At.
2	S.A.	F	13 years	student	Kyphotic At.
3	M.A	F	12 years	student	Kyphotic At.
4	B.I.	F	14 years	student	Kyphotic At.

5	A.C.	F	13 years	student	Kyphotic At.
6	M.M.	F	13 years	student	Kyphosis
7	F.S.	F	14 years	student	Kyphosis
8	I.M.	M	12 years	student	Kyphotic At.
9	P.G.	M	13 years	student	Kyphosis
10	B.M.	M	14 years	student	Kyphotic At.
11	G.D.	M	14 years	student	Kyphosis
12	S.D.	M	14 years	student	Kyphosis

Table 2. Anthropometric measurement of the batch of subjects

Nr. Crt	First name and last name	ANTHROPOMETRIC MEASUREMENT											
		Height		Weight		The chest area							
						In repose		In inspiration		In exhale		Elasticity	
		Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf
1	R.A.	1,67	1,68	41	43	73	74	76	79	72	70	6	9
2	S.A.	1,66	1,67	58	60	97	98	99,5	101	97	96	2,5	5
3	M.A.	1,58	1,58	45	46	76	77,5	83	85	75	76	9	9
4	B.I.	1,6	1,65	46	49	79	81	81	83	77,5	76	2,5	7
5	A.C.	1,55	1,55	42	41	78,5	78,5	82,5	83	78	77,5	4,5	5,5
6	M.M.	1,54	1,54	51	52,5	94	94	95,5	96	92,5	91	3	5
7	F.S.	1,65	1,65	58	59	95,5	97	98,5	100	93,5	92	5	8
8	I.M.	1,61	1,63	41	42,5	73	75	79	80	70	70	9	10
9	P.G.	1,6	1,62	59	60	90	90	93	94	86,5	86	7,5	8
10	B.M.	1,66	1,66	60	62	84	85	88	89,5	80	80	8	9,5
11	G.D	1,73	1,75	74	76	102	104	104	105	99	98	5	7
12	S.D.	1,79	1,80	82	83,5	102	103	107	109	101	100	6	9
13	∑	19,6	19,78	657	674,50	1044	1057	1087	1105	1022	1013	68	92
14	X	1,64	1,65	54,75	47,8	87	81,8	90,58	86,2	85,17	79,1	5,667	7,1
16	S(±)	0,07	0,08	13,16	13,3833	11,03	10,98	10,4	10,24	11,08	10,83	2,348	1,762
17	Cv	4,26	4,84	24,07	28	12,68	13,42	11,48	11,88	13,01	13,69	41,43	24,81

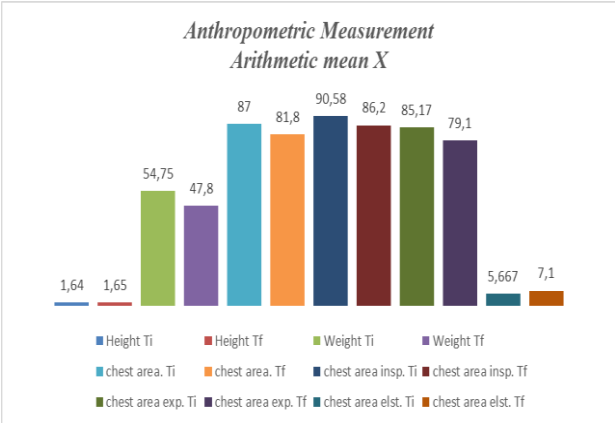


Figure 1. Arithmetic average to initial and final tests for anthropometric measurements

Table 3. Spine mobility of the batch of subjects

First name and last name	THE SPINE MOBILTY							
	Bending the spine		The distance fingers to ground		Bending the side of spine			
					left		right	
	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf
R.A.	5	2	-2	2	25	24	27	25
S.A.	8	5	0	3	20	18	20	19
M.A.	4	1	-3	0	24	23	27	25
B.I.	6	2	-5	-2	26	25	26	24
A.C.	4	0	2	6	17	14,5	18,5	16
M.M.	8	3	-1	3	21	20	18	15,5
F.S.	11	8	4	9	23	18	20	19
I.M.	7	4	-3	4	16	13	17	17
P.G.	9	5	-4	1	22	19	20	18
B.M.	5	2	-8	-5	13	10	16	15
G.D	7	3	4	0	18	15	14	12
S.D.	5	3	0	2	25	25	28	26
∑	79	38,00	-16	23	250	224,5	251,5	231,5
X	6,58	3,17	-1,33	1,92	20,83	18,71	20,96	19,29
S(±)	2,15	2,12	3,60	3,63	4,11	4,94	4,81	4,63
Cv	32,67	67,03	270,14	343,78	19,72	26,40	22,94	24,02

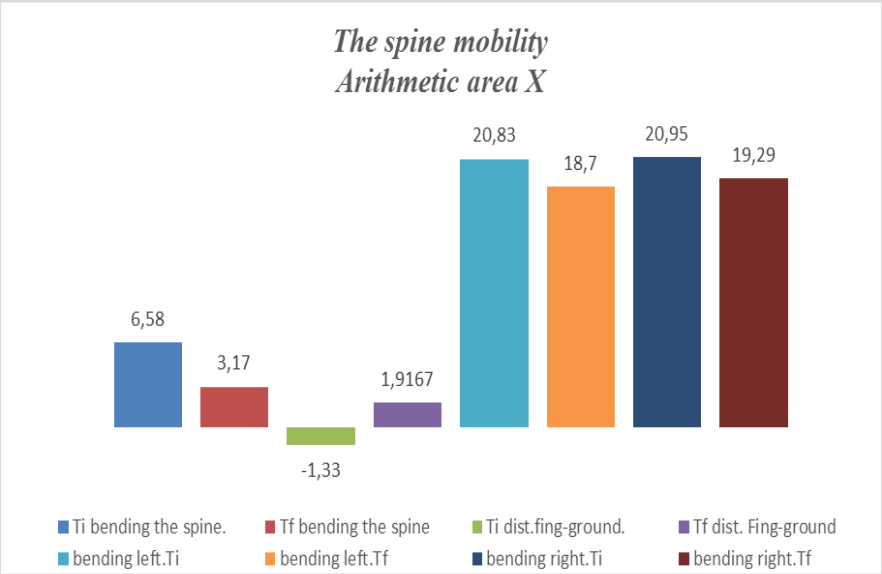


Figure 2. Arithmetic average to initial and final tests for spine mobility

Stages of research:

The research activity has been carried out in several stages as follows:

Stage I - in this stage it was made theoretical documentation by exploring the literature. Attention was focused on the way in which specialists address correction of the attitudes and physical deficiencies.

Stage II –in this stage methods of exploration and evaluation were applied for the purposes of observation of subjects and of their evolution, in order to make a comparison between the initial tests and the final tests in order to verify the effectiveness of the means used.

Stage III - is the stage in which the complex of exercises for the correction of the attitudes and physical deficiencies have been applied.
Stage IV - is the stage in which the final testing shall be carried out.
Stage V - is the stage in which the results obtained in the course of the research shall be processed and interpreted, followed by the presentation of the findings.
The means employed:
-specific swimming
dynamic exercises which consist swimming the four specific processes swimming of contest (crawl, backstroke, throttle, breaststroke), and combinations between these processes (double rear arm with feet breaststroke, arms throttle with feet breaststrokr, arms bras with feet crawl etc.)
-exercises for the muscles of the spinal which consist in the swimming rear process, dual rear arm with feet rear on the rear arm movement locked with the raft and curl, etc.
-exercises for the abdominal muscles which consist in the swimming breaststroke process and procedure throttle and combinations between them.
-exercises for the development of the respiratory function which consist in swim all but with limited number of breaths for a length of the basin, or with the aid of special masks
-exercises for the upper limbs which consist in the block the action the legs with the aid of float and the movement will be done only by the action of the arms or with palms.
-exercises for the lower limbs which consist in bloking the action of the arms using the cork and the movement will be done only by the action the feet, or using their forepaws (Oneț, 2014).

In the basin will work one hour like this:

- 2x14 basins mixed (2 basins crowl, 2 basins throttle, 2 basins crowl, 2 basins backstroke, 2 basins crowl, 2 basins braststroke, 2 basins crowl);
- 2x6 basins feet throttle on the rear arms up;
- 2x6 basins throttle, three beats feet, a movement of arms, a breath;
- 2x6 basins feet throttle, at the same time with two arms crowl on the right side, after two arms crowl on the left side and one moving the throttle arms, with the breath to every movement arms;
- 6 basins the same exercice, but will be made one arm crowl left-right and two moving throttle arms.
- 8x1 basins throttle, maximal speed, insisting on the correct movement;
- the game with the ball.

- **Specific: gymnastics**:

-exercises in the form of corrective positions maintained
dynamic exercises in the form of corrective movements of the back, thorax, basin of the upper and lower within the meaning of straightening the spine (exercises will run active, freely or with resistance)
-exercises for the head and neck, extensions in the plan back, twists left - right.
-exercises for the upper limbs executed in the form of extensions horizontal over her shoulders.
-exercises for the trunk, total extensions, lateral inclination, kinks, circular movements of the limbs in the plan at the rear.
-breathing exercises.

The exercises used on land would last 30 minutes and include:

Free exercises with objects, portable appliances fixed and partner:

1. Walking with spring upper arm, at every step (2 x 8 time).
2. Walking on the tips with the maintenance of the arms back to the rear (2 x 8 time).
3. Walking with maintaining the swings got back to the sholders level (2 x 8 time).
4. Walking with the extension and spring upper arm and a lower-back lying, at every 4 time (2 x 8 time).
5. Combination of those.
6. P.I: stand

Movement:

1 – 2 Lunge forward with the right leg, with the extension of the arms and their spring at an oblique angle up;
3 – 4: return;
5 – 8: Repeat with the left foot in lunge (2 x 8 time).

7. P.I.: stand

Movement:

1 – 2: Step forward with his right foot, with arms lifting at the side and placing the palms at the base of the neck (elbows in the extension);
3 – 4: return;
5 – 8: repeat with left foot.(2 x 8 time).

8. P.I: The remote stand, with oblique cane went into the ends of the rear, right arm, left arm down

Movement:

1 – 2:Bending to the right, with the trunk of the spring,;

3 – 4: Bending to the left with the trunk of the spring;

5 – 8 repeat like 1 – 4. (2 x 8 time).

9. P.I.: With back to the ladder fixed, started with hands on the strip from above the heels of the attached to the strip.

Movement:

1 – 6: Extension of the trunk and head, without detaches the palms;

7 – 8:return.

10. P.I: facing the ladder fixed, at a distance of 1 arm, started with both hands over the chest.

Movement:

1 – 6: Lifting the right foot back, extension and the trunk of the head, maintaining the position..

7 – 8: return;

1 – 8: repet with left foot.

During raising and maintaining the legs back, the trunk is not twisted at no load. The exercise will be repeated 4-6 times.

11. P.I.: On the knees, on heel seated, the cane got back the ends.

Movement:

1 – 4: Raising the basin to vertical extension of the trunk with the batons up;

5 – 8: return. The exercise will be repeated 4-6 times.

12. P.I: Facial supine, arms stretched up

Movement:

1 – 2: Lifting it in the extension with greater arc of the right arm and left leg;

3 – 4: the same movement with the left arm and right leg;

5 – 8: repet 1-4. The exercise will be repeated 4-6 times..

13. P.I.: Facial lying down with his head toward the ladder fixed, started with hands on the strip from below

Movement:

1 – 8: Raising the trunk through which they have on each strip up to the one to which is performing a broad extension;

1 – 8: Lowering the strip with the strip and return to its initial position. The exercise will be repeated 4 - 6 times.

14. P.I: Facial lying across the bank of gymnastics, position maintained horizontally.

Movement:

1 – 4: The extension of the head, body, the lower limbs and arms side with retaining;

5 – 8: Return to horizontally. The exercise will be repeated 4-6 times..

Results:

Table 4. Evolution of the characteristics of the batch of subjects

Nr. Crt.	First name and last name	Sex	Age	Occupation	Condition	Ti	Tf
1	R.A.	W	14 years	student	At. Kyfotic	3cm	0cm
2	S.A.	W	13 years	student	At. Kyfotic	3cm	0 cm
3	M.A	W	12 years	student	At. Kyfotic	2 cm	0 cm
4	B.I.	W	14 years	student	At. Kyfotic	3 cm	0 cm
5	A.C.	W	13 years	student	At. Kyfotic	2,5 cm	0 cm
6	M.M.	W	13 years	student	Kyfosis	3 cm	2 cm
7	F.S.	W	14 years	student	Kyfosis	2 cm	0 cm
8	I.M.	M	12 years	student	At.Kyfotic	3 cm	0 cm
9	P.G.	M	13 years	student	Kyfosis	3 cm	2 cm
10	B.M.	M	14 years	student	At. Kifotic	2 cm	0 cm
11	G.D.	M	14 years	student	Kyfosis	6 cm	5 cm
12	S.D.	M	14 years	student	Kyfosis	4 cm	2 cm

In the case of subjects which present kyphotic attitudes:

In these cases, the kyphotic attitude was corrected entirely, the muscular power of the increased mobility of the column has been considerably improved, respiration has improved infrastructure is an increase of the thoracic elasticity like this:R.A-3cm; S.A-2,5cm; B.I.-4,5cm; A.C.-1,5cm; I.M.-1cm;B.M.-1,5cm

In the case of subjects with Kyphosis:

- M.M. diagnosed with thoracic kyphosis 3 cm has been registered a correction of kyphosis 2 cm of brawn has increased, breath has improved infrastructure is an increase in the thoracic elasticity with 2 cm and the mobility of the vertebral column has visible improved;
- F.S. diagnosed with thoracic kyphosis 2 cm, has been registered in a correction of kyphosis 2 cm of brawn has increased, breath has improved infrastructure is an increase in the thoracic elasticity with 3 cm and the mobility of the column has visible improved;
- P.G. diagnosed with thoracic kyphosis 3 cm has been registered a correction of kyphosis 1cm, muscular power has increased, breath has improved infrastructure is an increase in the thoracic elasticity with 0,5cm, and the mobility of the column has visible improved;
- G.D. diagnosed with thoracic kyphosis 6 cm, has been registered in a correction of kyphosis 1cm, muscular power has increased, breath has improved infrastructure is an increase in the thoracic elasticity with 2cm and the mobility of the column has visible improved;
- S.D. diagnosed with thoracic kyphosis 4 cm has been registered a correction of kyphosis 1cm, muscular power has increased, breath has improved infrastructure is an increase in the thoracic elasticity with 2cm and the mobility of the column has visible improved;

It should be noted that all subjects have been formed a pattern of and correct position both during the motion and rest.

Conclusions:

The Scientific issue tadded in this research consists in the institutional capacity of the theoretical and experimental work of specific models swimming gymnastics and with a view to their application in the process of correction of the kyphotic attitudes and physical kyphosis, which led to the optimization of the health status of children 12-14 years.

On the basis of the ongoing scientific information obtained in the course of the experiment training courses we can bring out the following practical and methodical recommendations:

- in order to detect the health problems of 12-14-year children it is necessary to carry out investigations, but also through the full medical examination and investigation.

The program should be drawn up and implemented on the basis of the health problems of children and the process of achieving this program should be accompanied at all times by the specialists in the field of physical culture.

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Study on the Development of Coordination in Primary School Cycle Pupils (4th Grade)

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Abstract

The movement degree of coordination, the ease with which these movements are performed and how well they are performed in various situations are the purposes of this work. In the elaboration process of the specially designed model for the development of the coordination capacities, a certain succession in the application of the operating systems was taken into account, both in the developed links and in the lessons taken as a whole. Initially, the operating systems consist of simple, segmented or global exercises. They should not stress or writhe the subjects, so these are known to them. Their practice will be done without time pressure, the workload is small, the intensity is medium, and the complexity is low. The complexity of the exercises and the rhythm of execution will gradually be increased and in the end, by the verified control tests, we can observe the evolution of the pupils from the two groups.

*Keywords: **a**ccuracy; precision; coordinating capacity*

Introduction

In the specialized literature, the meaning of the term "coordination" is synonymous with proficiency, skill, accuracy, delicacy, finesse, grace, balance, all of these representing the ability of an individual to learn and to quickly combine new movements, to perform harmonious and efficient moves in a given time with low energy consumption.

Its multiple definitions and treatment have been determined by its importance in the execution of the exercises and motive acts, starting with the simplest and finishing with the most complex ones, but also by the fact that those dealing with these aspects belong to different fields of activity: physic education and sports, pedagogy, psychology, physiology, medicine, biochemistry, biomechanics, etc.

The degree of coordination of the movement is influenced by the level of mastery of motive skills, their level of automation, but also by disrupting factors or by the intricate characteristics of the environment.

So I will present this branch from the training of an athlete, branch which is at least as important as all other types of training.

Beyond the individual's dependency to perform at a certain level, different movements, depending on his motive development, there is the possibility of differentiating the physical movement from various qualitative parameters, which referrs to the expressiveness, eloquence or relevance of the psycho-physiological features specific to the individual. In other words, certain physical manifestations are, as is natural, the product and expression of the personality structure of the individual, an illustration of his self in various existential hypostases. So, physical movements express certain personality features, as well as certain momentary affectivity states, specific to the individual.

Research hypotheses:

In the current study we started from the following working hypotheses:

- Effectively using the specific conditions of the "Lopătari" School, is there the possibility of developing coordination (in all its forms) in the physical education lessons?
- The methods and the proposed means will influence the development of the coordination of 4th grade pupils.
- To what extent will 4th grade pupils respond to the coordination actions targeted by the proposed experimental program?

Research objectives:

- to emphasize that the methods and means used in the lessons will contribute to the development of the coordination;
- to show that there is a degree of independence between the development of the co-ordination ratios and the effectiveness of basic and specific motive skills of some sporting branches în the structure of which coordination is one of the basic parameters;
- to select the means which can be used in the lessons taking into account the imposed specialties;

- to systematize and set these means in order to increase their efficiency in the lesson;

Research tasks:

- Identification of the peculiarities of the motive skills development at post-puberty age;
- Setting samples for research;
- Determination of the test set;
- Knowing the initial level of coordination development by applying the test set;
- Selection and application of operating systems from athletics that influence the development of motive quality - coordination;
- Tracking the effects of the applied exercises, in terms of coordination development;
- Knowing the final level of coordination development by applying the test set;
- Making charts, data statistical processing and interpretation;
- Reaching conclusions.

Stages of research:

The research was taking place through several stages:

- experimental finding;
- formative experiment.
- establishment of experimental and control groups;
- designing the motive systems;
- performing the initial tests;
- systematization of the coordination specific exercise groups according to the assumptions formulated for the formative experiment;
- identification of didactic strategies and achieving a semestrial curriculum plan, with evaluation of didactic strategies and working algorithms;
- identification of limiting factors and reformulation of some algorithms at the training level of the experimental group;
- performing the final tests;
- statistical processing and interpretation of the obtained data;
- completion of the paper and presentation in it's final form.

Research methods used

For this research, I used the following research methods:

- Method of bibliographic study
- Observation method
- Experimental method
- The statistical – mathematical method
- Arithmetic average
- Standard deviation
- Average error
- „t" student criterion
- Tests method

Research organization and development

The experiment was carried out at the Secondary School No. 26 in Galaţi, between October 1st, 2015 and June 1st, 2016. Our research was carried out on two samples as follows: experimental group - 26 pupils (16 boys + 10 girls) fourth grade A, control group - 26 pupils (15 boys 11 girls) fourth grade B.

I mention that the subjects were not the result of a prior selection, but they constituted the whole classroom; fourth grade A (experimental group) and fourth grade B (witness, control group). Therefore, the subjects not being intentionally selected, they are representative for the Romanian mass education, and this research can be useful both for teachers and coaches working in this field, for the future teachers and coaches, as well as for researchers in the field of education and sports (mass or not).

Material conditions: The sports facilities consist of: gym, handball field, throwing sector, jumping sector.

Research progress:

In the elaboration of the specially designed model for the development of the coordination capacities it has been taken into account a certain succession in the application of the actuation systems both within the developed links and the lessons as a whole.

In the first phase, the operating systems consist in simple, segmented or global exercises. They should not stress or writhe the subjects, so they are known to them. Their practice will be done without time pressure, the workload is small, the intensity is medium, and the complexity is low. These operating systems practice

will be done individually, by group, team or frontal, and the time allocated will not exceed 20% of the total time dedicated to the thematic link. The more automation of these drive systems, the greater the number of subjects involved in simultaneous exercise.

The second phase involves the reprise of the operating systems from the previous stage, but their practice will be done with a time limit. The time allocated to this phase does not exceed also 20% of the total time involved for this link, while the volume, intensity and complexity remains at the level of the first stage. The number of subjects involved in simultaneous practice is directly proportional to the degree of mastery of that exercise.

The third phase requires changing the internal structure of the exercise, and / or changing the external exercise conditions. It is not recommended that changes to be approached simultaneously from the beginning. First, it is recommended that changes to be made to the internal structure of the movement and then to the exercise conditions. Complexity will be increased compared to the previous phases. The number of pupils enrolled in the simultaneous exercise is small at first, but will be later increased. Up to 60% of the allocated time budget for the thematic links can be assigned.

The fourth phase involves the chaining of several motive acts / actions separately automated and the constraints of execution conditions. Complexity is increased in this case, and the time allowed can reach up to 60% of the time allocated to that link. Practice will be done individually or by groups of pupils as small as possible.

The fifth and last phase involves the resuming of the fourth phase, but under temporal pressure. The complexity is very high and the allocated time can reach up to 60% of the time allocated to that link. Practicing can end up with individualization.

It is contraindicated to use these last two phases without going through the previous phases. One aspect to consider in terms of coordination is that genetic predisposition plays an important role. Less well-coordinated children are likely to never show the tendencies of naturally co-ordinated children, regardless of training. That does not mean that improvements can not be made - on the contrary. It is important to note that the development of coordination is a process that includes years of exposure and is based on diversity and adaptability. Subjects can not be limited to specific stimulus at an early age, expecting them to become elite athletes. Regardless of the complexity of the movement, coordination is the aptitude that is educated by repeating the simple or complex exercises, first slowly and then increasing the speed of execution, on the background of internal and external changes of the exercises.

In conclusion, for the other capacities of the individual, a series of development methods have been established, but for the education of coordination we cannot say that we have a specific method.

Analyzing the results of the motive performance of the experiment, we deduced that in the initial tests there are no significant differences between the control and the experiment group or the girls and boys, demonstrating that they are homogeneous. In the final tests there are significant differences between the performances of the two groups.

The content of the experiment

In the experimental class, during the 2015-2016 school year, it was intended that in every lesson of physical education, at various moments, to work for the development of coordination capacities. For this purpose, several programming and didactic activities were developed and carried out to ensure the fulfillment of the frame and reference competences of the didactic activities carried out with the pupils from this class: the chart of the annual layout of the learning units, the semestrial calendar plan; didactic projects; proposed operational models for the achievement of the training objectives.

Establishment of the proposed simplified prospective training model for the experimental class: For the development of each component of the coordinating capacities, we used the practicing method, under standard and varied conditions adapted by us to concrete conditions in the school. Through the content of elaborated means we tried to solve the following:

a) The development of the ability to combine and coupling the movements by: progressive, partial or total coupling of two known skills, with the accentuation of certain sequences; segmental coordination between the lower and upper limbs; asymmetric exercises; combining skills that require different resistances.

b) Development of the space-temporal orientation capacity by: moving in spaces and on predetermined distances; the use of spaces different from standard ones; the use of unusual positions, situations and movements.

c) Developing the capacity of kinesthetic differentiation by: using exercises requiring a progressive increase in precision level or in pushing (jumps at different heights and distances); kicks of the ball from different distances and positions;

d) The development of balance capacity by: using exercises that require body balance or devices controlled by pupils; using elementary acrobatic exercises.

e) The development of the motive reaction capacity by: using exercises that require reactions to visual, acoustic, tactile, kinesthetic stimulus in a progressive-complex form.
f) The development of the ability to transform movements: create playful situations in which unforeseen action changes (feints) are required; making less known routes, with variations in the environment.
g) The development of rhythmic capacity (sense of rhythm): the use of rhythm variations in practicing; restoring some movement frequencies; acoustic accentuations of execution rhythms.

Analyzing the results of the motive performance in the experiment, we deduced that in the initial tests there are no significant differences between the control and the experimental group or the girls and boys, demonstrating that they are homogeneous. In the final tests there are significant differences between the performances of the two groups.

Control samples

Appreciation and adjustment of dynamic and spatial-temporal parameters

- PR1- Jump at marking (cm)
- PR2- Throwing the ball into the target (points)
- PR3- Balance on the bench (sec)
- PR4- The dynamic balance test (cm)
- PR5- Rear balance (points)
- PR6- Sprint in proposed rhythm (sec)
- PR7- ",In square" test (sec)
- PR8- Distance appraisal test (cm)
- PR9- Commutation (sec)
- PR10- The hexagon (sec)
- PR11- "Matorin" test (grd)

Interpretation of test results

Table 1. Boys

Crt. Nr.	*Tests and measurements*	*CONTROL GROUP*				*EXPERIMENT GROUP*			
		TI	*TF*	*t*	*p*	*TI*	*TF*	*t*	*p*
1	**Jump at marking (cm)**	**5.84± 0.24**	**5.84±0.09**	**0.77**	**<0.05**	**6.00±0.11**	**5.11±0.16**	**3.64**	**>0.01**
2	**Throwing the ball into the target (points)**	**5.63± 0.46**	**6.38±1.16**	**1.16**	**<0.05**	**5.88±0.34**	**7.38±0.17**	**3.9**	**>0.01**
3	**Balance on the bench (sec)**	**14,75 ±0,17**	**14.5±0.11**	**1.21**	**<0.05**	**14.34±0.4**	**12.94±0.23**	**4.32**	**>0.01**
4	**The dynamic balance test (cm)**	**45.88 ±0.29**	**48.38±1.95**	**1.27**	**<0.05**	**46.5±0.34**	**43.81±0.52**	**4,33**	**>0.01**
5	**Rear balance (pct)**	**46,5± 0.46**	**48.31±0.69**	**2.19**	**>0.05**	**47±0.8**	**43.25±0.46**	**4.05**	**>0,01**
6	**Sprint in proposed rhythm (sec)**	**0.88± 0.11**	**0.99±0.11**	**0.69**	**<0.05**	**0.93±0.07**	**0.74±0.05**	**2.27**	**<0.01**
7	**„In square" test (sec)**	**9.94± 0.4**	**10.00±0.40**	**0.11**	**<0.05**	**9.94±0.4**	**8.13±0.11**	**4.34**	**>0.01**
8	**Distance appraisal test (cm)**	**104,8 8±1.4 9**	**99.25±1.84**	**2.38**	**>0,05**	**104.5±0.92**	**91.00±2.64**	**4.83**	**>0.01**

9	**Commutation (sec)**	**14,00 ±0.46**	**13.75±0.34**	**0.44**	**<0.05**	**14.13±0.57**	**12.38±0.34**	**2.61**	**<0.01**
10	**The hexagon (sec)**	**22,38 ±0.57**	**22.88±0.56**	**0.56**	**<0.05**	**22±0.69**	**20.56±0.46**	**1.74**	**<0.01**
11	**Matorin test (grd)**	**2.93, 75±2. 87**	**299.38±3.4 4**	**1.25**	**<0.05**	**286.88±5,7 4**	**305.63±3,44**	**2.8**	**<0.01**

Table 2. Girls

Nr. Crt	***Tests and measurements***	***GRUPA CONTROL***				***GRUPA EXPERIMENT***			
		TI	***TF***	***t***	***p***	***TI***	***TF***	***t***	***p***
1	**Jump at marking (cm)**	**6.76± 0.26**	**7.21±0.17**	**1.45**	**<0.05**	**5.91±0.09**	**5.11±0.16**	**4.35**	**>0.01**
2	**Throwing the ball into the target (points)**	**6.25± 0.34**	**6±0.46**	**0.44**	**<0.05**	**6.50±0.46**	**7.38±0.17**	**2.88**	**<0.01**
3	**Balance on the bench (sec)**	**14.85 ±0.46**	**16.06±2.02**	**2.02**	**<0.05**	**16.31±0.34**	**17.88±0.19**	**3.49**	**>0.01**
4	**The dynamic balance test (cm)**	**46.94 ±0.29**	**42.88±0.46**	**7.5**	**>0.05**	**54.5±0.8**	**58.06±0.52**	**3.73**	**>0.01**
5	**Rear balance (pct)**	**48.00 ±0.46**	**53.25±0.57**	**7.14**	**>0.05**	**55.25±0.57**	**58.63±0.8**	**3.42**	**>0.01**
6	**Sprint in proposed rhythm (sec)**	**1.66± 0.04**	**1.26±0.16**	**0.91**	**<0.05**	**1.16±0.07**	**1.3±0.06**	**1.53**	**<0.01**
7	**„In square" test (sec)**	**12.25 ±0.46**	**10.19±0.40**	**3.38**	**<0.05**	**10.06±0.52**	**12.88±0.57**	**3.64**	**>0.01**
8	**Distance appraisal test (cm)**	**1221. 38±1. 15**	**124.75±1.15**	**2.08**	**<0.05**	**123.75±2.87**	**132.5±0.8**	**2.94**	**<0.01**
9	**Commutation (sec)**	**10,00 ±0.46**	**9.63±0.34**	**0,65**	**<0.05**	**9.63±0.34**	**9.69±0.29**	**0.14**	**<0.01**
10	**The hexagon (sec)**	**19.63 ±0,57**	**19.75±0.34**	**0,19**	**<0.05**	**19.75±0,34**	**20.56±0.46**	**1.42**	**<0.01**
11	**Matorin test (grd)**	**310± 2.87**	**310.13±3.44**	**0,03**	**<0.05**	**314.88±2.898**	**301.88±3.44**	**2,85**	**<0.01**

Analyzing the results of the motive performance from the experiment, we deduced that in the initial tests there are no significant differences between the control and the experimental groups or the boys and the girls, which shows that they are homogeneous, but the final tests show significant differences between the performance of the experimental class and the control class.

It is noteworthy that for the coordinating capacity - coordination of the movements, are achieved improvements of the averages for both groups of subjects, only that in case of the experimental group, the progress achieved is superior for each of the three tests.

Regarding the development of coordination capacities, the experimental group was clearly superior to the control one. In the case of final results, significantly different results are registered compared to the initial tests between the control and the experiment group of girls. In the case of results obtained by boys, statistically insignificant results are obtained only for samples 5 and 6 where P> 0.05 for the control group. Within this group the rest of the results obtained are significant and P <0.01 for samples 2, 4 and 11 and P <0.001 for samples 1, 3, 7, 8 and 9. The situation is completely different for the experimental group where the results obtained at all 11 samples have a high degree of statistical significance, and P <0.001.

Thus, the application of the experimental curriculum in the physical education lessons contributed substantially to the development of the coordinating capacities of the pupils of the experimental group.

Comparing the progress made in a year of experimental and classical work, we can see that pupils from the class under experimental work, with specific means of developing coordinating capacities on modern methods adapted to the training, better accomplish the competences proposed by the experiment and the curriculum.

Following the presentation of statistically mathematical processed data and comparing the two ways of achieving them, by experimental and control groups, we consider that the interest of the pupils regarding the themes for education of the motive skills, the motor density, the frequency and the results on the evaluated samples increased significantly In the experimental class, compared to the control class, where the progress was reduced; under these conditions, it can be stated as a partial conclusion, the fulfillment of the competences (objectives) proposed in the research and the confirmation of the working hypothesis.

From the achieved observations, the limiting of the frontal activity creates the conditions for a high autonomy of the pupils in the lesson, requiring with certain limits the ability to self-organize, self-control and self-evaluation, together with differentiated treatment, offering superior transfer potential of those assimilated in the later independent activity, this aspect being one of the goals of school physical education.

Due to the fact that the experimental curriculum included polyvalent motive systems, this aspect favored the simultaneous education of motive skills. As an example, the exercises used for the development of coordinating capabilities also allowed influences on speed, strength, muscle strength, etc.

Following the modeling of the educational instructive process of physical education and the comparison of the initial results with the final results, the conducted measurements confirm that the motive performance and the coordination capacities reach significantly higher values within the group experiment towards the control group.

Conclusions:

- in the case of motive performance, the results confirm that during this period the subjects of both groups are in a stage of accumulation, but the experimental group records a higher level of significance for all indicators, mainly due to the positive transfer of the motive qualities, in this case of the coordinating capacities;
- at the development of coordination capabilities chapter, statistically significant results are recorded for both groups, which explains the sensitive period that the subjects cross over.

The research has demonstrated that the rational management of the methodical procedures and their means in the physical education lesson, by using the proposed theoretical model, determines a superior level of coordination manifestation and, implicitly, of the motive performance, leading to better achievement of the lessons objectives .

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