ISSN 1818-9210

PEDAGOGICS PSYCHOLOGY

Medical-Biological Problems of Physical Training and Sports

№10/2013

PEDAGOGICS, PSYCHOLOGY, MEDICAL-BIOLOGICAL PROBLEMS OF PHYSICAL TRAINING AND SPORTS

2013
10

Key title: Pedagogika, psihologia ta mediko-biologicni problemi fizicnogo vihovanna i sportu

Abbreviated key title: Pedagog. psihol. med.-biol. probl. fiz. vihov. sportu
ISSN 1818-9172 (Print),
ISSN 1818-9210 (Online).

Founders: Kharkov Regional Branch of National Olympic Committee of Ukraine. Publishing House KSADA.

Journal is ratified the Higher Attestation Commission of Ukraine: (pedagogical sciences, physical education and sport) Decision of Presidium 1-05/3 from 08.07.2009.

Journal is reflected in databases:

Academic Journals Database
http://journaldatabase.org

CORE
http://core.kmi.open.ac.uk

DOAJ (Directory of Open Access Journals)
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Electronic Library of Russia
http://elibrary.ru

Certificate to registration:
KB 15370-3942PR. 06.07.2009.

Frequency - 1 number in a month.

Address of editorial office:
Box 11135, Kharkov-68, 61068, Ukraine,

Tel. 38-057-720-22-89; fax: 38-057-706-15-60

http://www.sportpedagogy.org.ua

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IMPROVING ATHLETIC PERFORMANCE OF BASKETBALL STUDENT TEAM WITH THE CLASSICAL YOGA EXERCISES

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Annotation. The results of the study of the effect of yoga exercises on the preparedness of the student basketball team. The study involved 25 athletes aged 17-20 years. The experimental group consisted of 13 players dealt in accordance with the proposed set of yoga exercises, which were used in the introductory, preparatory and final part. In the main part of the problem solved basketball directions. Classes in both groups were conducted 4 times a week for 2 hours for 9 months. Found that the use of exercises yoga pose direct impact on the physical indicators of preparedness players. Found an increase in the level of indicators: vertical jump, speed endurance, speed, retention of equilibrium (balance), free throw, with the movement, three-point shots, free throws, tactical execution.
Keywords: basketball, college students, yoga, training, physical.

Introduction

In any kind of sports there is a lot of basic variants of sport training (physical, technical, tactic, integral and so on). There appears a question to what extent these kinds of sportsmen's of team's training can be effective with the help of yoga.

Yoga exercises and methods can directly influence on optimization of all kinds of sportsman's or team's training 1]. Distinctive feature of yoga, which is of great interest for sport specialists [1, 2, 6, 10], is detail development of sportsmen's perfection techniques for mastering of muscular relaxation art, techniques of reasonable breathing and concentration of attention.

It is important for sportsman and his coach to understand what is to be taken from ancient science about self development for increasing of sport results and improvement of training process's quality, because yoga exercises can be used in sport practice in rather different way.

As domestic and foreign specialists think [3, 7, 8, 10-12], yoga can give increasing of strength, endurance, pure consciousness, calmness and more sound sleep to basketball players. Some researches [1, 2, 6] specify, that regular practice of different yoga postures (asanas) as well as breathing exercises (pranayama) help to strengthen muscles, develop qualitatively new power and improve muscular elasticity and mass. As a result strength and endurance of organism in general are improved, but not only of separate muscular groups and it renders additional effectiveness in trainings and competitions.

For basketball players it is very important to control body. Owing to yoga practice, one can develop excellent balance, which facilitates better control of movements, its position in space and, in its turn, improves technique and coordination of movements [1].

One of the most known pluses of yoga is development of profound and steady flexibility that is very important for basketball. Good flexibility helps to avoid traumas, increases amplitude of movements (i.e. improves technique), makes muscular work more energy saving and effective owing to increased muscular elasticity [3, 7].

Thus, it is assumed that physical training for maintaining optimal physical condition, technical training for improvement of sportsmanship and tactic training, oriented on development of strategic and tactic skills can be improved with the help of yoga exercises, which, at the same time, harmoniously influence on mind and body.

The present work makes urgent the problem of yoga exercises' introduction in training process of student team's basketball players, while study of yoga influence on sport preparedness would help to solve this problem.

Purpose, tasks of the work, material and methods

The purpose of the research is to determine influence of yoga exercise on preparedness of student team's basketball players.

Methods and organization of the research. In the research we used such methods as study,, analysis and generalization of literature and documentation, dealing with the problem of our research, pedagogic observation, testing of physical and technical-tactic preparedness.

The research was organized on the base of National University of bio-resources and nature utilization of Ukraine. The research involved 25 players of student's combined basketball team, of 17-20 years old age. For determination of preparedness level of the players we used commonly known test exercises (see table 1).

Table 1

Testing program for basketball players

№	Preparedness	Test exercises		Unit of measurement
1	Physical	T1	No-step Vertical Jump)	cm
		T2	Shuttle run 2x40 s	m
		T3	3/4 Court sprint, 20 м	sec

doi: 10.6084/m9.figshare.775314

		T4	Laneagility test)	sec
		T5	Curl	Quantity of repetitions
		T6	Flexibility (Sit and reach test)	cm
		T7	Standing Balance Test	sec
2	Technical-tactic	T8	Free throws per 1 min.	Trials/hits
		T9	Throws in movements per 1 min.	Trials/hits
		T10	3 scores throws per 1 min.	Trials/hits
		T11	Penalty throws per 1 min.	Trials/hits
		T12	Fulfillment of tactic task in game (per 10 min)	Trials/ correct fulfillment

At first stage of our research we tested basketball players for their physical and technical-tactic preparedness. Results are presented in table 2.

By the results of preliminary study of basketball players' preparedness level we formed two identical groups (determined differences were not statistically significant $P > 0.05$).

Table 2

Indicators of basketball readiness for experiment

Tests	Control group			Experimental group			P
	$\bar{x}$	S	Level	$\bar{x}$	S		
Test №1, cm	61,4	0.6	Middle	62	0.7	Middle	>0.05
Test №2, cm	375.3	0.2	Low	377	0.5	Low	>0.05
Test №3, sec	3.32	0.2	Low	3.2	0.2	Low	>0.05
Тест №4, sec	13.2	0.6	Low	13.5	0.4	Low	>0.05
Test №5, rpt	45.1	1.4	Middle	44.8	0.8	Middle	>0.05
Test №6, cm	15.3	0.3	Middle	15	0.4	Middle	>0.05
Test №7, sec	15.8	0.7	Low	16.3	0.7	Low	>0.05
Test №8, T/H	15/11	1.2	Middle	15/10	1.0	Middle	>0.05
Test №9, T/H	16/10	0.3	Middle	15/11	0.4	Middle	>0.05
Test №10, T/H	25/15	0.5	Low	25/14	0.7	Low	>0.05
Test №11, T/H	16/13	0.4	Middle	16/12	0.4	Middle	>0.05
Test №12, T/C f-t T/H	5/1	0.3	Low	4/1	0.2	Low	>0.05

Control group, 12 players, was trained as per requirements of classical training program for basketball team. Trainings consisted of introductory, main and final parts. There were used commonly known exercises, which corresponded to task of every part [4, 5, 9].

Experimental group, 13 players, was trained as per offered complex of yoga exercises, which were used in introductory and final parts. In main part tasks of basketball orientation were solved. Trainings in both groups were conducted 4 times a week, 2 hour every training, during 9 weeks.

Considering specificity of basketball there were proposed the following complexes of yoga exercises:

1. **Complex of yoga exercises for introductory and final parts;**

- Crossed-legged posture and meditation during 3-5 minutes;
- Forward bend from sitting position;
- "cobra", "locusts", "bow", "plough";
- Turn;
- Shoulder stand;
- "fish";
- Abdomen draw-in;
- Meditation in sitting position with breathing exercises, "immovable posture";
- Relaxation posture;
- Re-activation, including several deep inhales, straightening in sitting or standing position, arm exercises.

2. **Asanas postures of preparatory part for balance and concentration:**

- "Tree" posture;
- "dancing posture:
- "balance";
- "crow";
- "T" posture;
- Bending knees posture;
- Tip-toes posture;
- Legs' stretching standing;
- "eagle" posture;
- "triangle" posture;
- "Dog" posture with head downward;

- "Crescent" posture

With selection of yoga exercises, recommendations of A. Kolger were considered [1].

Results of research and its discussion

The carried out research permitted to obtain substantial experimental data. Results of influence of classical basketball exercises on sport indicators of control group players are given in table 3.

Table 3

Results of testing of control group basketball players

Tests	Results of testing						P
	Before experiment			After experiment			
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	61.4	0.6	Middle	64	0.5	High	<0.05
Test №2, cm	375.3	0.2	Low	388	0.8	Middle	<0.05
Test №3, sec	3.32	0.2	Low	3.04	0.3	Middle	<0.05
Тест №4, sec	13.2	0.6	Low	13.0	0.4	Low	>0.05
Test №5, rpt	45.1	1.4	Middle	48	1.1	Middle	>0.05
Test №6, cm	15.3	0.3	Middle	16.1	0.6	Middle	>0.05
Test №7, sec	15.8	0.7	Low	21.3	0.4	Middle	<0.05
Test №8, T/H	15/11	1.2	Middle	15/13	0.9	Above middle	<0.05
Test №9, T/H	16/10	0.3	Middle	16/14	0.4	Above middle	<0.05
Test №10, T/H	25/15	0.5	Low	25/17	0.7	Middle	<0.05
Test №11, T/H	16/13	0.4	Middle	16/15	0.4	Above middle	<0.05
Test №12, T/C f-t T/H	5/1	0.3	Low	7/3	0.2	Middle	<0.05

Comparing results of testing initial and final stages of control group we noticed that from indicators of 12 test exercises, not all were changed. Indicators of vertical jump, speed endurance, quickness, balance, free throws, throws in movement, 3-scores throws, penalty throws and fulfillment of tactic task – improved ($p < 0.05$). There were no changes in indicators, which characterize movements in defense, power endurance of abdomen muscles, flexibility. In this case we can conclude that using of traditional exercises at trainings does not solve all required tasks.

In experimental group all indicators of all test exercises improved (see table 4) ($p < 0.05$).

Table 4

Results of testing of control group basketball players

Tests	Results of testing						P
	Before experiment			After experiment			
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	62	0.7	Middle	65	0.5	High	<0.05
Test №2, cm	377	0.5	Low	407	1.2	High	<0.05
Test №3, sec	3.2	0.2	Low	3.01	0.3	Middle	<0.05
Тест №4, sec	13.5	0.4	Low	10.9	0.4	Middle	<0.05
Test №5, rpt	44.8	0.8	Middle	54.7	0.9	High	<0.05
Test №6, cm	15	0.4	Middle	21.3	0.6	High	<0.05
Test №7, sec	16.3	0.7	Low	51.6	0.4	High	<0.05
Test №8, T/H	15/10	1.0	Middle	15/13	0.5	Above middle	<0.05
Test №9, T/H	15/11	0.4	Middle	17/15	0.7	High	<0.05
Test №10, T/H	25/14	0.7	Low	25/19	0.9	Middle	<0.05
Test №11, T/H	16/12	0.4	Middle	17/15	0.4	Above middle	<0.05
Test №12, T/C f-t T/H	4/1	0.2	Low	7/4	0.2	Middle	<0.05

Comparing results of control and experimental groups we can note positive changes of the studied indicators in both groups (see table 5). It proves effectiveness of traditional exercises in basketball (control group) and additional yoga exercises (experimental group. However, it should be noted that indicators, obtained in experimental group are higher to some extent than those, registered in control group, and results of such test exercises as speed endurance, movements in defense, raising from sitting position (power endurance of abdomen muscles), flexibility and balance are confidently different ($p < 0.05$).

Table 5

Indicators of basketball players' preparedness after experiment

Tests	Control group			Experimental group			P
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	64	0.5	High	65	0.5	High	>0.05
Test №2, cm	388	0.8	Middle	407	1.2	High	<0.05
Test №3, sec	3.04	0.3	Middle	3.01	0.3	Middle	>0.05
Тест №4, sec	13.0	0.4	Low	10.9	0.4	Middle	<0.05
Test №5, rpt	48	1.1	Middle	54.7	0.9	High	<0.05
Test №6, cm	16.1	0.6	Middle	21,3	0.6	High	<0.05

Test №7, sec	21.3	0.4	Middle	51.6	0.4	High	<0.05
Test №8, T/H	15/13	0.9	Above middle	15/13	0.5	Above middle	>0.05
Test №9, T/H	16/14	0.4	Above middle	17/15	0.7	High	>0.05
Test №10, T/H	25/17	0.7	Middle	25/19	0.9	Middle	>0.05
Test №11, T/H	16/15	0.4	Вище серед.	17/15	0.4	Above middle	>0.05
Test №12, T/C f-t T/H	7/3	0.2	Middle	7/4	0.2	Middle	>0.05

Conclusions:

Summarizing the above presented we may state that the used yoga exercises directly influence not on all indicators of basketball players' preparedness, but only on physical, especially on flexibility and balance. Alongside with it, we can say that yoga exercises can be widely used in training process of basketball players that was proved by improving of indicators of experimental group players in comparison with control group, where yoga exercises were not applied. However, for better effect it is necessary to select exercises, which would facilitate certain tasks of training process.

Thus, *perspective* direction of our researches is selection of yoga exercises, capable to improvement of ball throws from the spot and in movement, accuracy of passes, dribbling.

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Cite this article as: Brynzak S.S., Burko S.V. Improving athletic performance of basketball student team with the classical yoga exercises. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 3-6. doi:10.6084/m9.figshare.775314

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 25.06.2013
Published: 30.09.2013

CURRENT TRENDS IN THE HEALTH OF CHILDREN AND YOUNG PEOPLE IN LEARNING ENVIRONMENTS

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Annotation.. Determined by the dynamics in the health of students and medical teams consisting of physical training in secondary schools. Analyzed the records in-depth inspection of magazines and leaflets health of 32484 schoolchildren of Chernigov for the period 2008-2012. Established a steady trend to a significant deterioration in the health of schoolchildren. A decline in the number of healthy children with the increase in the period of study from 1 to 11. Revealed negative trend decline in the health of children in the main medical group. Shows a tendency to increase the number of children belonging to the preparatory and special medical groups. It is recommended to use a recreational form of physical education and health educational use of technology. It is recommended to include in the training sessions: gymnastics, gymnastic minutes during lessons, exercise, and outdoor games on the elongated recess and daily physical education classes in the extended day, independent study after school, sports and mass work in the community.
Keywords: health, medical groups, physical education, exercise.

Introduction

Preservation of health, its formation on all stages of human development is a strategic task of any state. Constitution of Ukraine recognizes right for health as one of main civil rights and human life protection is a duty of Ukrainian state. Important strategic direction of comprehensive school is solution of problems of complex realization, health related function of school education, ensuring of pupils physical and mental health [2, 4].

Monitoring of all aspects of pupils' health during all period of studying at comprehensive educational establishment is rather important for formation of pupils' health culture. Realization of continuous research process of disciples' health will permit to see its dynamics and, on this basis, to realize individual approach in selecting the most favorable health related technologies, that is very important for building of individual health improvement system of every pupil [1, 6, 8, 9, 11].

Nowadays, there appear a lot of scientific researches of domestic scientists (g.l. Apanasenko, L.V. Volkov, M.S. Goncharenko, V.P. Goraschuk, O.D. Dubogay, M.O, Nosko, L.P. Suschenko, I,V, Potashniul) as well as Russian specialists (R.I. Aizman, G.K. Zaytsev, M.K. Kolesnikova, V.V. Kolbanov, G.A. Kurayev), which deal with health problems in education system;, and its is of professional interest not only for medical specialists but also for representatives of pedagogic, psychology and other social sciences.

The present work has been carried out as per direction of state-financed topic of ChNPU, named after T.G. Shevchenko: "Pedagogic ways of healthy life style's formation of different age groups' pupils" (№0112U001072) and is a component of complex topic of department of higher education's pedagogic and psychology of Institute of higher education (NAPS of Ukraine) "Psychological-pedagogic projecting of personality-oriented educational technologies at higher educational establishments" (state registration №0103U000963).

Purpose, tasks of the work, material and methods

The purpose of the work is to determine trends in dynamics of health state of special health groups' pupils for physical culture trainings at educational establishments. In the research, data of medical and academic documentation of 32 484 pupils of Chernigov comprehensive 1-11 forms' pupils for period 2008-2012 were analyzed.

Results of the research

Problem of school physical education always attract very careful attention of different profile specialists. Main form of school physical education are physical culture lessons. But during recent decades physical culture lessons have significantly changed and it was connected with a number of reasons. The main of these reasons is worsening of children's health. Most of children are not able to fulfill norms and meet requirements, envisaged by physical culture complex program [5, 7].

So, differential approach to children in compliance with their individual features is an effective method of educational process's improvement at physical culture lessons in school. Main task of differential training at physical culture lesson is to ensure maximally productive activity of every pupil, to provide optimal motion regime, to more completely mobilize their abilities. Consideration of puberty stages, physical condition, character of adaptation to muscular activity permits to achieve higher individualization in physical education of school age children. Collective of class unites children of different physical condition and motion preparedness that is why it is not good to make equal requirement to all children. It is necessary to reveal reasons of weak indicators of motion preparedness and find effective ways and means for improvement of them [3, 10].

Studying of children's and youth's state of health and rational distribution of them in special health groups are of decisive importance for organization of pupils' physical education process, for application of health related technologies, carrying out of health related measures and for creation of optimal conditions for their studying and education.

doi: 10.6084/m9.figshare.775315

At Chernigiv national pedagogic university, named after T.G. Shevchenko, in the frames of scientific-research project "Pedagogic ways of healthy life style's formation of different age groups' pupils" there was carried out monitoring research of health state and distribution of 1-11 forms pupils into special health groups at comprehensive schools of Chernigiv for period 2008-2012. The data of medical and academic documentation of 32 484 pupils of Chernigiv comprehensive 1-11 forms' pupils for the mentioned period were analyzed.

Analyzing the obtained data we found steady trend to significant worsening of pupils' health in period 2008 – 2012. Dynamics of the mentioned contingent's health state is shown in fig. 1.

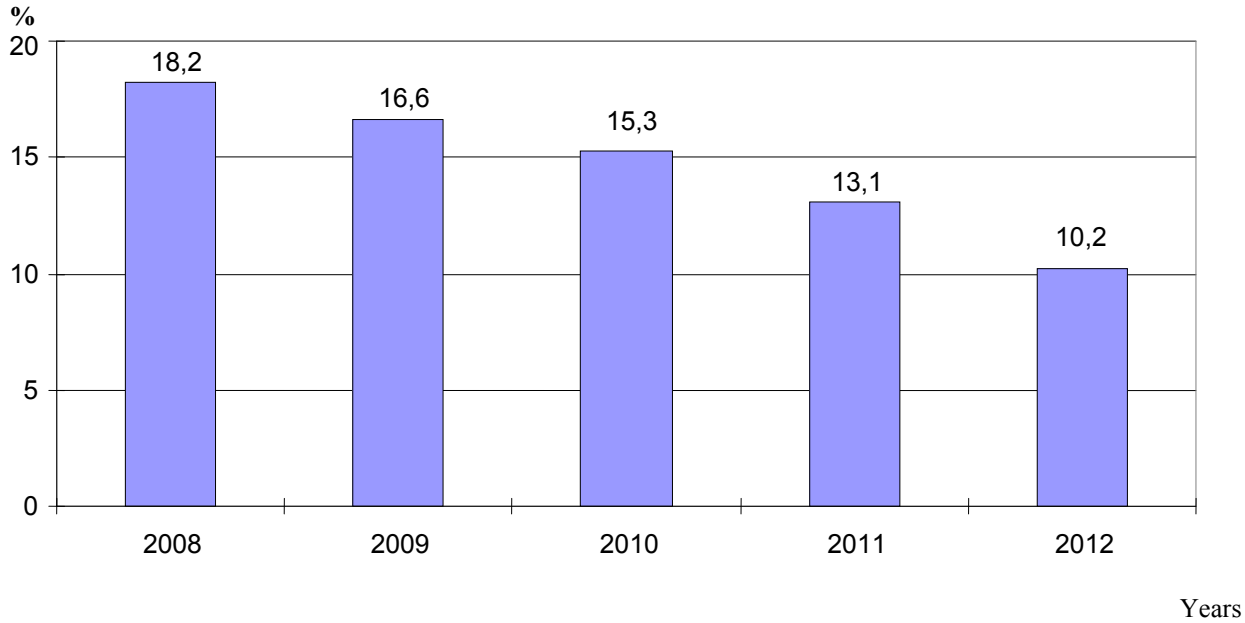

Fig. 1. Percentage of healthy pupils in period 2008-2012, %

Thus, in 2008 percentage of healthy children in comprehensive educational establishments was 18.2%, in 2009 – 16.6%; in 2010 – 15.3%; in 2011 percentage worsens up to 13.1%, and in 2012 this indicator reaches 10.2%.

Analysis of medical documentation resulted in determination of percentage correlation of healthy 1-11 forms' pupils for the mentioned period, see fig. 2.

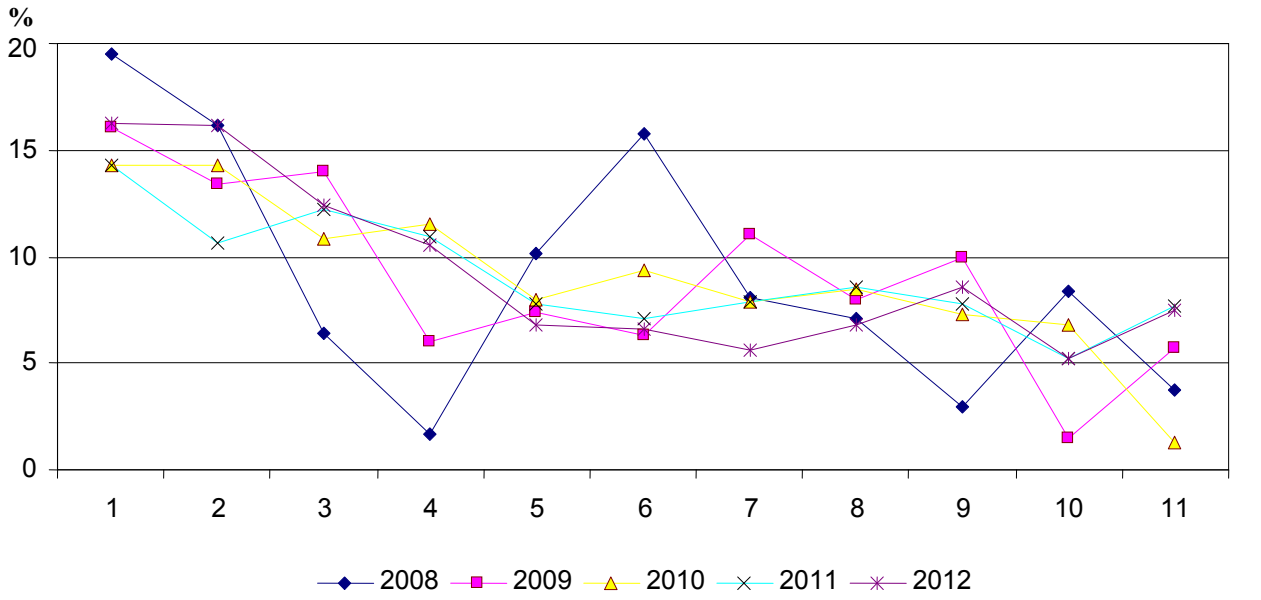

Fig.2. Percentage correlation of healthy 1-11 forms pupils for period 2008-2012, %

Thus, there has been revealed trend to reduction of quantity of healthy children with increasing of studying period, from 1st to 11th forms, videlicet: in 2008 there were 19.5%, of healthy pupils (at 11th form – only 3.7%, in 2009 the quantity of healthy children increased from 16.1% in first to 5.7% in eleventh form; in 2010this trend remains unchanged – from 1st to 11th forms - 14.3% and 1.3% accordingly; in 2011 percentage of healthy children in 1st 0 11th

forms reduced from 14. 3% to 7.7%, in 2012 – from 16.3% to 7.5%.

Also it has been state that percentage of healthy children at initial stage of studying, i.e. 1st form pupils, reduced by 3.2 % (from 19.5% to 16.3%) in period 2008-2012. The same picture was with 5-8th and 10th forms pupils, videlicet: in the mentioned period the quantity of healthy 5th form pupils reduces by 3.3% (from 10.1% to 6.8%); in 6th forms – by 9.2% (from 15.8 to 6.6%); in 7th forms – by 2.4% (from 8.1 to 5.7%,); in 8th forms – by 0.3% ; in 10th forms – by 3.2 % (from 8.4 to 5.2%). Generalizing the obtained data we had to note that with increasing of studying at school period (from 1st to 11th forms) percentage of healthy children reduces in average by 11% (from 16.1% to 5.2%).

The next stage of our work was determination of dynamics special health groups' composition for physical culture lessons for period 2008-2012 ac. years (see table 1).

Procedure of pupils' distribution in special health groups is determined by Regulations on medical-pedagogical control of pupils' physical education at comprehensive educational establishments and by Instructions on distribution of pupils in groups for physical culture trainings, which were approved by Order of Ministry of health protection of Ukraine and Ministry of education and science of Ukraine № 518/674 dt. 20.07.2009. In Cl. 1.2 of "Regulations" it is mentioned that medical-pedagogic control is necessary component of pedagogic process, which ensures timely determination of pupils functional abilities' level, adequacy of physical loads and early revelation of diseases and damages [*http://zakon2.rada.gov.ua/laws/show/z0773-09*].

Table 1

Comparative characteristic of special health groups' compositions for physical culture lessons in 2008-2012, %

Years	Groups (special health groups)			
	main	preparatory	special	Exempted of lessons
2008	77.9	14.7	5.7	1.7
2009	74.5	17.3	6.5	1.7
2010	56.1	30.2	6.7	2.4
2011	50.9	40.5	6.6	2.2
2012	47.6	43.2	7.2	2
Increment	- 30.3	28.5	1.5	0.3

As a result of data analysis it has been found that there is negative dynamics of main group's composition in period 2008-2012, videlicet: reduction of percentage of main group pupils by 30% (from 77.9% to 47.6%). Besides, there is increasing of percentage of preparatory group pupils by 28.5% (from 14.7 to 43.6%). Composition of special health groups increased, for the mentioned period, by 1.5% (from 5.7 to 7.2%); the quantity of exempted pupils increased by 0.3%.

Pupils, who are members of special health group, belong to special category. This group consists of pupils, who have significant health abnormalities of temporary or constant character, which do not prevent from studying at school but are counter indications for studying strictly by academic program. Their level of functional abilities is low or lower than middle. Physical training of such children is carried out as per special programs, considering the character and level of health abnormalities. The trainings are conducted by physical culture instructor, who gives individual tasks just at lessons [Instructions on distribution of pupils into groups for physical culture trainings" Order of Ministry of health protection of Ukraine and Ministry of education and science of Ukraine № 518/674 dt. 20.07.2009. http://zakon2.rada.gov.ua/laws/show/z0773-09.].

Special attention should be paid to comparative analysis of percentage dynamics of pupils, who are members of special health group. Dynamics of special health groups' composition in Chernigiv region is as follows: 2005 – 4.8%; 2006 – 5.2%; 2007 – 5.4%; 2008 – 5.7%; 2009 – 6.5%; 2010 – 6.7%; 2011 – 6.6%; 2012 – 7.2%.

Thus, we must state the presence of national problem of not only social and medical character but, first of all, pedagogic one – reduction of pupils' quantity in main physical culture groups and significant increasing of preparatory and special health groups' compositions in connection with worsening of pupils' health state.

Conclusions:

Results of monitoring research permit to make conclusions that in comprehensive educational establishments there exist and progressing negative trends to worsening of children's and youth's health state, videlicet: There is a trend to reduction of quantity of main group pupils with their ageing and increasing of special and preparatory groups' quantity of members. To day, in school period, it is very important to teach a child to take care of own health independently, to form child's motive for preservation of own health without medicines.

Except attending physical culture lessons, for improvement of health state and pupils' motion activity it is necessary to use recreational forms of physical education and apply health related technologies, which include gymnastic exercises before lessons, physical exercises and outdoor games during long break, every day physical culture trainings in extended day groups, independent trainings in out-of-classes, time, physical culture work at place of residence and etc.

The prospects of further researches imply formation of future physical education specialists' readiness to application of health related technologies in practical activity, that will permit to form children's and youth's positive attitude to healthy life style.

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Cite this article as: Garkusha S.V. Current trends in the health of children and young people in learning environments. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 7-11. doi:10.6084/m9.figshare.775315

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 30.07.2013
Published: 30.09.2013

PROJECTING OF PROCESS OF CULTIVATING OF OLYMPIC VALUES AND VALUABLE ORIENTATION OF STUDENTS YOUTH BY THE EASTERN COMBAT SPORTS MEANS

Gorbenko E.V., Gradusov V.O.

Annotation. The application of eastern combat sports in project of the education of the students youth in grounded. In the research took part 65 people (37 males and 28 females aged 17-25 years). It was established that process of education of olympic values and those of orientation specific in some king and needs constant perfection. It is established that application of means of the eastern combat sports raises the level of self-perfection of students youth. Revealed are the most important olympic values for students (prestige, perfection, friendship). It is established that in educational process the trends to perfection of personality and enhancing efficiency of impact of the eastern combat sports weans on inspiring olympic values and values of orientation is observed. It in established that the biggest influence in the process project of inspiring olympic values of youth belongs to the contraction of the process itself of education of students youth with in determined by efficiency, success, creative approach.
Key words: education, eastern combat sports, olympic values, valuable orientation, student youth.

Introduction

Statement of top aims and values of sports activity the sense of individual being. Closing to the top values gives possibility of students youth to see me value of its individuality. The eastern martial arts has sense and ideal ground. First of all – this is education, complex of spiritual and physical culture, grand traditions of wrestling which are always underway [6,4],that has great impact on formation of knowledge of sportsmen as personalities, which took this way.

At his ideal self-projecting personality, who takes of physical culture and sports may ground on the authority of faultless and the highest level. The research of the new valuable determines go together with rapid development of science in the field of physical culture and sports [1,2].

Active approach to surroundings is one of the major feature of human being. The forms of peoples activities are rather various. They are of different as for as spectra activities concerned. This is complex social, psycho-physiological process which has concrete basis. The beginning of formation and direction of any activity is its motive which inspires to actions, deeds, activity [3,8]. In contrast to other types inspires, motives, which is of concrete things, makes possible to understand personality and difference in this concrete-typological forms [7]. Sports activity is one of the field of activity in which man may show its perfection using its physical possibilities for achieving self goal and sports results. Due to high competition this activity has high motivation clear-cut criteria of the estimation of results, demands necessary activity from personality in case of students youth. It goes together with great physical and psychic tension, which is necessary for apposing not only strong opponent but to be strong in spite of situations. Sport forms all-round adaptive possibilities of man that is social [3,5,10] ones. Prevalence and wide-spread popularity among different groups of population of eastern combat sports among Slovenian cultural tradition – this is not only kinds of sports perfection of person but it is type of spiritual practice which has great impact on cultivation of valuable orientation of students. Chief goal of eastern martial arts is achievement of harmony between body and spirit, achievements of skills in the position of reciprocal passing of opposites. In this turn the valuable orientation of eastern combat sports are closely connected with Olympic values which are recommended by International Olympic committee.

Purpose, tasks of the work, material and methods

The purpose of the work is grounded on expediency of application of means of the eastern martial arts at the design of the process of cultivation of Olympic values and valuable orientation.

Tasks of work:

- reveal of a level of living values of Olympic values of students youth;
- ground an expedience of application of the eastern combat means of the design of process of cultivation of Olympic values and Olympic orientation.

Material of research is experience of educational process of students youth by means of the eastern martial arts.

Methods of research – analysis of reference sources, pedagogical experiment, methods of mathematical statistics.

Research have been carried out in the period of 2010-2012, in which took part students of I-III years of the departments of sports games and combat sports, rehabilitation and sport informatics of Kharkov State academy of physical culture general member of students counted (n- 65 persons; 37 mall youth and 28 females aged from 17-25 years).

Results of research.

Analysis of activities of personalities closely binds with the analysis of motives of their activity. That is why training in the same group according to the same program the sportsmen can have different motives. Usually the process of education and self education is going on in integral connection with increasing sports skill and dynamics of relations

doi: 10.6084/m9.figshare.775316

in sports team having high dependence on the success or losses of competitive activity. These conditions of formation and development of personality reveal the types of motivations of sports activity [9,3].

In organizing social life it may be organization of process of estimation of personal scale of each person and using by person of self-identification. Sportsmen compete not only for victory in fais competition but in that who win the duel of honor. In ideal case to be the first means to be valuable for today and come true in the history [3].

The problem of Olympic values and Olympic orientation is more and more attracting attention of scientists as Olympic values and orientations are integral part of the systems of relations of personalities as they reveal acts and behaviour of people. Formation of system of the Olympic values and orientation of values of personality meet certain changes in educational process of the youth. According to these facts in the way of carried out research together with traditional forms of educational work we conducted Olympic lessons, discussion, meetings with Olympic champions and prizewinners of Olympic Games.

Researches of important living values and Olympic values, featuring for the youth we conducted with help of methods "Morphological test of the life values".

With the projecting of process of cultivating olympic values and valuable orientation it is necessary pay attention to those which are the most important: to develop personal ego, to gain pleasure in all spheres of personal activity in life, activity communicate with the other people, to have material well being and to care for personal individuality. So you may speak about what in girls the ethic – businesslike direction is manifested strongly. For male youth the most important: selfdignity, escape of responsibility, limit of contacts necessary or use full, material wellbeing, setting specific realistic goal. Practically two orientations are expressed for girls and boys – ethic-buesinesslike and pragmatic ones (table 1).

Table 1

The most living values of male and female youth taking up earsten martial arts (Xmed. ± σ), n=65

Living values	Boys	Girls	t	P
Selfdevelopmant	39,9±5,19	43,6±6,18	4,5	<0,05
Spiritual peasure	40,3±5,43	44,1±5,02	5,1	<0,05
Creativeness	36,2±7,15	39,6±7,32	1,8	>0,05
Social contact	40,3±5,09	44,1±5,02	4,5	<0,05
Prestige	39,2±7,45	39,5±6,44	0,2	>0,05
Achievement	41,3±6,98	45,3±6,91	4,5	<0,05
Material wellbeing	44,8±6,6	45,3±6,91	0,7	>0,05
Care for individuality	39,4±5,63	44±6,04	4,5	<0,05

at t_{cr}= 2,04

Among Olympic values boys give priority: firstly to perfection, secondly – prestige, thirdly – friendship (table. 2). Prestige as Olympic values is the most important for girls together with boys ($p \leq 0,01$). With girls the attempt for first realization of their aptitudes in the sphere of professional life and enhancing of qualification and also demands to herself and her professional duties are expressed vividly.

Boys became calm at the achievement of some results, give priority to more placid way of life but they feel hurt at the negative estimation of their professional skills. They are pragmatic, seeking concrete profit from the professional duties.

As for as Olympic values are concerned as perfection: girls mostly seek enhancing a level of their development, open their mind in contrast to boys.

Table 2

Major Olympic values of students youth (Xmed. ± σ), n=65

Living splures	Boys	Girls	t	P
Prestige	56,4±8,4	63,5±7,66	12,3	< 0,01
Perfection	58,9±8,51	63,5±7,66	5,7	<0,05
Friendship	54,1±8,14	54,1±8,06	0,2	>0,05

as t_{cr}= 2,04

For boys concerning Olympic values as perfection attempt to achievement of certain results which testify to achievement of certain level of education or certain ignoring as fact which helps to personalities to develop themselves is expressed by low cognitive activity through absence of cognitive motivation, this testifies to desire to achieve specific result.

Conclusions.

1. Application of proposed methods concerning cultivation of Olympic values and valuable orientation of the students youth by means of eastern martial arts in educational-training process helps to harmonious development of the students and depend on specific conditions of carried out work.
2. Application and perfection of process of cultivation and valuable orientation as the students youth at the process of research positively made impact on need of students youth to strive for using the elements of culture of the East and to cognate standards, traditions for self perfection. The most important living values with are proposed in the eastern martial arts closely have something in common with Olympic values, and it contributes to the fact that students youth is directed for care to maintain moral principles.

Further researches will be directed to efficiency of application of pedagogical conditions, forms and methods of formation of Olympic values of the youth by means of eastern martial arts.

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Cite this article as: Gorbenko E V., Gradusov V.O. Projecting of process of cultivating of olympic values and valuable orientation of students youth by the eastern combat sports means. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 12-15. doi:10.6084/m9.figshare.775316

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 09.07.2013
Published: 30.09.2013

THE DYNAMICS OF INDICATORS OF PHYSICAL QUALITIES OF BOYS AGED 10-13 YEARS UNDER THE INFLUENCE OF DIFFERENT TYPES OF TOURISM ACTIVITIES

Grinyova T.I., Mulik E.V.

Annotation. Compared to the development of physical qualities of young men engaged in hiking, biking and water sports tourism. Shows the development of the physical qualities of young men who do not engage in sports clubs. The study involved 18 children (age 10-13 years) in each of the groups. Classes are held on standard programs tourist sports clubs, which provide for 216 hours per year (2 sessions per week with duration of 3 hours each). Determined that the long-term and systematic training tourism contribute to the level of physical fitness tourists. Found that different types of tourism have a different effect on the development of a variety of physical properties. Classes hiking more improves flexibility, agility and speed-strength, cycling - speed, agility, and speed-strength, water tourism - force.
Keywords: physical quality, sports, hiking, biking, tourism.

Introduction

Nowadays the level of physical preparedness of children has an unsatisfactory level. One of the principal reasons for this is insufficient physical activity of children, disproportion between mental and physical workload. In some researches it is indicated [1, 4], that the protracted limitation of necessary physical activity results in atrophy of muscles, violation of bearing and functions of internals, descent of psychical and physical capacity, origin of chronic diseases of cardio-vascular system and metabolism. Many scientific works [3, 5, 7, 8] indicate that physical activity of children decreases during studying at school. It is related with reduce of children's interest to the traditional types of physical exercises. Nowadays such kind of sport, out-of-school studies and active rest as sport tourism gaining a mass popularity. It combines not only forming of vitally necessary abilities and skills, development of morally volitional and intellectual qualities but also perfection of motive abilities [2]. It is determined that systematic engaging in sport tourism has positive influence on the improvement of physical preparedness of children, though lower comparing to the sportsmen [6]. Due to the difference between types of tourism their influence on the same physical qualities is different.

On the basis of aforesaid problem of determination of engaging in different kinds of tourism influence on the level of physical qualities development of boys aged 10-13 is defined as vital.

Research is executed according to the research plan in the field of a physical culture and sport on 2011-2015 according to the theme 3.8 "Theoretic-methodology basics of system construction of the mass checking and estimation of physical preparedness development level of different groups of population". State registration number is 0111U000192.

Purpose, tasks of the work, material and methods

Purpose of the work is to determine the influence of engaging in different kinds of tourism on the level of physical preparedness of boys aged 10-13.

*Methods of research and work organization***.** The following methods are used in the research: analysis of scientifically-methodical literature, pedagogical methods (testing of physical abilities, pedagogical experiment), methods of mathematical statistics.

Boys from the groups of the pedestrian, bicycle and water types of tourism of the Chuguev district center of tourism, ethnography and excursions of youth total number of 54 persons aged 10-13 during three years of going in for sports (different types of tourism) and boys of the same age, who were not engaged in sport sections total number of 18 persons took part in research.

Studies of different types of tourism were carried out according to the typical programs of sport-tourism groups that provide 216 hours a year: 2 classes weekly of 3 hours each.

Research results and discussion.

Researching of physical qualities indices under engaging in different kinds of tourism testifies that results of boys have positive but different dynamic during 10-13 years.

Figure 1 shows that 3 years of being engaged in pedestrian tourism improves boys' flexibility and partly dexterity and speed-power qualities, bicycle tourism enhances rapidness, dexterity and speed-power qualities, water tourism increases strength.

doi: 10.6084/m9.figshare.775317

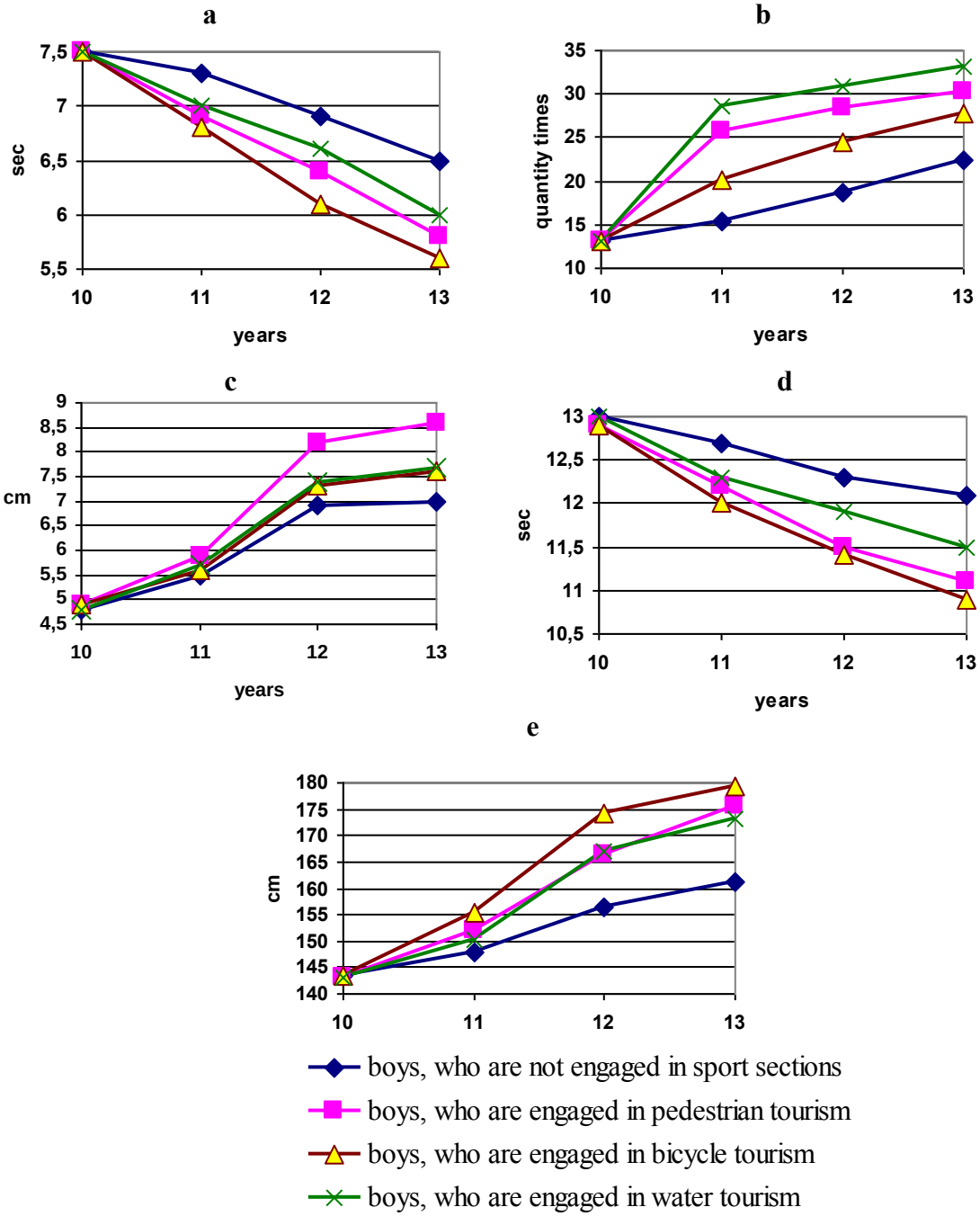

Fig. 1. Physical qualities indices of boys aged 10-13 from different experimental groups ($n_1=n_2=n_3=n_4=18$):
a) 30 meters run; b) flexing and extension arms support, lying on the floor; c) forward trunk flexion from a sitting position; d) shuttle run 4x9m; e) standing jump.

The greatest increase of speed qualities index (30 m run) was received in the groups of tourists aged from 10 to 11 years (table 1). Results of hikers declined by 0.6 sec, bicycle tourists results decreased by 0.7 sec, water tourists results shortened by 0.5 sec, but reliable changes were not received ($p>0.05$). In the age from 11 to 12 years indices of the boys who did not attend sport sections and water tourists improved by 0.4 sec ($p>0.05$). Reliable changes in the index of rapidness in this period were got only in the group of bicycle tourists which increased by 0.7 sec ($t=2.35$; $p<0.05$).

Table 1

Matrix of indices changes reliability for 30 m run of 10-13 aged boys from different groups ($n_1=n_2=n_3=n_4=18$)

Age	11 years	12 years	13 years
10 years	1 – 0.30; p>0.05 2 – 1.46; p>0.05 3 – 2.02; p>0.05 4 – 1.24; p>0.05	1 – 1.23; p>0.05 2 – 2.98; p<0.01 3 – 4.35; p<0.001 4 – 2.45; p<0.05	1 – 2.13; p<0.05 2 – 5.00; p<0.001 3 – 6.64; p<0.001 4 – 4.70; p<0.001
11 years		1 – 0.63; p>0.05 2 – 1.49; p>0.05 3 – 2.35; p<0.05 4 – 1.02; p>0.05	1 – 1.29; p>0.05 2 – 3.62; p<0.01 3 – 4.63; p<0.001 4 – 3.90; p<0.01
12 years			1 – 0.93; p>0.05 2 – 2.46; p<0.05 3 – 2.22; p<0.05 4 – 1.98; p>0.05

Boys who: do not attend sport sections – 1; are involved in hiking – 2; are engaged in bicycle tourism – 3; are engaged in water tourism – 4

Within the period of observation after the groups of 10-12 aged boys results in the tourists groups authentically improved. So, there was 1.1 sec ($t=2.98$; $p<0.01$) time decreasing of overcoming 30 m in the group of pedestrian tourists, results improvement by 1.4 sec ($t=4.35$; $p<0.001$) in the group of bicycle tourists and improvement of 0.9 sec ($t=2.45$; $p<0.05$) in the group of water tourists. There were no reliable results of 30 m run in the group of those boys who didn't attend sport sections ($t=1.23$; $p>0.05$).

There were authentically improved indices of rapidness in all the groups of tourists aged 13 respectively to the age of 12 and 11. These results were the following: 0.6 sec ($t=2.46$; $p<0.05$) and 1.1 sec ($t=3.62$; $p<0.01$) in the group of pedestrian tourists, 0.5 sec ($t=2.22$; $p<0.05$) and 1.2 sec ($t=4.63$; $p<0.001$) in the group of bicycle tourists, 0.6 sec ($t=1.98$; $p>0.05$) and 1.0 sec ($t=2.90$; $p<0.01$) in the group of water tourists respectively.

The biggest increasing of indices of flexing and extension arms support lying on the floor was received for the age of 11, which is 12.5 times ($t=5.91$; $p<0.001$) relatively to 10 aged boys in the group of hikers, 6.9 times ($t=3.22$; $p<0.01$) in the group of bicycle tourists and 15.5 times ($t=8.11$; $p<0.001$) for water tourists group. At the same time there was only 2.1 times ($t=0.65$; $p>0.05$) increasing in the group of the boys who didn't attend sport sections (table 2). For the age from 11 to 12 and from 12 to 13 indices of flexing and extension arms support lying on the floor of the boys who were engaged in pedestrian tourism improved by 2.7 and by 1.9 times respectively, for the boys engaged in bicycle tourism these indices improved by 4.3 and 3.3 times, for the boys who were engaged in water tourism results changed for better by 2.2 and 2.3 times and for those boys who didn't attend sport sections indices improved by 3.3 and 3.7 times accordingly ($p>0.05$).

Table 2

Matrix of indices changes reliability of flexing and extension arms support lying on the floor of boys aged 10-13 in different groups ($n_1=n_2=n_3=n_4=18$)

Age	11 years	12 years	13 years
10 years	1 – 0.65; p>0.05 2 – 5.91; p<0.001 3 – 3.22; p<0.01 4 – 8.11; p<0.001	1 – 2.26; p<0.05 2 – 9.52; p<0.001 3 – 7.54; p<0.001 4 – 11.30; p<0.001	1 – 4.74; p<0.001 2 – 13.88; p<0.001 3 – 11.71; p<0.001 4 – 16.93; p<0.001
11 years		1 – 0.92; p>0.05 2 – 1.13; p>0.05 3 – 1.81; p>0.05 4 – 1.01; p>0.05	1 – 2.14; p<0.05 2 – 2.13; p<0.05 3 – 3.42; p<0.01 4 – 2.33; p<0.05
12 years			1 – 1.50; p>0.05 2 – 1.15; p>0.05 3 – 2.07; p>0.05 4 – 1.44; p>0.05

Boys who: do not attend sport sections – 1; are engaged in pedestrian tourism – 2; are engaged in bicycle tourism – 3; are engaged in water tourism – 4

Within the whole period of research indices of strength authentically improved in all the groups. In the group of the boys who didn't attend sport sections results increased by 9.1 times ($t=4.74$; $p<0.001$); for the boys who were engaged in pedestrian tourism the result improved by 17.1 times ($t=13.88$; $p<0.001$); in the group of the boys who were engaged in bicycle tourism the outcome increased by 14.5 times ($t=11.71$; $p<0.001$) and in the group of the boys engaged in water tourism it increased by 20.0 times ($t=16.93$; $p<0.001$).

Within the age from 10 to 11 years the results in forward trunk flexion from a sitting position in the group of boys who didn't attend sport sections and bicycle tourists improved by 0.7 cm, for water tourists mentioned kind of exercise results improved by 0.9 cm and for hikers this change was 1.0 cm ($p>0.05$) (table 3).

Table 3

Matrix of indices changes reliability of forward trunk flexion from sitting position of boys aged 10-13 from different groups ($n_1=n_2=n_3=n_4=18$)

Age	11 years	12 years	13 years
10 years	1 – 0.34; p>0.05 2 – 0.72; p>0.05 3 – 0.51; p>0.05 4 – 0.65; p>0.05	1 – 2.06; p>0.05 2 – 3.79; p<0.01 3 – 2.64; p<0.05 4 – 2.78; p<0.05	1 – 1.98; p>0.05 2 – 4.27; p<0.001 3 – 2.77; p<0.05 4 – 3.24; p<0.01
11 years		1 – 0.72; p>0.05 2 – 1.96; p>0.05 3 – 1.48; p>0.05 4 – 1.44; p>0.05	1 – 0.75; p>0.05 2 – 2.30; p<0.05 3 – 1.66; p>0.05 4 – 1.74; p>0.05
12 years			1 – 0.12; p>0.05 2 – 0.90; p>0.05 3 – 0.48; p>0.05 4 – 0.58; p>0.05

Boys, who: do not attend sport sections – 1; are engaged in pedestrian tourism – 2; are engaged in bicycle tourism – 3; are engaged in water tourism – 4

At the age of 12 relatively to 11 year old the results in forward trunk flexion from sitting position of the boys who were not engaged in sport improved by 1.4 cm, for water and bicycle tourists the result increased by 1.7 cm and for pedestrian tourists it grew by 2.3 cm ($p>0.05$). For the age from 12 to 13 years changes in the indices of flexibility also didn't have authenticity ($p>0.05$).

The difference between final indices of flexibility and initial ones in the group of boys who were not engaged in sport sections formed 2.2 cm ($t=1.98$; $p>0.05$), in pedestrian tourists' groups it is 3.7 cm ($t=4.27$; $p<0.001$), for bicycle tourists it reached 2.7 cm ($t=2.77$; $p<0.05$) and for water tourists this difference is 2.9 cm ($t=3.24$; $p<0.01$).

Shuttle run requires the display of not only dexterity but rapidness too. Therefore the dynamics of the received results (table 4) partly coincides with 30 m run (table 1).

Table 4

Matrix of indices changes reliability of shuttle run 4×9 m of boys aged 10-13 from different groups ($n_1=n_2=n_3=n_4=18$)

Age	11 years	12 years	13 p years
10 years	1 – 0.40; p>0.05 2 – 1.39; p>0.05 3 – 1.72; p>0.05 4 – 1.35; p>0.05	1 – 1.40; p>0.05 2 – 3.81; p<0.01 3 – 4.10; p<0.001 4 – 3.17; p<0.01	1 – 1.82; p>0.05 2 – 4.90; p<0.001 3 – 6.04; p<0.001 4 – 5.20; p<0.001
11 years		1 – 0.57; p>0.05 2 – 1.63; p>0.05 3 – 1.25; p>0.05 4 – 0.76; p>0.05	1 – 0.87; p>0.05 2 – 2.56; p<0.05 3 – 2.43; p<0.05 4 – 1.64; p>0.05
12 years			1 – 0.48; p>0.05 2 – 1.57; p>0.05 3 – 1.98; p>0.05 4 – 1.35; p>0.05

Boys, who: do not attend sport sections – 1; are engaged in pedestrian tourism – 2; are engaged in bicycle tourism – 3; are engaged in water tourism – 4

So, runtime of the test shortened during all experiment, however authentic changes were received only for the age 10-12 and 11-13 years. In groups of hikers the runtime of shuttle run 4×9 m reduced by 1.4 sec ($t=3.81$; $p<0.01$) and 0.6 sec ($t=2.56$; $p<0.05$) respectively to the age groups. In the group of bicycle tourists the runtime became less by 1.5 sec ($t=4.10$; $p<0.001$) and 1.1 sec ($t=2.43$; $p<0.05$) accordingly.

At the end of the research period the difference between final dexterity indices and initial ones formed for the bicycle tourists 2.0 sec ($t=6.04$; $p<0.001$), for pedestrian tourists it reached 1.8 sec ($t=4.90$; $p<0.001$), for water tourists it is 1.5 sec ($t=5.20$; $p<0.001$) and for the boys who were not engaged in sport sections the difference is 0.9 sec ($t=1.82$; $p>0.05$).

The greatest increase of indices of standing jump was received in all the groups at the age of 11-12 years. It can be explained by increase of speed-power potential and technique mastering of jump execution (table 5).

Table 5

Matrix of indices changes reliability of standing jump of boys aged 10-13 from different groups ($n_1=n_2=n_3=n_4=18$)

Age	11 years	12 years	13 years
10 years	1 – 1.20; p>0.05 2 – 2.90; p<0.01 3 – 4.11; p<0.001 4 – 2.30; p<0.05	1 – 2.21; p<0.05 2 – 7.03; p<0.001 3 – 9.58; p<0.001 4 – 8.51; p<0.001	1 – 6.07; p<0.001 2 – 16.68; p<0.001 3 – 17.81; p<0.001 4 – 16.62; p<0.001
11 years		1 – 1.33; p>0.05 2 – 3.84; p<0.01 3 – 5.57; p<0.001 4 – 4.62; p<0.001	1 – 3.61; p<0.01 2 – 9.03; p<0.001 3 – 10.57; p<0.001 4 – 7.90; p<0.001
12 years			1 – 0.85; p>0.05 2 – 3.15; p<0.01 3 – 1.97; p>0.05 4 – 2.49; p<0.05

Boys, who: do not attend sport sections – 1; are engaged in pedestrian tourism – 2; are engaged in bicycle tourism – 3; are engaged in water tourism – 4

So the first year results of standing jump in the group of bicycle tourists improved by 12.0 cm (t=4.11; p<0.001), in pedestrian tourists group the result increased by 9.0 cm (t=2.90; p<0.01), for water tourists the increase reached 7.2 cm (t=2.30; p<0.05) and for boys who were not engaged in sport sections it increased by 4.6 cm (t=1.20; p>0.05). During the second year the results improved by 18.8 cm (t=5.57; p<0.001), 14.4 cm (t=3.84; p<0.01), 16.6 cm (t=4.62; p<0.001) and 8.4 cm (t=1.33; p>0.05) respectively. Within the third year an increase of indices was less and formed 9.0 cm (t=3.15; p<0.01) in the group of pedestrian tourists, 6.3 cm (t=2.49; p<0.05) in the group of water tourists, increased by 5.2 cm (t=1.97; p>0.05) in the group of bicycle tourists and was 4.9 cm (t=0.85; p>0.05) in the group of boys who were not engaged in sport.

On the whole within the period of experiment standing jump indices in the group of boys who were not engaged in sport sections improved by 17.9 cm (t=6.07; p<0.001), in the group of hikers it increased by 32.4 cm (t=16.68; p<0.001), for bicycle tourists the result improve was 36.0 cm (t=17.81; p<0.001) and for water tourists it formed 30.1 cm (t=16.62; p<0.001).

Conclusions.

1. The analysis of scientifically-methodical literature indicates positive influence of physical activity on physical development and becoming of physiology functions of children body.

2. It is determined that different types of tourism have different influence on different physical qualities development. So, among all the groups most improved indices of flexibility (t=4.27; p<0.001), dexterity (t=4.90; p<0.001) and speed-power qualities (t=16.68; p<0.001) under the influence of engaging pedestrian tourism. Under the influence of bicycle tourism most changes were received in the indices of rapidness (t=6.64; p<0.001), dexterity (t=6.04; p<0.001) and speed-power qualities (t=17.81; p<0.001). Under the influence of water tourism most changes were received in the indices of strength (t=16.93; p<0.001).

In the prospect of further studies it is planned to determine the dynamics of physical qualities development of girls aged 10-13 under the influence of engaging in different kinds of tourism.

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Cite this article as: Grinyova T.I., Mulik E.V. The dynamics of indicators of physical qualities of boys aged 10-13 years under the influence of different types of tourism activities. P*edagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 16-21. doi:10.6084/m9.figshare.775317

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 12.07.2013
Published: 30.09.2013

THE DEFINITION OF PSYCHOLOGICAL ASPECTS IN THE FORMATION OF STUDENT-CENTERED MOTIVATION OF STUDENTS FOR CLASSES IN PHYSICAL EDUCATION

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Annotation. An analysis of the publications, which demonstrates the importance of the emotional state in the formation of motivation as a psychological phenomenon. Shows the impact of physical education on the state of mental and emotional stress. Presented scientific analysis of psycho-emotional states in the 3rd year students with the region of residence and ethnicity. The study used survey results found that the circumstances are displayed on the psycho-emotional state of students. In their view, were: irritability, lack of confidence, fatigue, concern, guilt, etc. These conditions are more common in women of ethnic groups and from rural areas. It should be noted that the girls are very carefully described their emotional state and chose the answer in the questionnaire (sometimes), this response was dominant. Young men in many positions were more restrained. It is established that the formation of student-centered motivation of students to physical education should be adjusted in their emotional state. In this strategy the learning process of physical education is built on individual, ethnic differences.

Keywords: students, psychological states, regions, ethnic groups, physical education.

Introduction

The problem of formation of personality-oriented students' motivation for physical education has been actualized in connection with pedagogical and psychological factors, main characteristics of which are high psychic and physical tension of educational process, which, in their turn, require good health. In this connection, in dynamics of students' teaching at higher educational establishments physical education becomes a basic foundation, including integrating chain of personal motion culture, keeping peculiarities of formation of every student's psycho-emotional and physical potential as an integrity. So, main accent in formation of students' personality-oriented motivation is directed to formation of holistic person, harmonization of his (her) mental-physical potential, development of individuality, originality and independence [15].

Most of psychic and physical properties at physical trainings are formed with the help of influencing on certain mechanisms, which ensure these properties by specific means of physical education. For example, scientists [17,18] proving importance of physical activity, point that there are three main components of personality's structure: psychic functional mechanisms, personality's experience and features, which successfully develop in the process of individual's mastering physical culture. Human psycho-emotional features are closely connected with social-pedagogic, ethical-volitional qualities, which characterize commitment of personality's mentality, his (her) ability to overcome obstacles when achieving target, resistance to failures on his (her) life way. Stability of personality's mind, his (her) balance, can be judged by the fact to what extent circumstances influence on mood and to what extent young people can control their feelings and behavior [24].

Physical culture activity facilitates mobilization of functional, psychological and physical organism's abilities, indirectly influencing on creation of the so-called "reserve" for responding environmental "contingencies", requiring urgent mobilization of human functional forces [1]. It has been established that stressing character of social-economical factors, ecological conditions, life conditions in modern society facilitate reduction of psychic and physical health of youth. In this connection, searching of adequate ways and methods of students' health and psycho-physical state strengthening become of special importance as well as development of health related technologies, which could ensure formation of steady personality's belief in necessity of physical culture, health related activity [16].

For improvement of students' psycho-emotional state it has been suggested to solve the tasks of methodological character, which would include tests for determination of psycho-dynamic organism's characteristics, development of integral means of estimation of psycho-physiological readiness for professional activity as well as development of technologies of operative and perspective controlling of physical conditions with the help of different kinds of sports and means of specialized physical training. In this connection there appears a problem of quantitative evaluation of psycho-emotional readiness, connected with demand in evaluation of different training programs' and kinds of sports' influence on students' state [2].

Psycho-emotional state is negatively influenced by: wrong organization of academic process, scope of physical loads, insufficient sleeping, irregular eating, insufficient being in the open air, excessive independent training – this negative chain results in significant worsening of students' health in the process of their study at HEE.

Methodic of selection of how to release psycho-emotional tension are the following: first of all solution of problem, which caused that tension and secondly – physical loads. Embedding of optimal stereotype of psycho-emotional tensions' release with the help of physical exercises shall be carried out in school age, but actually it does not happen. In students' age this stereotype shall only be supported, but not used for the first time. For health preservation school and higher educational establishment shall teach youth the means of releasing of psycho-emotional tension [19].

doi: 10.6084/m9.figshare.775326

It is evident that selection of methodic of psycho-emotional tension's releasing shall cause motives for activity, directed to health preservation and satisfaction of demand to be in this state. Motivation, as a psychological phenomenon, ensures re-orientation of physiological processes in situational behavior's direction, which maintains health. Activation of demand in being healthy, reflecting in mind, becomes for a subject a factor, mobilizing adaptation reserves [23].

States of mind are variable and limited in time. Nevertheless they are more steady, than psychic processes. States of mind are connected with psychic processes and personality's features. Human states of mind are as variable as situations, which caused them. It is evident, that, depending on existing situation, state of mind can influence on result of intellectual, emotional activity [23].

Humanitarian paradigm of physical culture permits to enrich methodic arsenal of an instructor in educational process. It is connected with the fact that "physical education", as an academic subject, has complex structure; it includes influence on students' physiological systems, improvement of physical and moral-will qualities, psychological stability and its influence on nervous-emotional and mental sphere of students and is a process of planned systemic influencing on students under responsible supervision and guidance of instructors, who form students' physical culture of personality [6].

Results of our research prove the idea that physical education trainings of students shall involve specific and non-specific methodic, favorable for formation of their psycho-emotional sphere, improving mental workability and motion abilities [5, 21].

Thus, influence on students' psycho-emotional state requires application of physical education methodic on qualitatively new level in conditions, permitting to realize previously impossible didactic processes.

Psycho-emotional state of 3rd year students depends on peculiarities of their being in collective, motivation of obtaining higher education and successfulness of future profession. In this connection motive for mastering profession dominates that points at interest to studied activity but, at the same time, reduces motivation for physical exercises' practicing [12]. It has been state that deficit of motion activity of senior students is from 60.00% to 75.00% of the required for maintenance of normal health and physical condition. It results in noticeable reduction of students' physical and mental workability, in certain negative phenomena in psycho-emotional aspect [10]. Such situation conditions need in researches for determination of students' psycho-emotional state, considering specificities and content of physical education classes in poly-ethnic groups of Crimea higher educational establishments. At the same time it is necessary to recognize that that the quantity of scientific researches in this field is insufficient, that there is certain contradiction concerning organization of academic process in physical education at HEE against the background of existing problem of multi-national students' content in Crimea and considering psycho-emotional state and poor health.

The work has been fulfilled as per plan of scientific & research works of Crimea economical institute of CNEU, named after V. Getman.

Purpose, tasks of the work, material and methods

The purpose of the article is scientific analysis of 3rd year students' psycho-emotional state, considering region of their residence.

The methods of the research: theoretical – analysis, generalization and systemizing of scientific literature data; empirical – questioning.

Results of the researches

351 3rd year students took part in the researches. The research was carried out at the beginning of academic year. The contingent of students was selected considering the fact that 3rd year students have obtained certain experience for the years of studying at HEE and adapted to specificities of organization, methodic and content of physical education trainings, which were conducted in compliance with requirements of State program.

Analyzing questionnaires of 3rd year girl-students we found some changes in girls' mood. For example 19.57% of ethnic group girls, 15.38% from countryside, 10% of girls from small towns of Crimea are bent to irritability; girl-students from Simferopol have less bent to such state of mind – only 8.16%; the most unstable is state of mind of girls, who arrived from Ukrainian regions – 23.80%. At the same time great number of the questioned chose variant of answer "sometimes". "Sometimes" girls from ethnic group are irritable (63.04%), from regions of Ukraine – 66.66%, from Simferopol – 68.37%, higher quantity of such answers were given by girls from small Crimean towns -0 72.00% and countryside – 76.92%. Emotionally stable were the girls who could suppress irritability volitionally- 17.39% in ethnic group; 22.45% - from Simferopol; 16% from small Crimean towns and the leas quantity of emotionally stable girl students were from countryside (7.69%) and from regions of Ukraine (9.52%).

To some extent differently was expressed "felling of guilt and helplessness". It turned out that feeling of guilt and helplessness is specific for 10.86% of ethnic group' girls, nearly the same quantity – 11.54% for girls from countryside, a little bit higher for girls from Simferopol – 13.26%, for girls from regions of Ukraine – 19.04% and small towns of Crimea – 22%. Variant "sometimes" in average was given by 21.68% of the questioned without any substantial differences between groups. Concerning the absence of guilt-feeling and "helplessness" in particular, they were absent among girls from ethnic group (60.87%), from Simferopol (59.18%), from small Crimean towns - (52.00%), from regions of Ukraine – (61.90%), from countryside – (46.15%). It can be assumed that these girl-students are self-asserted and do not violate social relations, i.e. they are emotionally adaptive [22, c 492].

The next emotional factor was feeling of anxiety, in particular groundless anxiety. These emotions are present among nearly equal quantity of the questioned girl-students, in average – 12.98%. To some extent more such answers were given by girls from small Crimean towns – 18%. Variant "sometimes" was chosen by great number of girls –

62.91%. For example "sometimes" 54.35% of girls from ethnic group feel groundless anxiety, 63.26% of girls from Simferopol, 62% and 61.90% - nearly equal quantity of girls – from small towns of Crimea and regions of Ukraine, accordingly;73.07% - girls from countryside. Feeling of groundless anxiety is absent at 20.41% of girls from Simferopol; 20.00% - girls from small Crimean towns; 19.04% -girls from regions of Ukraine; and the least quantity – 11.54% - girls from countryside; in average for 3.38% of the questioned it was difficult to answer this question.

In the process of educational activity it is very important to be able to concentrate attention and, sometimes, take necessary decision. That is why girl-students answered this question in the following way: it is difficult to concentrate attention or take necessary decision in ethnic group – for 6.52% of the questioned; nearly for the same quantity of girls from small towns of Crimea – 6.00%; for girls from regions of Ukraine – 4.76%. 27. 55% of girl-students from Simferopol and 23.07% from countryside chose answer "it is difficult to concentrate attention or take necessary decision". Answer "sometimes" was given, in average, by 54.70% of respondents; 67.39% - girls ethnic group, from Simferopol- 60.20%, from small towns of Crimea -56.00% - from countryside - 42.31% , from regions of Ukraine – 47.61%. 26.09% of ethnic group girl students can concentrate attention and take necessary decision, 30.77% - of girls from countryside, 38% - from small towns of Crimea, 42.85% - from regions of Ukraine and the least quantity of girls from Simferopol – 12.24%. Formation of attention and ability to concentrate it are greatly influenced by formation of dynamic stereotypes, owing to constant working regime. It should be underlined that in studying activity students shall be attentive to receiving tasks.

Sharpened sense of lack of self confidence, of own abilities was noted by 3.83% of the questioned girl-students with 16.52% of such girls in ethnic group. Answer "sometimes" was given 39.13% of girls from regions of Ukraine,; 38.09% - girls from Simferopol and 42.86% - from countryside; 42.31 and less were such answers from students from small towns of Crimea up to 34.00%. 44.35% of ethnic group girls were self asserted and confident in own abilities; 52.38% of such girls were from regions of Ukraine; 55.10% - from Simferopol; 54.00% - from small towns of Crimea and 50.00% - from countryside.

Thus, 3rd year girl students can clearly determine conditions, in which they live, and master their future profession.

Among factors, which influences on emotional state of girl-students, there are physical and mental loads, resulting in tiredness. Increased tiredness was noted by girl-students in their answers by 26.09% of ethnic group girls; 36.73% - by girls from Simferopol; 24.00% - by girls from small towns of Crimea; 33.33% - by girls from regions of Ukraine and only by 15.38% - of girls from countryside. Answer "sometimes" was given in average by 40.18% (by regions – from 35.71% to 47.61%). No tiredness was felt by 32.61% of ethnic group girls; 27.55% of girls from Simferopol; 34.00% of girls from small towns of Crimea; 19.04% of girls from regions of Ukraine and 46.14% of girls from countryside.

On the one hand tiredness is an important factor of human activity as far as it prevents from extreme exhaustion of organism, its transition to pathological state, being a signal to stop working and start relaxing. Alongside with it tiredness plays substantial role facilitating training of organism's functions, their improvement and development, but on the other hand it results in reduction of organism's workability, not saving energy consumption and weakening of organism's functional reserves. This side of tiredness is unfavorable one; it breaches long term endurance of loads [20, pg.234].

In this connection an important factor of psycho-regulating mechanisms of tiredness is sleeping, quantitative and qualitative adequacy of which is a mandatory condition for normal organism's functioning.

Sleeping disorders and sense of permanent tiredness was noted in average by 9.35% (by regions – from 6.12% to 14.28%). "Sometimes" there appear sleeping disorder at half of ethnic group girls – 50.00%, a little higher percentage belongs to countryside girls – 61.54%; less percentage is peculiar to girls from Simferopol – 47.96%, small towns of Crimea – 40.00%, girls from regions of Ukraine – 38.09%. 41.30% of ethnic group girls have good sleep without sense of tiredness; 42.85% of girls from regions of Ukraine; 48.00% - girls from small towns of Crimea; less quantity – 38.77% - girls from Simferopol and 30.77% - countryside girls. O.Yu. Davydov, S.V. Novakovskiy also confirm in their work that students' workability is reduced owing to deficit of sleeping [8, pg.71].

Analyzing girl-students' answers to question "no interest to own appearance", we found that in average 3.21% of the questioned noted the absence of such interest; answer "sometimes" was give in average by 6.88% of respondents. 93.48% of ethnic group girls, nearly the same quantity – 95.92% of girls from Simferopol and 95.23% of girls from regions of Ukraine pay great attention to their appearance; percentage of countryside girls is a little bit less – 76.92% and percentage of girls from small towns of Crimea is 88.00%.

Thus, 3rd year girl students understand that their appearance is a visit card for future profession and proper job. Appearance depends on eating, on appetite. Only 2.71% , in average, noted absence of appetite. "Sometimes" absence of appetite was noted in the following way: 15.22% of ethnic groups' girls; 31.63% of girls from Simferopol; 26.92% of countryside girls; 18.00% of girls from small towns of Crimea and 19.04% of girls from regions of Ukraine. 78.26% of girls from Simferopol have no problems with appetite and desire not to breach diet; the same concerns to 69.23% of countryside girls, 74% of girls from small towns of Crimea and 80.95% of girls from regions of Ukraine. So quite noticeable is girl-students' attitude not only to factors, which ensure psycho-physical complex but also to form careful attitude to own health, required for future activity.

Regarding components of psycho-emotional state of 3rd year boy-students we revealed that irritability is "often" peculiar to students from countryside (33.33%); to 8.57 % of boys from small towns of Crimea; 12.50% - ethnic

group boys; 25.53% of boys from Simferopol and to 9.09% of boys from regions of Ukraine. Boys, who chose answer "sometimes" did not differ by their opinions, depending on groups; greater quantity of such respondent belonged to countryside group – 41.66% and to Simferopol group – 40.12%; half of the questioned of ethnic group – 50.00% and 21.42% - boys from small towns of Crimea; 27.27% of respondents from regions of Ukraine. Students, who are able to suppress this quality by will, who can restrain their emotions, answered in the following way: 31.25% of ethnic group boys; 29.78 of boys from Simferopol; nearly the same quantity – 28.57% - boys from small towns of Crimea; 36.36% from regions of Ukraine and only 8.33% of countryside boys. Thus, personality's will qualities, which are, as it is known, in the base of character, are realized in external activity. At the same time physical exercises is a reliable method to avoid bad mood [22, c.440].

The following components, which influence on boys' behavior, are senses of guilt and helplessness; answers of 3rd year boys were the following: 9.37% of ethnic group boys; 14.89% of boys from Simferopol; 7.14% - boys from small towns of Crimea; 9.09% - boys from regions of Ukraine; among countryside boys there were no such respondents. Answer "sometimes" was chosen by: 31.25% of ethnic group boys; 36.36% of boys from regions of Ukraine; 25% - countryside boys; 14.89% of boys from Simferopol and 14.28% of boys from small towns of Crimea. Half of boy-students were completely self-asserted. For example, there was nearly same quantity of such students in ethnic group and in group of boys from Simferopol -59.37% and 59.57% accordingly; a little bit higher quantity – 66.66% - boys of countryside and 71.42% from small towns of Crimea; 54.54% - from regions of Ukraine. So, 3rd year boy students think that their behavior meet social standards.

Sense of trouble and groundless anxiety, as form of mind, which is realized in reflection of being according to motives and demands of personality, were shown in students' answers in the following way: 14.25% of students from small towns of Crimea; 6.38% - of boys from Simferopol; 9.09% - students from regions of Ukraine. "Sometimes" was answered: by ethnic group students – 31.25%; by students from Simferopol – 31.19%; by students from small towns of Crimea – 35.71%; by students from regions of Ukraine – 9.09%; by countryside students – 41.66%. No trouble and sense of anxiety are peculiar to 53.12% of ethnic group students; 48.93% - of students from Simferopol; 42.85% of students from small towns of Crimea; 33.33% of countryside students and 27.27% of respondents from regions of Ukraine. We can assume that students, who do not bent to sense of anxiety, think constructively and control emotions and behavior. Results of researches [22, pg.222] prove that anxious person has difficulties in realization of intellectual functions. Besides, for such person it is difficult to concentrate attention, he is easily distracted.

Positive answer to question «it is difficult to concentrate attention and take necessary decision" was given by 8.24% of respondents in average: 6.25% of ethnic group; 8.33% of countryside group. Answer "sometimes" was given by 31.25% of ethnic group; 34.04% of Simferopol group; 25.00% - by countryside group; 42.25% by group from small towns of Crimea and by 45.45% by group from regions of Ukraine. 40,62% of ethnic group students, 61.70% of Simferopol students, 14.28% of students from small towns of Crimea, 41.66% of countryside students and 45.45% of students from regions of Ukraine can concentrate attention and take necessary decisions.

Concentration and stability of attention are physiologically connected with prolonged concentration of excitation in one group of nervous cells. Ability of nervous cells to endure prolonged excitation is an indicator of nervous processes' strength. That is why general type of human nervous activity manifests in concentration and stability of attention in different conditions [3,pg.165]. In this connection it is very important to train ability to long mental work, resistance to hypodynamia, ability to concentrate attention [7, pg.38].

An important aspect of student physical education's organization is formation and training of self-assertion and belief in own abilities. Answering the questionnaire, some students recognized that they have sharpened sense disbelief in own abilities, absence of self-assertion". There were such students: 15.62% in ethnic group; 4.25% in Simferopol group; 14.28% in group from small towns of Crimea; 36.36% - group from regions of Ukraine and no such students in countryside group. Some students chose variant "sometimes", 31.39% in average. 65.62% of such students were from ethnic group; the rest – from 14.28% to 33.33% of the questioned. 15.62% of ethnic group students were completely self-asserted; 70.21% of such students were from Simferopol group; 71.42% - from small towns of Crimea; 58.33% - from countryside and 45.45% - from regions of Ukraine. So, for certain part of students formation of such personality features, which would ensure self-assertion and belief in own abilities, is of primary importance, i.e. they should orient their behavior on mastering knowledge, health improvement, practicing sports.

In their answers to questionnaire some of 3rd year boy-students noted increased tiredness. They were: 18.75% in ethnic group; 14.89% and 14.28% from Simferopol and small towns of Crimea, accordingly; 8.33% - from countryside; 27.27% - students from regions of Ukraine. Increased tiredness "sometimes" was noted by: 34.37% of ethnic group students; 36.17% - of Simferopol students; 50% - of countryside students; 21.24% of respondents from small towns of Crimea and 18.18% - from regions of Ukraine. Absence of tiredness was answered by: 46.87% of ethnic group respondents; 48.94% - Simferopol group; 41.66% - countryside group; 64.28% of group from small towns of Crimea and 54.54% - group from regions of Ukraine. In scientific researches it was stated that increased tiredness of 3rd year students usually is of 21-23% of the questioned [4, 25].

Students' increased tiredness appears in connection with violation of daily schedule, as a result of poor physical condition. Our research showed that sleeping problems and permanent tiredness were peculiar to: 6.25% of ethnic group students; 8.51% of students from Simferopol; 27.27% of students from regions of Ukraine. "Sometimes" sleeping problems and permanent tiredness were present at 18.75% of ethnic group respondents; 21.27% - of Simferopol students; 21.42% - of students from small towns of Crimea; 27.27% - students from regions of Ukraine and

41.66% of countryside students. Sound sleep and absence of permanent tiredness were noted by 68.75% of ethnic group students; by 58.33% of countryside students; 79.21% - Simferopol group; 78.57 – small towns of Crimea and 45.45% - from regions of Ukraine. The same psycho-somatic students' response, which is present during period of studying, is mentioned by a number of authors [4, 25].

The next factor of students' psycho-emotional state is their attitude to their appearance. Absence of interest to their appearance is rather often among boy-students. Such students are: 3.12% of ethnic group respondents; 8.51% of Simferopol group; 9.09% - group from regions of Ukraine; 16.66% - countryside group. "Sometimes" was chosen by: 9.39% of ethnic group students; 2,12% - Simferopol group; 18.18% - group from regions of Ukraine. 87.5% of ethnic group students, 89.36% of Simferopol group, 100% of group from small towns of Crimea, 83.33% -from countryside group and 72.73% of the questioned from regions of Ukraine did not loose interest to their appearance.

As we can see, in the respondents' opinion, most of students, in average 86.58%, wish to look properly and do not loose interest to their appearance.

Sociological researches [9, pg.71] established that careful students' attitude to health is connected with eating. Our tested gave the following answers. Poor appetite was noted by 3.12% of the questioned from ethnic group; 7.14% - from group of small towns of Crimea. Answer "sometimes: was given by 21.87% of ethnic group students; 8.51% of Simferopol group; 14.28% - group from small towns of Crimea; 18.18% - group from regions of Ukraine and 33.34% - countryside group. No problem with appetite have 75.0% of ethnic group respondents; 85.0% - Simferopol group students; 78.57% - students from small towns of Crimea; 81.81% - students from regions of Ukraine and the least quantity – from countryside – 66.66% of respondents. So, 3rd year students reasonably estimated importance of healthy eating (good appetite), which is an important condition of successful studying.

Thus, students' psycho-emotional state manifested in irritability, sense of guilt, anxiety, lack of self-confidence, tiredness, loosing of appetite, sleeping problems, absence of interest to appearance. All these responses, states and organization of educational process are in integral unity. In this connection formation of personality-oriented motivation shall consider all signally-significant components both of environment and emotional state, which is main mechanism of internal regulation of psychic activity and behavior, oriented on satisfaction of demands [11].

Conclusions

Information about psycho-emotional state of students, who live in different regions of Crimea, obtained in the process of questioning, witnesses that it is necessary to include physical exercises, oriented on releasing of emotional stresses and facilitating successful students' study, in academic classes.

It is envisaged to carry out further researches in order to study other problems, connected with physical condition of higher educational establishments' students.

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Cite this article as: Gruzhevsky V.A. The definition of psychological aspects in the formation of student-centered motivation of students for classes in physical education. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 22-28. doi:10.6084/m9.figshare.775326

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 30.07.2013
Published: 30.09.2013

MODELLING OF TECHNICAL TACTICAL ACTIONS AS THE MANAGEMENT FACTOR COMPETITIVE PROCESS AND PREPARATION OF BASKETBALL PLAYERS OF HIGH QUALIFICATION

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Annotation. Application of modelling indicators of technical-tactical actions in a control system of preparation and competitive process of basketball players is considered. In research the official statistical data of the European championship on basketball of 2013 is used. It is shown that modelling indicators of technical-tactical actions allow to form an optimum orientation of training process with application of specialised means at various stages of a year cycle of preparation, to supervise indicators of technical-tactical actions in competitive process. It is recommended as modelling to use following ranges of indicators of technical-tactical activity: (in one game): efficiency of two game point throws (44 - 48 %, throws in game in number 46 - 50); efficiency of three game point throws (35 - 39 %, throws in game in number 15 - 19); efficiency of penal throws (64 - 72 %, throws in game in number 16 - 21); indicators of a parity of the typed and passed points (1,2 - 1,3); ball selections (37 - 40); ball interceptions (6 - 10); goal passes (13 - 16); ball losses (12-14); the block-shot (2,5 - 3,0).

Keywords: competition, training, basketball, role, management, model, estimation, technics, tactics, action, efficiency, result.

Introduction

Theory of sports regards control of competition processes as one of main factors of optimization and perfection of highly0qualified sportsmen's technical-tactic activity. Modern basketball makes high demands to training of sportsmen owing to constantly growing competitiveness on the level of national combined teams and best club teams, participating in European cup tournaments. Control of training and competition processes of highly qualified female basketball players is an urgent problem for Ukrainian basketball. In system of Ukrainian basketball highly qualified coaches work, system of junior sportswomen in junior sports schools is functioning, there is experience of successful performances at largest international competitions (European champions of 1995, fourth place at Olympic Games, 1996). In spite of theses facts, recent decade girls combined team of Ukraine has been playing unsuccessfully, sometimes, entering final tournaments of European championships. The best club teams also can not show good results at international level. This discrepancy needs profound and comprehensive analysis, one of whose directions is comparison of technical-tactic actions' model indicators of leading European national combined teams with technical-tactic indicators of female basketball players of Ukrainian combined team.

Study, analysis and interpretation of technical-tactic indicators of highly qualified sportsmen, comparing of these indicators with indicators of the best sportsmen (which are taken as individual model characteristics) have been sufficiently elucidated in scientific and methodic literature. In researches by V.N. Platonov [1], L.P. Matveyev [2] technical-tactic indicators of highly qualified sportsmen at official competitions are regarded as a system-formation factor of many-years' training and as one of main elements of competition process's improvement. On examples of highly qualified female basketball players these problems are elucidated in researches by R.A. Sushko [3], [4]. The author marked out main peculiarities of modeling for female basketball players, offered programs of training and corrections of highly qualified female basketball players' of different game roles technical tactic actions, considering model characteristics of the players. As individual model data it was offered to use indicators of some technical-tactic actions of highly qualified female basketball players shown at European or world championships on the base of official rating: "The best by pick ups indicators", "The best by gained scores" and etc. For comparing with model indicators of technical-tactic actions of the best female basketball players of European championship 2009, there were used indicators of female basketball players of national Ukrainian combined team in competition and training processes. Comparative pedagogical analysis was carried out, considering game roles of sportswomen and time, which they spend in directly competition process. For female basketball players of Ukrainian combined team, there were proposed means of technical-tactic actions' correction, which significantly lagging behind model indicators. Besides, there were proposed means of technical-tactic actions' perfection, considering game roles: "starting player", "attacking fullback", "light forward", "heavy forward", "central player".

Researches of S.G. Zaschuk [5], [6] are devoted to studying of group technical-tactic action "quick break" indicators of male national Ukrainian combined team in qualifying games of European championship 2003. The author fulfilled comparative analysis of technical-tactic actions' effectiveness by indicators of quick break with indicators of best European and world teams, which he used as model ones. He determined main components, limiting effectiveness of these indicators of Ukrainian national combined team's players – timely and accurate first pass, group speed of players' movements, finalizing phase of attacking ring.

Indicators of penalty throws in competition process of BC "Dnepr" (Dnepropetrovsk) basketball players were analyzed in research by Ye.A. Mitova [7]. As model indicators the author used indicators of best teams of Ukrainian

doi: 10.6084/m9.figshare.775327

basketball super-league "Budivelnik" (Kiyev), "Azovmash" (Mariupol). It was noted that effectiveness of penalty throws' fulfillment by highly qualified basketball players depends on game role and character of game moments. In key and final moments of game indicators of penalty throws' effectiveness reduce that witnesses about significant psychological tension of players.

Researches of Zh.L. Kozina et al. [8], [9] accentuate attention of scientists at peculiarities of modeling methods' application in training process. On example of female basketball players of highest sport grades, there was shown need in studying of structure of female basketball players' preparedness in training and competition periods of annual macro-cycle. The author offered algorithms for determination of female basketball players' individual game effectiveness. It was proved that application of modeling methods permits to optimize female basketball players' training, improve competition process, increase individual effectiveness in basketball.

Lopes C.R. et al., [10] regards application of modeling methods as integral component of controlling in process of physical training of junior basketball team (U-19) in annual macro-cycle. In his research he accentuates attention at age specificities of motion abilities' development of basketball players of that age – period of direct preparation to competitions of adult sportsmen. It was shown that physical condition's parameters of adult basketball players can be and must be used as model characteristics for junior basketball players. For junior basketball players there was proposed to use stage-by-stage model indicators, considering passport and biological age of sportsman.

Okazaki V.H.A. and Rodacki A.L.F. [11] studied effectiveness of basketball jump throws from different distances with the help of modeling methods. The authors showed that simulation of game situation in the process of improvement of certain technical component renders sufficient effect, if sportsmen mastered this element at the level of technical skill. If skill of this technical action is not formed or formed incompletely, complicating of training task by simulation of game situations (time deficit for technical action's fulfillment, counteraction of adversary and so on) as a rule worsens effectiveness of jump ball throws.

Modeling, as factor of competition and training processes' control, has sufficiently elucidated in scientific and methodic literature. On example of technical-tactic actions' indicators of female basketball players in final tournament of European championship 2013 such research is carried out for the first time. It provides opportunity to specify trends of development of European and Ukrainian female basketball, to make corrections of competition practice of highly qualified female basketball players.

The research has been fulfilled according to plan of scientific-research work of Olympic and professional sports department of Zaporozhye national university and department of theory and methodic of sportsmen's training and reserves of National University of physical education and sports of Ukraine (Kiyev). Topic of the research corresponds to "Combined plan of scientific-research works in the field of physical culture and sports for 2011-2015" by subject 2.4 "Theoretical-methodic principles of educational-training process's individualization in game kinds of sports".

Purpose, tasks of the work, material and methods

The purpose of the research is determination of technical tactic actions' model indicators of highly qualified female basketball players in matches of final tournament of European championship 2013.

The methods of the research: 1) analysis and generalization of scientific-methodic literature sources' data; 2) analysis of official records of competition activity; 3) analysis of advanced pedagogic experience; 4) analysis of sportswomen's and coaches' diaries; 5) modeling of technical-tactic Actions; 6) pedagogical observations; 7) methods of mathematical statistics.

Results of the researches

Pedagogical analysis of technical-tactic actions' indicators of highly-qualified female basletball players was carried out on the base of official data of final tournament of European championship 2013. As model indicators we used indicators of team-winner (national combined team of Spain) and prize-winners of European championship (national combined team of France – silver prize-winner and national combined team of Turkey – bronze prize-winner). Indicators of highly qualified female basketball players' technical-tactic actions are presented in tables 1-3.

Table 1

Indicators of technical-tactic actions of female basketball players of combined team of Spain at final tournaments of European championship 2013

Initials.	M	Min	2-sc. thr.		3- sc. thr.		Penalty thr.		Pick ups			RP	L	TO	BS	F		Scores
			A/Thr	%	A/Thr	%	A/Thr	%	A	D	T					Pl.	ON	
L.S.	9	274	70/142	49.3	2/5	40.0	20/32	62.5	22	78	100	14	17	26	12	18	29	166
T. A.	9	255	34/83	41.0	15/37	40.5	33/39	84.6	6	23	29	16	18	14	2	11	40	146
X. M.	9	250	21/44	47.7	9/22	40.9	15/17	88.2	17	13	30	25	11	8	3	21	20	84
V.A.	9	140	19/44	43.2	6/24	25.0	5/6	83.3	7	10	17	12	10	7	1	12	9	61
D.S.	9	150	11/26	42.3	4/10	40.0	7/8	87.5	0	11	11	14	12	3	0	16	15	41
A.E.	7	63	3/4	75.0	9/20	45.0	0/0	0,.	1	5	6	10	0	1	0	2	0	33
N.L.	9	125	10/25	40.0	0/0	0.0	11/16	68.8	7	13	20	5	8	3	1	16	18	31
P.L.	9	168	8/21	38.1	3/11	27.3	5/6	83.3	3	15	18	31	12	9	2	21	12	30

L.C.	9	146	9/16	56.3	0/0	0.0	6/13	46.2	20	15	35	3	6	6	3	20	12	24
O.C.	5	53	5/10	50.0	3/4	75.0	0/1	0,.	3	5	8	7	2	2	0	5	4	19
G.L.	9	144	7/24	29.2	0/1	0.0	4/8	50.0	17	21	38	3	11	9	2	13	13	18
C.Q.	5	32	3/7	42.9	0/0	0.0	2/6	33.3	1	4	5	2	1	1	0	3	5	8
Σ	9		200/446	44.8	51/134	38.1	108/152	71.1	118	236	354	142	111	89	26	158	177	661

Notes: M- matches; Min. – minutes; 2-sc.thr – 2 scores throws; 3 sc.thr. – 3 scores throws; Penalty thr. – penalty throws; A/Thr. Accurate throws; A-attack; D- defense; T – total; RP – passes with results;; L- losses; TO- takeovers; BS – block-shots; F- fouls; Pl – player; ON – on player.

Table 2

Indicators of technical-tactic actions of female basketball players of combined team of France at final tournaments of European championship 2013

Initials.	M	Min	2-sc. thr.		3- sc. thr.		Penalty thr.		Pick ups			RP ON	L	TO	BS	F		Scores
			A/Thr	%	A/Thr	%	A/Thr	%	A	D	Pl.					Pl.	ON	
G.S.	9	250	45/93	48.4	0/0	0.0	18/32	56.3	23	29	52	11	7	11	5	11	30	108
Y. I.	9	139	38/55	69.1	0/0	0.0	24/40	60.0	12	37	49	2	17	12	3	15	33	100
L.-W. E.	9	161	15/33	45.5	7/18	38.9	20/23	87.0	4	18	22	30	10	2	0	14	23	71
D.C.	9	210	10/33	30.3	11/27	40.7	8/12	66.7	7	20	27	24	9	6	0	17	22	61
G.E.	9	191	22/45	48.9	1/7	14.3	10/13	76.9	6	17	23	17	10	5	0	5	20	57
M.E.	9	162	19/55	34.5	0/2	0.0	15/18	83.3	14	18	32	10	6	3	5	9	14	53
N.E.	9	160	19/29	65.5	0/0	0.0	7/13	53.8	7	25	32	9	11	7	4	17	22	45
T.D.	9	165	18/42	42.9	0/1	0,0	7/15	46.7	14	14	28	9	11	6	4	14	14	43
S.G.	9	159	10/20	50.0	5/14	35.7	3/4	75.0	4	19	23	14	9	2	1	8	5	38
A.V.	8	64	8/13	61.5	2/4	50.0	3/7	42.9	2	10	12	2	6	1	1	10	5	25
A.M.	6	63	6/13	46.2	0/0	0.0	3/6	50.0	4	6	10	2	5	1	1	8	7	15
L.A.	8	73	5/15	33.3	1/3	33.3	1/2	50.0	2	10	12	6	4	1	0	4	4	14
Σ	9		215/446	48.2	27/76	35.5	119/185	64.3	110	244	354	136	114	57	24	132	199	630

Notes: M- matches; Min. – minutes; 2-sc.thr – 2 scores throws; 3 sc.thr. – 3 scores throws; Penalty thr. – penalty throws; A/Thr. Accurate throws; A-attack; D- defense; T – total; RP – passes with results;; L- losses; TO- takeovers; BS – block-shots; F- fouls; Pl – player; ON – on player.

Analysis of Tables 1-3 data witnesses that main game load at matches of final tournament of European championship 2013 of teams – winner and prize-winners lied on 9 sportswomen, which directly participated in match for about 100 minutes and more (in nine matches). This fact permits to say that high level of competitiveness in modern basketball, presence of certain tactical schemas of matches in arsenal of advanced teams, duration of tournament, traumatism of players and other factors imply very qualified team staff. It concerns both: players of "starting" fifth and utility players with a duel with certain adversary.

Table 3

Indicators of technical-tactic actions of female basketball players of combined team of Turkey at final tournaments of European championship 2013

Initials.	M	Min	2-sc. thr.		3- sc. thr.		Penalty thr.		Pick ups			RP	L	TO	BS	F		Scores
			A/Thr	%	A/Thr	%	A/Thr	%	A	D	T					Pl.	ON	
Y.N.	9	199	41/92	44.6	2/6	33.3	4/8	50.0	9	28	37	8	21	9	2	11	11	92
H. Q.	9	216	33/74	44.6	0/0	0.0	15/25	60.0	17	51	68	1	20	2	1	25	33	81
T. E.	9	191	18/39	46.2	8/19	42.1	18/22	81.8	2	18	20	13	10	11	0	15	26	78
A.I.	9	186	21/45	46.7	4/7	57.1	8/12	66.7	9	28	37	31	7	17	0	16	22	62
V.B.	9	192	14/28	50.0	10/22	45.5	0/0	0.0	13	23	36	38	13	9	0	14	4	58
P.T.	9	189	8/22	36.4	10/31	32.3	11/12	91.7	0	8	8	15	12	7	0	12	9	57
C.B.	9	184	21/57	36.8	0/0	0.0	10/13	76.9	16	32	48	5	10	2	3	12	13	52

I.S.	9	195	9/21	42.9	6/25	24.0	4/6	66.7	3	15	18	11	7	8	1	14	5	40
D.Y.	8	114	8/11	72.7	7/14	50.0	1/2	50.0	1	10	11	4	4	4	0	11	3	38
C.T.	9	91	12/16	75.0	1/2	50.0	1/3	33.3	10	16	26	5	3	2	0	8	4	28
C.N.	5	28	2/7	28.6	0/2	0.0	0/0	0.0	2	2	4	1	1	1	0	5	0	4
G.A.	6	16	1/3	33.3	0/1	0.0	0/0	0.0	0	0	0	2	6	0	0	4	1	2
Σ	9		188/415	45.3	48/129	37.2	72/103	69.9	95	256	351	134	121	72	7	147	131	592

Notes: M- matches; Min. – minutes; 2-sc.thr – 2 scores throws; 3 sc.thr. – 3 scores throws; Penalty thr. – penalty throws; A/Thr. Accurate throws; A-attack; D- defense; T – total; RP – passes with results;; L- losses; TO- takeovers; BS – block-shots; F- fouls; Pl – player; ON – on player.

Indicators of technical tactic actions of female basketball players of combined Ukrainian team are presented in table 4. Quantitative analysis of game time of national Ukrainian combined team's female basketball players correspond to indicators of advanced teams of European championship 2013: nine sportswomen endured main load for 30 minutes and more. Analysis of game time of national Ukrainian combined team was carried out on the base of three matches, because in further matches Ukrainian combined team did not participate as per sport principle. Combined team of Ukraine lost three games of group tournament and did not enter the next stage of competitions: combined team of Ukraine – combined team of Turkey – 52-78; combined team of Ukraine – combined team of Slovakia – 68-75; combined team of Ukraine – combined team of Montenegro – 60-72.

Table 4

Indicators of technical-tactic actions of female basketball players of combined team of Ukraine at final tournaments of European championship 2013

Initials.	M	Min	2-sc. thr.		3- sc. thr.		Penalty thr.		Pick ups			RP	L	TO	BS	F		Scores
			A/Thr	%	A/Thr	%	A/Thr	%	A	D	T					Pl.	ON	
I.A.	3	98	11/23	47.8	5/19	26.3	7/14	50,0	1	11	12	5	14	3	2	5	14	44
M. V.	3	81	9/24	37.5	0/4	0.0	4/6	66,7	8	10	18	4	6	2	0	6	6	22
Z.G.	3	59	2/6	33.3	4/12	33.3	1/1	100,0	3	9	12	0	7	2	0	9	2	17
O.O.	3	60	3/8	37.5	2/6	33.3	4/4	100,0	3	10	13	4	5	1	0	8	5	16
D.O.	3	65	4/9	44.4	1/4	25.0	1/2	50,0	4	0	4	9	7	3	0	7	3	12
M.K.	3	32	4/6	66.7	1/1	100.0	0/0	0,0	1	3	4	1	1	2	0	6	1	11
D.K.	3	34	3/5	60.0	1/3	33.3	2/2	100,0	3	2	5	0	1	1	0	2	4	11
K.I.	3	51	1/5	20.0	1/1	100.0	0/0	0,0	3	2	5	9	6	0	0	4	2	5
A.L.	2	14	2/7	28.6	0/0	0.0	0/2	0,0	4	3	7	0	1	0	0	1	2	4
K.O.	1	11	2/5	40.0	0/0	0.0	0/2	0,0	2	3	5	1	1	0	1	0	2	4
S.O.	2	12	0/0	0.0	0/0	0.0	0/0	0,0	1	1	2	0	2	1	0	2	1	0
Σ	3		56/124	45.2	16/57	28.1	20/36	55,6	47	64	111	39	61	17	4	59	47	180

Notes: M- matches; Min. – minutes; 2-sc.thr – 2 scores throws; 3 sc.thr. – 3 scores throws; Penalty thr. – penalty throws; A/Thr. Accurate throws; A-attack; D- defense; T – total; RP – passes with results;; L- losses; TO- takeovers; BS – block-shots; F- fouls; Pl – player; ON – on player.

Indicators of technical-tactic actions in basketball, which mostly determine successfulness of competition process, include quantity of gained scores and effectiveness of throws. Comparative analysis of throws' effectiveness of Ukrainian national combined team's female basketball players and advanced teams of European championship 2013 permits to state that indicators of 2 scores throws' effectiveness are in the range 44-48%: Ukrainian combined team – 45.2%, combined team of Spain – 44.8%, combined team of France – 48.2%, combined team of Turkey – 45.3%. By this indicator combined team of Ukraine practically does not yield to advanced European teams. We accentuate attention at one more connected with previous indicator – quantity of 2-scores throws in match: this indicator of championship winner and prize-winners is significantly higher. Analysis of 3 scores throws' effectiveness witnesses that indicators of Ukrainian combined team's female basketball players are much lower: combined team of Ukraine – 28.1% with quantity of throws in match – 19; combined team of Spain – 38.1% with quantity of throws – 14.89; combined team of France – 35.5%, with quantity of throws – 8.44; combined team of Turkey – 37.2% with quantity of throws – 14.33. Quantity of throws of Ukrainian female basketball players is higher and it is probably explained by tactic specificities of playing, but low percentage of their realization did not permit for our team to create domination in this indicator. Indicators of penalty throws' effectiveness witness about lagging of our basketball players in this

component of technical-tactic activity: combined team of Ukraine – 55.6% with quantity of throws – 12; combined team of Spain – 71.1%, with quantity of throws – 16.89; combined team of France – 64.3% with quantity of throws 20.56; combined team of Turkey – 69.9% with quantity of throws – 11.44. Besides, important element of pedagogical analysis of competition process of highly qualified female basketball players are indicators of correlation of gained and lost scores in a match: combined team of Ukraine – 60.0/75.0; combined team of Spain –73.4/57.56; combined team of France – 64.3% with quantity of throws 20.56; ≈ 1.28; combined team of France – 70.0/54/33 ≈ 1.29; combined team of Turkey – 65.8 / 53.78 ≈ 1.22. Indicators of correlation of gained and lost scores in one match of combined teams of Spain, France and Turkey are in the range 1.2 – 1.3.

Besides mentioned above, in the process of pedagogical analysis auxiliary indicators technical tactic activity of highly qualified basketball players are widely used. They, in particular, include: resulting passes, block-shots, pick ups, and ball turnovers (see table 5).

Table 5

Mean indicators of technical-tactic actions of female basketball players in matches of final tournament of European championship 2013

Teams	2-sc. thr.		3- sc. thr.		Penalty thr.		Pick ups			RP	L	TO	BS	F		Scores
	A/Thr	%	A/Thr	%	A/Thr	%	A	D	T					Pl	ON	
ESP	22,2/49,6	44.8	5.7/14,9	38.1	12.0/16.9	71.1	13.1	26.2	39.3	15.8	12.3	9.9	2.9	17.6	19.7	73,4
FRA	23,9/49,6	48.2	3.0/8,4	35.5	13.2/20.6	64.3	12.2	27.1	39.3	15.1	12.7	6.3	2.7	14.7	22.1	70,0
TUR	20,9/46,1	45.3	5.3/14,3	37.2	8.0/11.4	69.9	10.6	28.4	39.0	14.9	13.4	8.0	0.8	16.3	14.6	65,8
UKR*	18,7/41,3	45.2	5.3/19,0	28.1	6.7/12.0	55.6	15.7	21.3	37.0	13.0	20.3	5.7	1.3	19.7	15.7	60,0

Notes: M- matches; Min. – minutes; 2-sc.thr – 2 scores throws; 3 sc.thr. – 3 scores throws; Penalty thr. – penalty throws; A/Thr. Accurate throws; A-attack; D- defense; T – total; RP – passes with results;; L- losses; TO-takeovers; BSA – block-shots; F- fouls; Pl – player; ON – on player; ESP – combined team of Spain; FRA – combined team of France; TUR – combined team of Turkey; UKR – combined team of Ukraine; * - mean indicators in three matches. .

Comparative analysis of highly qualified female basketball players' technical-tactic activity (table 5) permits to state that the lowest characteristics of Ukrainian combined team's female basketball players were registered by indicators of ball losses – 20.3 in one match. Indicators of advanced teams of European championship were in the range of 12-13.5 ball losses per one match.

Conclusions:

1. Registration and analysis of technical-tactic activity of highly qualified female basketball players at official international competitions (world and European championships, Olympic Games) permit to use these indicators as model characteristics of technical-tactic activity in training and competition processes.

2. On the base of official data of European championship 2013 we recommend to use as model characteristics the following ranges of technical-tactic indicators of highly qualified female basketball players' actions (in one match):

a)effectiveness of 2 scores throws: 44 – 48% with quantity of throws in one match - 46 – 50; b) effectiveness of 3 scores throws: 35 – 39% with quantity of throws in one match - 15 – 19; c) effectiveness of penalty throws - 64 – 72% with quantity of throws in one match 16 – 21; d) indicators of correlation of gained and lost scores: 1.2 – 1.3; e) pick ups: 37 – 40; f)turnovers of ball: 6 – 10; g)resulting passes: 13 – 16;losses of ball: 12 -14;block shots: 2,5 – 3,0.

The prospects of further researches in this direction are based on further detail studying of technical-tactic indicators of leading players. Actually, indicators of technical-tactic actions of the strongest players are individual models. Practice of greatest international competitions witnesses that the most success is achieved by teams, which include individually strong players, who are able in difficult moments of game demonstrate highly effective technical-tactic activity.

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Cite this article as: Doroshenko E.Iu. Modelling of technical tactical actions as the management factor competitive process and preparation of basketball players of high qualification. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 29-34. doi:10.6084/m9.figshare.775327

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 01.07.2013
Published: 30.09.2013

THE FORMATION OF PERSON'S HEALTH: EXPERIENCE OF WALDORF SCHOOL

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Annotation. In the article is presented the results of comparative researches of the state of health of Waldorf and traditional schools of students, conducted in different countries (Austria, Holland, Germany, Denmark, Russia, Ukraine, Finland, Switzerland, Sweden). It is set that health saving orientation of Waldorf school brings to the considerable successful results of Waldorf education: Waldorf schoolchildren as compared to the students of traditional schools have the best indexes of physical and psychical health, developed cognitive flairs, personality qualities (individual initiativeness, work, independence of decisions, collaboration with people, social mobility). Due to it among the graduating students of Waldorf schools there almost are not unemployed persons (as well as people with asocial behavior). Among the formers Waldorf students there is a high percent of workers of social, educational and medicine sphere; among them there are many also well-known in the west statesmen, financiers, literati, representatives of art and other.

Key words: formation of health, educative process, health saving direction, Waldorf school, traditional school, comparative researches.

Introduction

One of tasks of priority of modern school is education of healthy generation, personality's reasonable attitude to own health and health of other people. Alongside with it, we have to admit that school education realizes its health-related function incompletely. For example, as per statistic data percentage of pupils with chronic diseases has reached 80%. With it, alongside with unfavorable social-economic, ecological and hereditary reasons, significant part of pupils' risk factors have didactic origin (imperfect organization of educational process, domination of command style in interaction of teacher and disciples, prevailing of reproductive character of teaching and etc.).

In actual world educational practice pupils' health protection is provided mainly with application of medical-hygienic measures, while health-related potential of pedagogic approaches have been remaining unrealized completely.

Scientifically grounded solution of problem of pupils' health formation through education stimulates scientists to deep analysis of theory and practice of schools, pedagogic activity of which is oriented on pupils' health protection.

In world pedagogic Waldorf's school is one of examples of educational process's organization on principles of personality's health protection.

Analysis of scientific-pedagogical literature permits to make conclusion that scientists deal with researches of realization of health-related pedagogical process by Waldorf's school, results of Waldorf education [1, 2, 5-7].

At the same time there is no holistic analysis of Waldorf education results in context of pupils' health protection in scientific sources.

The work has been fulfilled as per plan of scientific & research works of Kharkiv national pedagogic university, named after G.S. Skovoroda.

Purpose, tasks of the work, material and methods

The purpose of the work is generalization of experience of Waldorf's school in formation of pupils' health.

Results of the research

The fulfilled scientific study permits to make conclusion that Waldorf's school solves in practice the task of ensuring of healthy spiritual-mental-physical progressing of a personality. It is proved by results of researches, which have been conducted recent years both in western countries and in Ukraine and Russia.

For example, in frames of research "School and health", which was carried out in 90-s of the last century by universities of Bilefeld and Helsinki (Finland) for determination of school education's influence on somatic children's health, there were examined several thousand of Waldorf and traditional schools. It was stated that percentage of psychic diseases is much lower at Waldorf's schools than in traditional ones, with it in Waldorf's schools it is constantly decreasing, while in traditional schools it is increasing. The same concerns children's physical health, in particular headaches' frequency, distortions of digestion system and etc.

The level of inter-personal communication of Waldorf's school pupils is rather high. Children like to study, are more responsible to what happens in class, level of their discipline and self-organization if higher. Cases of violence are much rarer [4].

Some large-scale comparative researches of pupils' health were conducted in 2006. These researches involved 6630 children of age from 6 to 13 years old (4606 pupils of Waldorf's schools and 2024 pupils of other schools) of five western countries (Austria, Holland, Germany, Switzerland and Sweden). Special interest of the researchers was pointed at revelation of morbidity from different infections, determination of allergies, which are now are rather wide-spread among children.

doi: 10.6084/m9.figshare.775337

These researches witnessed that pupils of Waldorf‟s school have much better indicators of health than pupils of traditional schools. For example pupils from Waldorf‟s schools suffer from pollinosis and eczema by 20-30% less and from allergy – by 32-39% less [9].

Researchers (A. Bussing, T. Ostermac, F. Yakoby, P. Matissen) found that adult people, who studied in Waldorf‟s schools, suffer less, than in general in Germany, (be data of Institute of Robert Koch) from allergies, arthrosis, hypertension and other diseases. Former pupils of Waldorf‟s schools are characterized also by ability to endure significant loads, life stresses and crises [10].

For determination of possible reasons of such results scientists carried out observation of children‟s life style in families. The obtained data showed that among Waldorf‟s pupils 40% never took antibiotics, 43% - febrifuges (in particular – paracetamol). For pupils of traditional schools the same data were 15% and 8% accordingly. Only quarter of Waldorf pupils in comparison with three quarters of traditional schools‟ pupils had inoculations from such infantile diseases as measles, German measles, mumps. One third part of Waldorf pupils endured measles, comparing with one tenth part of pupils from traditional schools. Rather sufficient difference was registered also concerning children‟s eating: three quarter of Waldorf pupils took organic, ecologically “pure” food (among traditional schools‟ pupils – only one quarter) [1].

Researcher made conclusion that anthroposophy approach to a person, according to which infection diseases, especially “infantile diseases” in childhood, facilitates formation of strong immune system, is justified. Just owing to this, fact parents of Waldorf schools‟ are rather restrained in attitude to inoculation, in order not to deprive their children opportunity to strengthen health through enduring of infantile diseases. Parent6s also rarely give to their children antibiotics and febrifuges. Besides, ecologically “pure” eating also supports child‟s vital forces and such eating is paid great attention to at Waldorf‟s school.

Achievements of Waldorf‟s pedagogic are proved also by independent international comparative researches, which, in different countries of the world, determine quality of pupils‟ achievements, in particular TIMSS (natural-mathematical education) and PISA (reading and understanding of texts) and by numerous researches, which are conducted by independent experts in countries, where Waldorf‟s schools exist for many years (Denmark, Finland, Sweden, Switzerland and, of course, Germany) [2, 4, 7, 8, 12].

For example, V. Hiller (Association of Waldorf‟s schools of Germany) stresses that such researches in general proved correctness of Waldorf‟s approaches: a lot of Waldorf‟s principle turned out to be similar to those, according to which educational system is built in countries with the best results of pupils‟ achievements. For example, in Scandinavian countries pupils can study in one form for 9 years, in Sweden and Norway – 8 years, in Denmark – up to seventh form children do not receive marks. Rather late differentiation of children by educational achievement – is a secret of Scandinavian pupils‟ achievements, as well as of all Waldorf‟s schools – this is idea of V. Hiller [8].

As per the data of statistical researches rather great percentage of Waldorf‟s schools leavers enter universities. For example, in Germany quantity of applicants- leavers of Waldorf‟s schools, who successfully passed state entrance exams is by 20-30% higher in average in the country, including gymnasiums (this statistic has not been changing for decades) [7, 8]. That is, among pupils, who studied for 12 years in Waldorf‟s school on non-selective base, percentage of those, who can enter higher school, is much bigger, than in schools, which, this way or another, carry out selection of pupils (with it, it should be noted that entrance exams at Waldorf‟s schools are passed as per state requirements and under strict control of governmental educational boards).

Statistical data about professional orientation of Waldorf‟s schools‟ leavers, which are registered in different countries by departments of education and science, also witness about certain successfulness of Waldorf education.

As on to day, leavers of Waldorf‟s schools have been most substantially studied in work by H. Barts and D. Randoll (2007 p.), who, during 2003-2005 carried out research of 1124 of former Waldorf pupils, who had finished schools in period from 1039 to 1974 [10]. The scientists conventionally divided leavers of Waldorf‟s schools in to following three groups: a) “culturally-oriented” (31%) – people, who have cultural and educational priorities (museums, theatre, reading, etc.) They also are interested in anthroposophy: 22% of them concider themselves to be active followers of anthroposophy (by the way, it should be noted that quantity of oriented on anthroposophy Waldorf‟s school-leavers do not prove existing in pedagogical circles idea, that “Waldorf‟s school educates anthroposophy-followers); b) people, “oriented on relations” (33%) – for them the most important is humanistic, emotionally colored communication with other people, “life for the sake of others”. Such people do a lot in practical-applied spheres, try to do everything with own hands; c) hedonists (36%) – for them most important are sports, amusements, pleasure for body, delight with life.

It has been cleared up that, independent on determined types, prevailing majority of former Waldorf pupils are able to have critical attitude to environmental phenomena and regard them in all their interconnections. For great majority of Waldorf‟s school-leavers criterion of social responsibility is of significant priority. H. Barts and D. Randoll explain this fact by social orientation of Waldorf‟s school, its general festivals, concerts, performances, owing to which pupils can sense strong feeling of community with surrounding people.

Up to 92% of former Waldorf pupils stressed that they liked much their school years. They identify themselves with former educational establishment, positively appraising teaching at school, especially accentuating art-cultural and practical handicraft cycles. Waldorf school-leavers are sure that school gave to them opportunity to receive good basic education, obtain key competences – such as positive attitude to life, trust in own forces, independence and ability to adapt to life conditions [10].

Similar data were obtained in written questioning of 1586 Sweden Waldorf schools, who finished study in period 1990-1996. This questioning was carried out by Sweden independent institute in Kilhberg, in 1999. Results of the questioning permitted to make conclusion that Waldorf‟s education positively influences on such rather urgent for modern world qualities as independence, ability to interact in collective, creativity, complex (holistic) thinking [6].

The question, how former pupils appraise their chances at labor market in comparison with leavers of traditional schools, 70% of respondents answered “equally good”, 16% - “rather better than worse”, 8^ - “better”, 3% appraised their chances as “rather worse than better” and 2.5% - as “worse”. (90% of the questioned answered positively the question about their professional and personality‟s targets for following 3-5 years and clearly described them. Great majority of young people called as their closest target “complete education and progressing in professional sphere” [6].

Different studies of former Waldorf schools state that among them there is rather high percentage of those, who are satisfied with their profession – up to 75-85%. By the results of questioning [6], it can be stated that most of Waldorf school-leavers succeeded in choosing of profession and developing professional prospects. Positive evaluation of chances at labor market is explained by strength of personality, points at high level of self-assertion. Self-estimation of own abilities and professionalism was also high. School-leavers appraised their school also highly, marking among abilities, educated by it, first of all creativity, ability to communicate, to take independently decisions, to analyze.

So it is not surprising that by data of UNESCO, among Waldorf school-leavers there are nearly no unemployed (and this take place in countries, in which unemployment is growing) as well as there are no criminals, drug addicts, alcoholics [3, 13].

Of not less significance is the fact that leavers of Waldorf‟s schools strive for further education: as per the data of H.Barts and D. Randoll, from former Waldorf pupils of Germany 46.8% received academic education, 68.7% graduated from institutes or higher special schools [10].

Leavers of Waldorf‟s schools also shows desire to deal with social professions. For example by statistic data, obtained in Germany [7], 28 % of Waldorf‟s school-leavers work in educational and social spheres (with it, profession of teacher was chosen by 14.6%, that is 5 time more frequent in comparison with other population [10]), 12 % –works in medicine, 12 % – in art and linguistics.

From all variety of profession, just social sphere is the most frequently chosen (education, medicine, social therapy and so on) by Waldorf‟s school leavers in other countries, in Switzerland in particular [6]. High percentage of those, who choose social sphere, witnesses that social and altruistic motives are very important in professional orientation of former Waldorf pupils. Surely, it is just statistics. In practice former Waldorf pupils can be met in quite different spheres of social life, where they work with initiative and readiness to take responsibility.

The work by L. Hessler “Educational success in the light of educational biographies”, published by European Community, became a real sensation in European pedagogic circles [11]. The author analyzes in details Waldorf‟s educational process and biographies of Waldorf‟s school-leavers. As per L. Hessler, school-leavers of Waldorf‟s schools were in different years: Adreas Charlgen (politician and member of Sweden parliament), doctor Olaf Feldman (member of federal parliament if Germany), Charl Otto Piol (presidents of Federal bank of Germany in 1980-1991), Yens Stoltenberg (former prime-minister of Norway, now – leader of labor party), Ken Shenaut (head of “American Express”, in 2002 was recognized the second most powerful manager in USA), Michael Ende (world-known writer and author of bestsellers of children German-language literature), Ferdinand Alexander Porshe (Germany), who, in 1963 created automobile “Porshe” (in the world this car is considered to be “cult-car”, “dream-car”, “designer‟s miracle”, “king of sport cars”, and many other.

As far as school is chosen by parents, but not by children, it is necessary to note well-known parents of Waldorf‟s schools leavers – people, who chose for their children just Waldorf‟s school.

So, Waldorf education was received by: daughter of Silvio Berlusconi (prime-minister of Italy), daughter of Michail Barushnikov (American dancer and actor), sun of Jean Paul Belmondaut (French actor), daughter of Wolfgang Klement (minister of economic relations, Germany), daughter and grand daughter of Rudolf Leiding (former speaker of directors‟ board of “Volkswagen” company, Germany), children of Yonas Gar Store (president of Red Cross of Norway, former head of executive board of world health protection organization), children of Harrison Ford (actor, who played roles in such films as “Star wars”, “Indiana Johns”, “President‟s aircraft”, “Escapee” and other, USA), children of John Paul Jones (musician, bass of group “Led Zeppelin”, Great Britain), sun of Helmutt Coll (former chancellor of Germany) and many other.

As H. Barts and D. Randoll note, 20% of parents explain their choosing of exactly Waldorf‟s school for their children by dissatisfaction with governmental school, 11% - by conscious choosing of education with anthroposophy orientation. At the same time most of parents name as main motive of choosing of Waldorf‟s school, first of all, its attractive pedagogical conception – individual promotion of personality‟s progressing, absence of marks in from of points, artistic-practical orientation of education and etc. [10].

Recent years there have appeared researches dealing with Waldorf pedagogic in post USSR countries. For example, in Russia, psychologists of Moscow state university, named after M. Lomonosov (under guidance of N. Yevsikova, 2000) studied dynamic of mental development of children, who studied in Russian Waldorf schools. It was stated that, in spite of absence of special intellectual training and presence of high academic load, there is no intellectual lagging and, by some indicators (specifically memory) progress is better than in control groups. Scientists of

Psychological institute RAO (under guidance of Ye.Smirnova, 2002) carried out comparative researches of moral development of children from Waldorf and traditional kindergartens [5].

From 2000 Russian Waldorf‟ schools started first graduations of pupils. In particular, during 10 years (as on 2002) of Moscow Waldorf school‟s No.1060 work 53 pupils finished it and became students of prestige Moscow universities: 14 school-leavers entered humanitarian higher educational establishments, 12 – social-economic ones, the same quantity – technical and educational establishments of natural sciences, 10- art and musical. Questioning of former Waldorf‟s pupils showed that they remember school, which opened life prospects for them, gave abilities and communication skills, trained to think and act independently, with satisfaction and gladness.

In Ukraine first researches, oriented on testing of effectiveness of Waldorf pedagogical principles in organization of pupils‟ education was carried out by O. Ionova (second half of 90-s) [3].

It was established that Waldorf‟s approaches ensure successfulness of pedagogic process, facilitating humanization of teaching environment, realization of individuality-oriented teaching in conditions of group and frontal work with class, constant formation of thinking, memory, fantasy, culture of feelings, will power of a child. If level of knowledge of Waldorf‟s pupils mainly is the same as of traditional schools‟ pupils, then level of personality‟s abilities (communicability, love for beautiful, diligence, curiosity, self-discipline) as well as creative abilities (independence in learning-cognitive activity, level of cognitive interests) are much higher.

Recent years, in the frames of experiment “Development of Waldorf pedagogic in Ukraine” (Order of Ministry of education and science, No. 363, dt. 06.05.2001) there have been conducted a number of psychological-pedagogic researches, oriented on comparing of results of Waldorf and traditional schools‟ pupils. Basic educational establishments were such Waldorf‟s schools: “Steps” (Odessa), “Sophia” (Kyiv), “School of free child‟s development (Waldorf) (Dnipropetrovsk), school No.108 (Kryviy Rig), EC No.17 (Zhytomyr), EC “Buzkove gnizdo” (Gorodenko, Ivano-Frankivska region), EC “School of free child‟s development” (Kharkiv).

In the course of researches there were repeatedly carried out comparative “sections” of knowledge of Waldorf and traditional schools‟ pupils. Results of state assessments witness that progress of Waldorf pupils is to some extent better, comparing with traditional schools‟ pupils. In particular, as per data of state assessment of 2002/2003 academic year (Kryviy Rig) progress of 4th form Waldorf pupils in mother tongue (Russian) and mathematics was 100% (in traditional school 81.8 and 96% accordingly); in Ukrainian – 92% (traditional school – 68.2%).

Researches of formation level of knowledge quality of primary classes‟ leavers, including pupils from other schools, which took part in experiment, also witnesses that pupils of Ukrainian Waldorf‟s schools mastered system of knowledge at level, not lower than level of traditional schools‟ peers after primary classes.

Appraising it as undoubtedly positive moment of Waldorf pupils‟ teaching, we should like to note that Waldorf education permits to form children‟s bents alongside with solid knowledge. This fact was proved by results of researches, which were fulfilled at EC „School of free development” (Kharkiv). These researches were carried out in frames of International comparative project in mathematical education (IPMA), which had been offered by university at Exeter (Great Britain) and stipulated comparing of not only progress in mathematical education, but also determination of effectiveness of teaching process in mathematics on the base of pre-term monitoring of pupils‟ thinking abilities, mastering of mathematical faculties by them. Appropriate researches were conducted by group of independent experts by equal (for pupils of certain age) tasks.

In Kharkiv 9 schools took part in this project. On the base of first “section” results (2000/2001 academic year) 1st form pupils of EC “School of free development” were on 5th place, comparing with pupils of other schools, which took part in the project. After three years (2002/2003 academic year) the same children – already pupils of 3rd form – took first place by rating. Children demonstrated developed verbal-logical and space thinking, understanding and creativity in using of mathematical knowledge and skills.

During experiment, there were fulfilled comparative psychological-pedagogical studies of junior pupils of Waldorf and traditional schools. The obtained data permit to say that pupils of Waldorf‟s schools, in comparison with pupils of traditional schools, are characterized with the following:

• they have higher level of motivational and emotional spheres‟ development, that is characterized by the fact that children go to school and learn with gladness, have positive informal attitude to school and teacher, steady cognitive interest, they are oriented on independent acquiring of new knowledge;

• they have good memory, creative imagination, concentrated attention. With it, at the end of academic year level of attention increases (in contrast to pupils of traditional schools) and level of aggression and anxiety reduces, that witnesses about good adaptation to school and emotional balance;

• by level of development of graphic skills, fine motor functions of hand and sense-motor functions they differ from traditional schools‟ pupils insignificantly;

• by level of logical thinking development (in particular ability to classify and determine sequence of phenomena) they practically do not differ from traditional schools‟ pupils; they have to some extent worse indicators of critical perception, ability for generalization, but better indicators in verbal-logical and space thinking as well as creative thinking (they better fulfill tasks of creative character);

• they feel themselves actively and freely at school, have developed sense of sociality and empathy;

• they have good body control. As per results of medical examinations in period of avitaminosis and colds lessons‟ missing, owing to diseases, are insignificant.

Thus, Waldorf‟s school positively influences on intellectual activity, individual initiative, creativity, independence of decisions, mental balance, social competence, coordination of body and movements, as well as facilitates healthy child‟s development in comparison with traditional school.

Conclusions:

Generalization of the presented above analysis permits to make conclusions that there is no ground under ideas of some researches, who consider Waldorf‟s school" to be just "school of art" or "school of labor" and, thus, suitable for children with health problems; that in Waldorf‟s school "good atmosphere, but children are not taught to anything", i.e. in other words, that Waldorf pedagogic attaches secondary value to quality of knowledge (V. Valentinova).

Statement that practice of Waldorf‟s school results in, on the one hand, formation of sense of pupils‟ exclusiveness and, on the other hand, appearing of certain child‟s complexes, situational and personality‟s anxiety (O. Cherkasova) also is far from reality.

At the same time, the fulfilled work proves conclusions of scientists (V. Hebel, L. Hessler, M. Hekler, O. Ionova, O. Lukashenko, T. Marty) about sense of Waldorf‟s pedagogical process as mean of sound spiritual-mental-physical development of personality.

Considering all above mentioned we think that scientific-methodic foundation of introducing of Waldorf health-creating experience in domestic school to be *perspective direction of further researches,* in order to solve the tasks of healthy generation‟s education.

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Cite this article as: Ionova O.M. The formation of person's health: experience of Waldorf school. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 35-40. doi:10.6084/m9.figshare.775337

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 09.08.2013
Published: 30.09.2013

PSYCHOPHYSIOLOGICAL POSSIBILITY OF MOUNTAINEERS AND CLIMBERS SPECIALIZING IN SPEED CLIMBING AND CLIMBING DIFFICULTY

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Annotation. The purpose of this study was comparative characterization of psycho-physiological features of elite athletes - the representatives of the climbing on the complexity, speed and climbers. The study included 26 elite athletes (age 19-22 years). It is shown that athletes much more accurately reproduce a time interval of 30 seconds, compared with a time interval of 1 minute. Revealed that the climbers (climbing speed) and in some cases, climbers (climbing difficulty)show significantly better results on tests of reaction rate under difficult conditions. Found higher rates of mobility and strength of nervous processes in rock climbers compared with climbers. This fact is related to the specific training and competitive activities of climbing, which requires a global concentration or under conditions of maximum circa power voltage.

Keywords: rock climbing, mountain climbing, speed, strength, endurance, psychophysiology, reaction, nervous system, complexity, selection.

Introduction

At present stage of rock-climbing progressing, revelation of psycho-physiological qualities of elite athletes [2, 3, 4, 10], specializing in different kinds of rock-climbing and mountaineers, has become of special importance. These kinds of sports make high demands to nervous system's functioning in connection with need in prompt decisions in non-standard conditions with practically maximal tension of all main muscular groups. It should be noted that just this aspect of rock-climbing distinguishes it from other kinds of sports, also requiring maximal force. For example, weight lifter fulfils standard, already known action and in process of its fulfillment he is concentrated, mainly, on demonstration of maximal force. In rock-climbing, alongside with ability to endure maximal or close to maximal loads, the necessary condition of successful passing of distance is also high level of operative thinking, concentration of attention, space orientation and so on, that require high level of psycho-physiological abilities [3, 10, 11, 12, 15].

In this connection one of tasks of development of rock-climbing theoretical-methodic principles is study of different rock-climbing kinds representatives' psycho-physiological abilities and their comparative characteristics with representatives of other kinds of sports, first of all mountaineering, which gave birth to rock climbing.

In this connection one of tasks of development of rock-climbing theoretical-methodic principles is study of different rock-climbing kinds representatives' psycho-physiological abilities and their comparative characteristics with representatives of other kinds of sports, first of all mountaineering, which gave birth to rock climbing.

Purpose of the work, material and methods

The purpose of the work – is to provide comparative characteristics of psycho-physiological abilities of mountaineers and representatives of different rock-climbing kinds.

The methods of the research: theoretical analysis and generalization of literature sources, psycho-physiological methods of research (speed of plain and complex responses to light exposure in different testing modes, determination of strength and mobility of nervous system), which were carried out with the help of computer program "Psycho-diagnostics" [7, 8, 9], methods of mathematical statistics.

26 sportsmen took part in the research; 10 of them –international masters of sports, specializing in speed rock-climbing, 10 international masters of sports, specializing in complex rock-climbing and 6 mountaineer of international level. Age of sportsmen was 19-22 years old.

Results of the research

Results of psycho-physiological testing did not show any confident differences in tests for reproduction of time intervals of 30 sec. and 1 minute by representatives of different rock-climbing kinds and mountaineering kinds (see fig.1). It should be noted that the tested sportsmen reproduced much more precisely time interval of 30 seconds, comparing with time interval of 1 minute, which was accelerated in their subjective sensing (see fig. 1). May be this fact is also connected with specificity of training and competition activity of this kind of sports representatives.

doi: 10.6084/m9.figshare.785784

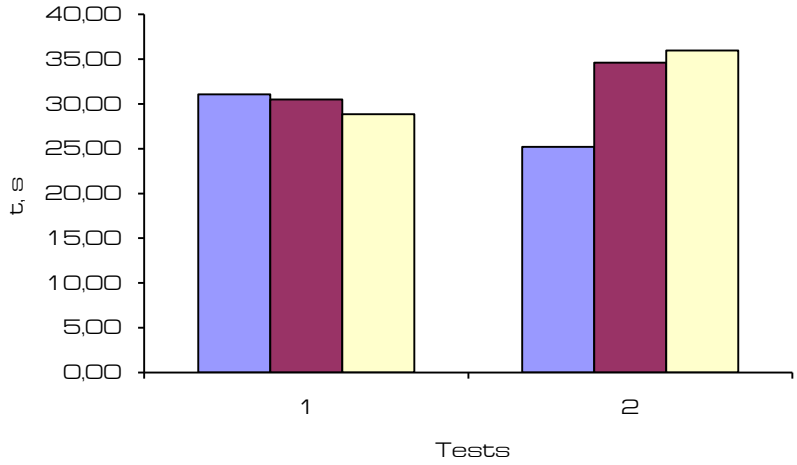

Fig.1. Reproduction of time intervals by elite athletes, specializing in speed climbing (n=10), climbing on complexity (n=10) and mountaineering (n=6):
1 - reproduction of time interval 30 sec, s.
2 - reproduction of time interval of 1 minute, s.

-rock climbers (speed climbing); rock-climbers (climbing on complexit - mountaineers

Concerning psycho-physiological qualities of representative of different rock-climbing kinds and mountaineers, it should be noted the following: rock-climbers (speed climbing) and in some cases rock-climbers (climbing on complexity) show confidently better results in tests for quickness of response in complex conditions. For example, rock-climbers, specializing in speed climbing and rock climbers, specializing in climbing on complexity has confidently less latent period of response in test "level of functional mobility of nervous processes" in feedback mode in comparison with mountaineers ($p<0.05$). Rock-climbers (speed climbing) have also less latent period of response in test "level of functional mobility of nervous processes" in the mode of forced rhythm in comparison with rock climbers (climbing on complexity) and mountaineers ($p<0.01$, $p<0.001$) latent period of response in test "strength of nervous processes" ($p<0.001$) (Fig. 2).

In general, rock-climbers, both rock-climbers, specializing in speed climbing and those, specializing in climbing on complexity, have higher mobility and strength of nervous processes in comparison with mountaineers. It is witnessed by less quantity of mistakes in tests "response to choice of two signals from three" ($p<0.05$), "level of functional mobility of nervous processes" in feedback mode ($p<0.05$), "level of functional mobility of nervous processes" in the mode of forced rhythm $p<0.05$) and "strength of nervous processes" ($p<0.001$), that characterize strength of nervous system (see fig.4, 5).

Mobility of nervous system of rock-climbers, especially speed rock-climbers was also higher than of mountaineers. It is witnessed by confidently less value of minimal time of signal exposure in test "level of functional mobility of nervous processes" in feedback mode, comparing with mountaineers ($p<0.05$) (see fig.3).

However, it should be noted that in relatively unchanging conditions quickness of response of mountaineers and rock-climbers on complexity is higher than of speed rock-climbers; it is witnessed by values of latent period of response in selecting one signal from three ($p<0.05$, $p<0.001$) (see fig. 2).

Analyzing the obtained psycho-physiological data of rock-climbers, specializing in different by character passing of distance and mountaineers we can note that rock-climbers have higher indicators of mobility and strength of nervous processes and less indicators of latent period of complex responses in complicated conditions of testing, than mountaineers. Evidently this fact is connected with specificity of training and competition activity of rock-climbers, which require total concentration in conditions of maximal or close to maximal force efforts.

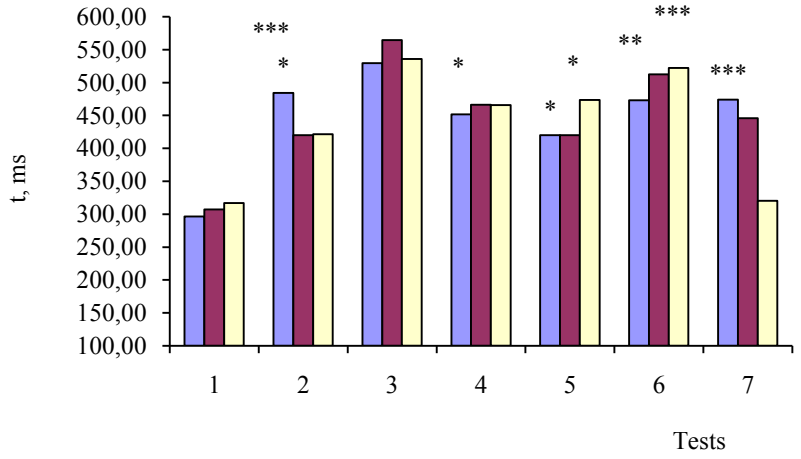

Fig. 2. Latent response time of elite athletes, specializing in speed climbing (n=10), climbing on complexity (n=10) and mountaineers (n=6):

1 – latent period of simple visual-motor response, m.sec. ;
2 -latent period of response of choosing of one signal from three, m.sec.;
3 - latent period of choosing of two signals from three, m.sec.;
4 - latent period of response in test "level of functional mobility of nervous processes" in feedback mode, m.sec.;
5 - minimal time of signal exposure in test "level of functional mobility of nervous processes" in feedback mode, m.sec.;
6 - latent period of response in test "level of functional mobility of nervous processes" in the mode of forced rhythm, m.sec.;
7 - latent period of response in test "strength of nervous processes", m.sec.;
* - differences are confident at p<0.05;
** - differences are confident at p<0.01;
*** - differences are confident at p<0.001;

- -rock-climbers (speed climbing) -rock-climbers (complex climbing); - mountaineers

Abilities of nervous system are in-born, but under influence of environmental factors they can change to some extent. In our case, probably, sports results of international level were achieved just by sportsmen with exactly such properties of nervous system, I.e. rock-climbers with more expressed mobility and strength of nervous processes. Nevertheless, properties of nervous system of the tested sportsmen seemed to change a little bit under influence of environmental factor – training and competition processes.

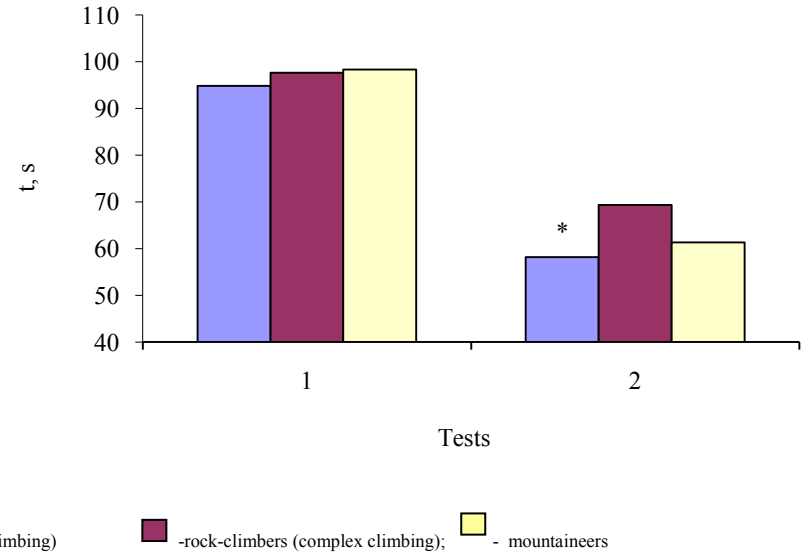

Fig. 3. Indicators of mobility of nervous system of elite athletes, specializing in speed climbing (n=10),climbing on complexity (n=10) and mountaineers (n=6)

1 – time of fulfillment of test "level of functional mobility of nervous processes" in feedback mode, s.;
2 – time of coming to minimal exposure in test "level of functional mobility of nervous processes" in feedback mode, s.;
* - differences are confident at $p<0.05$;

The fact that rock climbers have higher indicators of strength and mobility of nervous system than mountaineers is rather interesting. It is known that mountaineering is one of extreme kinds of sports, connected with risk for life, requires permanent attention, carefulness, space orientation. Nevertheless, in rock-climbing – relatively safe kind of sports – we observe higher indicators of strength and mobility of nervous system. We connect it with the need in maximal concentration in conditions of maximal or close to maximal manifestations of strength and speed power abilities. In mountaineering manifestation of power in combination with maximal concentration of attention is more "stretched" in time [16, 17], is more variable, to less extent requires maximal tension of speed-power and psycho-physiological abilities. Just owing to this fact mountaineers show better results in power endurance during longer periods of time, they have higher functional abilities, but rock-climber have higher quickness, speed endurance, power endurance in short periods of time in combination with better indicators of strength and mobility of nervous system.

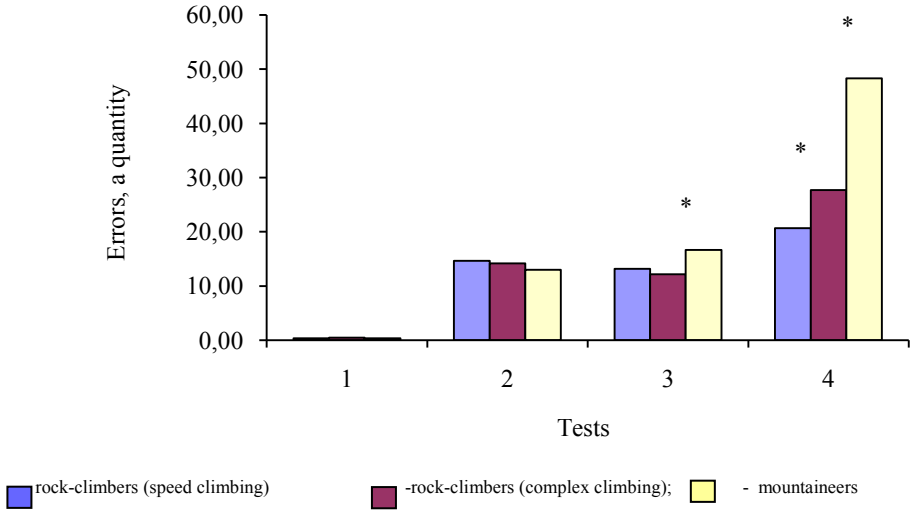

Fig.4. Quantity of errors in fulfillment of tests for determination of latent response time of elite athletes, specializing in speed climbing (n=10),climbing on complexity (n=10) and mountaineers (n=6)
1 – errors in test "plain visual motor response" q-ty;
2 - errors in test "response for choosing of one signal from three", q-ty;
3 - errors in test "choosing of two signals from three", q-ty;
4 - errors in test "level of functional mobility of nervous processes" in feedback mode, q-ty, ms.;
* - differences are confident at $p<0.05$;

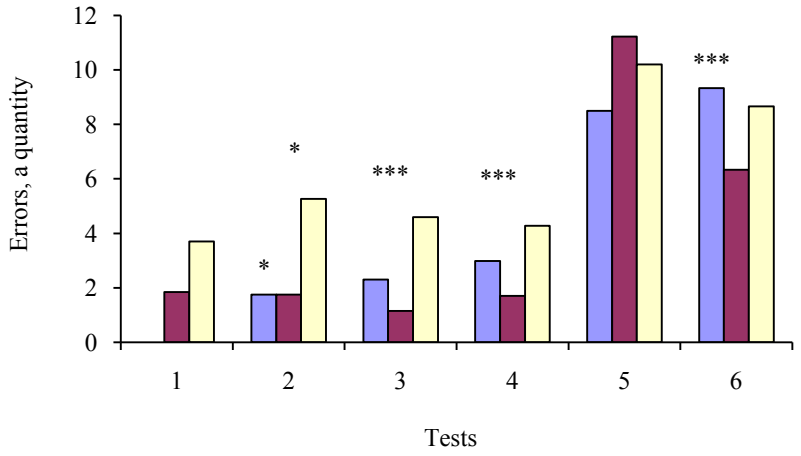

Fig.5. Quantity of errors in fulfillment of tests for determination of latent response time of elite athletes, specializing in speed climbing (n=10),climbing on complexity (n=10) and mountaineers (n=6)

1 - errors at 1st stage of test "level of functional mobility of nervous processes" in forced rhythm mode, %;
2 – errors at 2nd stage of test "level of functional mobility of nervous processes" in forced rhythm mode, %;
3 - errors at 3rd stage of test "level of functional mobility of nervous processes" in forced rhythm mode, %;
4 - errors at 4th stage of test "level of functional mobility of nervous processes" in forced rhythm mode, %;
5 - errors at 5th stage of test "level of functional mobility of nervous processes" in forced rhythm mode, %;
6 – errors in test "strength of nervous processes", %;
* - differences are confident at $p<0.05$;
*** - differences are confident at $p<0.001$;

The obtained data supplement results of researches by S.S, Iermakov [5] Ye.P. Ilyin [6], G.V, Kotobeynikov [4], N.V. Marchenko [14], V.S. Lizogub [13] about specific features of nervous system of different sports specializations' representatives with facts about peculiarities of nervous system's manifestations of rock-climbers and mountaineers.

Psycho-physiological abilities of rock-climbers and mountaineers have been determined for the first time in the present work. For the first time peculiarities of morpho-functional development of rock-climbers, specializing in passing of different kinds of distances have been determined as well as the same of mountaineers.

Conclusions:

1. It has been proved that mountaineers and rock-climbers reproduce time interval of 30 seconds more precisely than interval of 1 minute, which was accelerated in their subjective sense.

2. It has been found that rock-climbing (speed climbing) and in some cases rock-climbers (climbing on complexity) manifest confidently better results in tests for response quickness in complex conditions.

3. It has been state that rock-climbers have higher indicators of mobility and strength of nervous processes, comparing with mountaineers. This fact is connected with specificity of training and competition activity of rock-climbers, which require total concentration in conditions of maximal or close to maximal force efforts.

The prospects of further researches imply studying of structure of different specialization rock-climbers' complex preparedness and development of theoretical methodic principles of training process construction in rock-climbing.

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Cite this article as: Kozina Zh.L., Ryepko O.A., Prusik Kr., Cieślicka Mirosława. Psychophysiological possibility of mountaineers and climbers specializing in speed climbing and climbing difficulty. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 41-46. doi:10.6084/m9.figshare.785784

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 02.09.2013
Published: 30.09.2013

GENDER DIFFERENCES IN RELATION OF STUDENTS TO SPORTS ACTIVITY

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Annotation. The problem of gender approach in the modern physical education in schools is considered. The experiment was conducted with students of 5-11 grades of secondary schools in the city of Poltava in the amount of 419 people. By the experiment, the students were involved in I-year students (35 girls and 16 boys). It is noted that for the normal socialization are important sex and gender roles. They are associated with the awareness itself as the representative of a particular sex with the norms of behavior, characteristic of members of this sex. Show the direction of consideration for the interests, motivations, values in the process of physical education. Found that to attract students to the sports activity requires consideration of the physiological and morphological and functional characteristics of the individual through the process of gender mainstreaming in the school system.
Key words: gender, gender differences, physical education, sports, schoolchildren.

Introduction

As on to day there exists steady trend to worsening of comprehensive educational establishments' pupils' health. And one of morbidity reasons is system of school education itself, in particular those aspects of educational activity, which result in overstrain of nervous system and do not create proper conditions for formation of vital value orientations, self-cognition, self-perfection and self-realization of pupils.

In this connection possibility of more effective pupils' physical development is regarded. It requires systemic approach, an integral component of which should be gender approach, that will give pupils opportunity for self-realization with their intrinsic individual features, ensuring successful socialization and forming certain strategy of pupils' involving in physical culture trainings [5].

Recent years a lot of scientific and methodic works in the field of physical culture and sports has been published. Distinctions in manifestation of pupils' motives and interests in field of physical culture and sports are elucidated in works by T.Yu. Krutsevych, N.V. Moskalenko, G.V. Bezverkhia, N.M. Kunashenko. Problems of gender education were dealt with such scientists as O.L. Zdravomyslova, A.S. Mosaliova, L.V. Popova, I.V. Yevstignieyeva and other scientists.

Analysis of rather limited publications devoted to gender approach to process of pupils' physical education, showed that they, mainly, concern consideration of sex in physical culture trainings and formation of interests and motives to physical culture exercises that proves insufficient level of studying of gender approach to physical education.

The present research was carried out in the frames of scientific-research work, approved by Ministry of education and science, youth and sports of Ukraine. Code 3.1 "Improvement off program-normative principles of physical education" №01110001733 UDK/7/DB/077.5.

Purpose, tasks of the work, material and methods

The purpose of the work is determination of gender distinctions in pupils' attitude to physical culture trainings and sports.

For solution of the marked tasks we used the following *methods of research:* theoretical analysis and generalization of scientific-methodic literature data, questioning, mathematical-statistic processing of the results.

Results of the research and discussion of them

419 pupils participated in the research (206 boys and 213 girls) of comprehensive schools No/No 13 and 14 of Poltave as well as 1st year students (35 girls and 16 boys) of HEE Ukrkoopspilka "Poltava university of economics and commerce". In order to find gender distinctions in pupils' attitude to physical culture trainings and sports we carried out questioning of respondents. For determination of age dynamics in pupils' attitude to physical culture and sport trainings, first research was fulfilled among pupils, who study at 5-11 forms and the –among 1st year students.

The question "Do you go in for any kind of sports?" was answered positively by 5 form boys (see fig.1).

doi: 10.6084/m9.figshare.775328

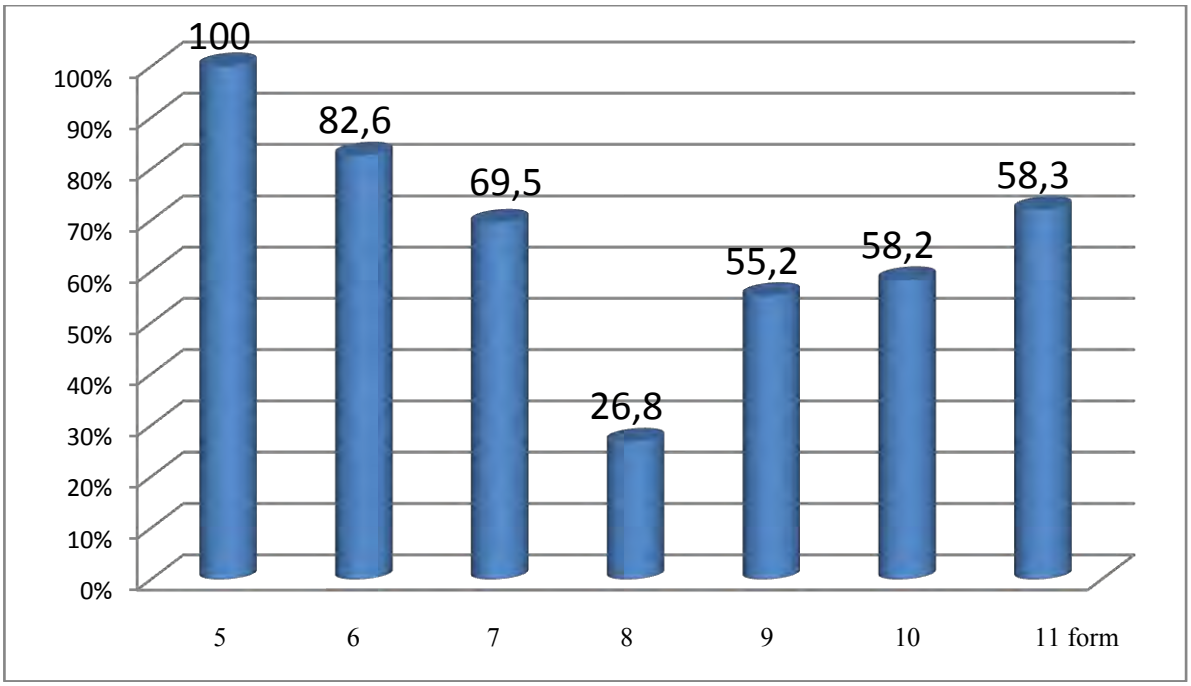

Fig.1. Indicators of 5-11 forms pupils' activity in systemic physical culture-sports trainings (boys)

They practice such kinds of sports as football, basketball, volleyball, swimming and wrestling. Already in 6th form 82.6% of boys go in for sports. Again, as per rating football is on the first place, swimming - on the 2nd, further – basketball and wrestling. Among 7th form school boys, only 69.5% of the questioned practice sports. Other boys do not go in for sports by different reasons, but have desire to attend sport circles of football, wrestling and winter kinds of sports. Concerning pupils of 8th form, only 26.6% of the questioned go in for different kinds of sports.

As we see from 5th to 8tyh forms the quantity of pupils, who practice sports in out-of class time, reduces. It is very negative trend, because among tasks, which are to be solved by comprehensive school as on to day, formation of physical culture values, conscious attitude to health related physical culture and sport activity as to mean of health preservation and strengthening, become still more actualized.

Analyzing answers of 9-11th school boys we can state positive dynamics, concerning health related physical culture activity. 9th form – 55. 2%, 10th – 58. 3%, 11th – 72%. Such dynamics can be explained by the fact that in early youth age (15-17 years old) definite relations with surrounding world are formed. School age is rather sensitive for formation of value orientations [9]. Demand of senior pupils in self-development, self-perfection and self-realization becomes actual, and it is an indicator of personality's maturity and, at the same time, a condition of its achievement [6]. That is why, starting or continuing sport activity in this age, they become more motivated, single-minded, because 15-17 years old pupils already understand the purpose of their actions and correlation with motives of physical self-perfection.

After analyzing of girls' answers to questions we have the following results (see fig.2). 75% of 5th form school girls go in for sports in out-of-class time. They are the following kinds of sports: swimming, volleyball, and sport dances. But from 25% of girls, who do not attend sport circles, 17% have desire to attend them. In most cases they prefer fitness trainings. For 6th form school girls percentage of those, who go in for sports, was 70.5%, and for 7th form – 33.3%. Thus, from 5th to 7th forms girls also show negative trend, concerning attendance of health related physical training in out-of-class time. From 5th form to 7th quantity of girls, who show no interest to sports< sharply increases. We can note that from 8th form percentage of girls, practicing physical activity in out-of-class time increases up to 42%. And further positive dynamics is noticeable. In 11th form 53% of girls practice health-related physical exercises in out-of-classes' time. They practice mainly outdoor games and different kinds of fitness. In spite of positive dynamics of pupils' (girls and boys) sport activity, there remains still high percentage of those, who are indifferent to health related physical activity

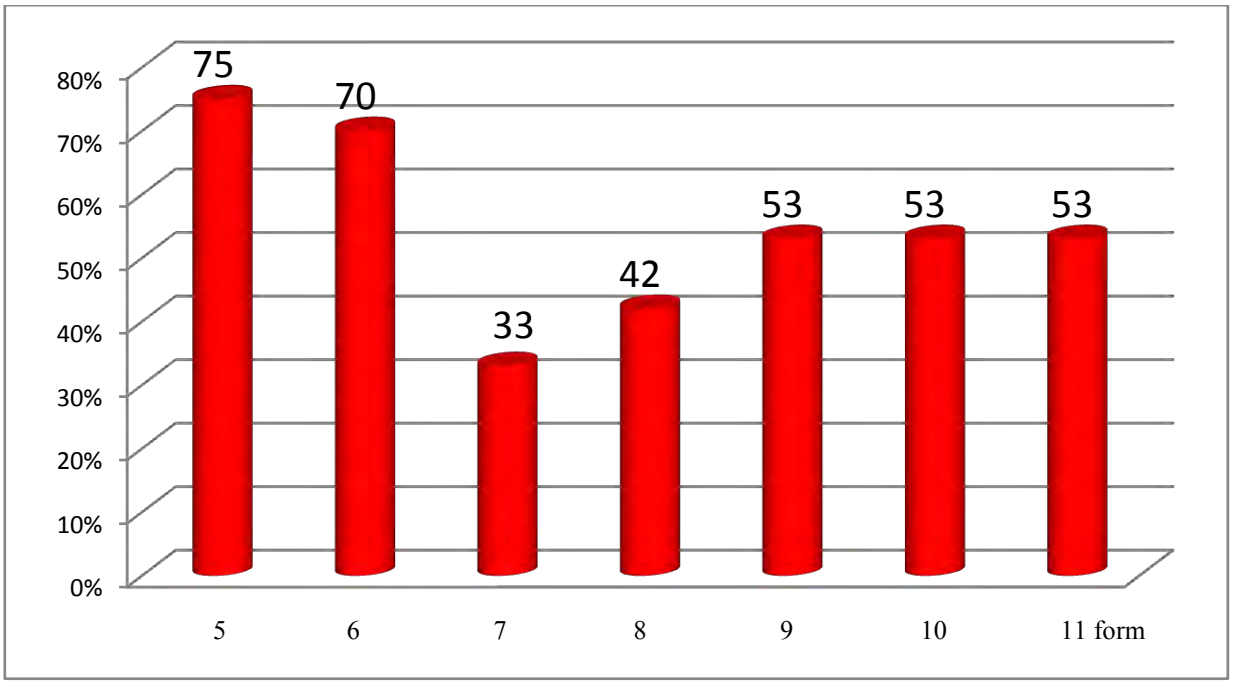

Fig.2. Indicators of 5-11 forms pupils' activity in systemic physical culture-sports trainings (girls)

In order to understand the reasons of teenagers' not wishing to go in for sports, we put question: Name reasons, which prevent you from practicing sports or physical culture?" The respondents' answers were as follows.

Boys of 6th, 7th and 8th forms named as main reason, which prevent them from practicing physical activity, the following: "absence of health-related physical culture groups, which would be interesting for me". Girls of the same age prefer the following answers:"deficit of time", "parents have no possibility to pay for trainings", "have no friends, with whom I could attend trainings". Girls starting from 8th form named the main reason, preventing them from physical trainings, "deficit of time" (50-86%).

Analyzing respondents' answers we can assume that children have no proper motivation for practicing sports, values in sphere of physical culture are not formed and answer "deficit of time" is only lame excuse.

Besides, it was found that boys and girls have different attitude to physical culture lessons. As per our data boys are oftener satisfied with physical culture lessons than girls (see fig. 3).

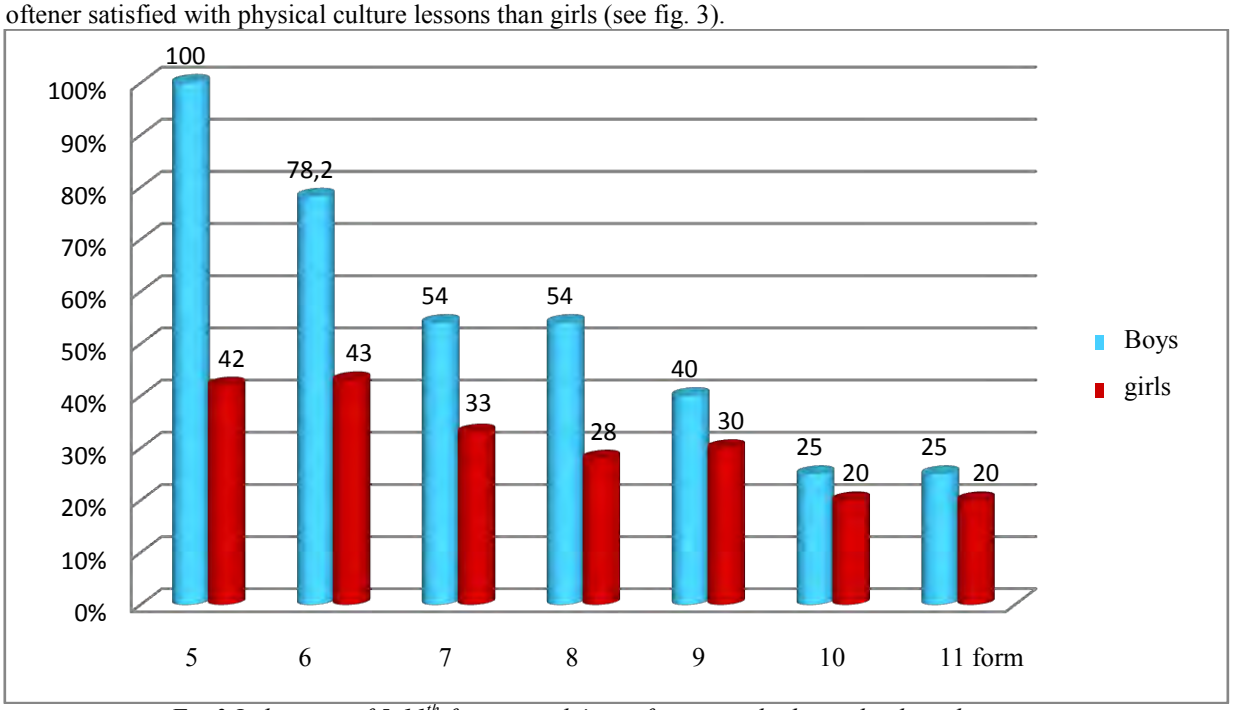

Fig.3 Indicators of 5-11th forms pupils' satisfaction with physical culture lessons

We can state the fact of negative dynamics in pupils' attitude to physical culture lessons. Interest in lessons of 5th form pupils - 100%, 6th - 78.2%, 7th and 8th – 54%. Senior pupils manifested very low interest in physical culture lessons, but percentage of those, who attend sport circles in out-of-classes' time increases to some extent. It witnesses

about presence of pupils' demand in self-perfection. But boys do not think it possible to realize at physical culture lessons. That is why they chose physical training in out-of-classes' time.

Percentage of girls, satisfied with physical culture lessons, is much lower than boys'. 42 – 43% of 5th and 6th forms school girls are satisfied with these lessons. Only 33% and 28% of 7th and 8th forms school girls are satisfied with physical culture lessons. As per the data of our questioning it was determined that very low percentage of senior school girls are satisfied with physical culture lessons.

By results of questioning some gender distinctions in motives, stimulating pupils to attend physical culture lessons, were revealed. If in 5th and 6th forms boys like physical culture lessons, at which they wish to train their will qualities, improve physical condition and motion abilities (100% of boys), then, in 7th and 8th forms percentage of answers "not to have debts in this subject" increased. With it, boys understand physical culture lessons as development of physical qualities and girls – as improvement of figure. Scientists have established that in spite of significance of physical education in process of harmonious personality's development, in school practice (in most cases, not considering experimental classes) physical culture lessons are considered, unfortunately, something of secondary importance, something that can be ignored [8, 10]. These data were proved in our research as well.

There are several reasons of this. But main of them – is absence of orientation on psychological components of personality's development. We think that social sex substantially influence on pupils activity, on their attitude to health-related physical culture activity. With planning of physical culture trainings consideration of pupils' gender specificities increases chance for formation of motivation to physical culture-sports activity. The obtained data coincide with foreign researches and reflect world trends. For example, as per the data of Z. Drozdovsky (1999) quantity of persons, who practice sports, was higher among men than among women independent on age. Girls much oftener refer to deficit if free time, while boys oftener point at absence of interesting sport circles [4].

Conclusions

As a result of studying and theoretical analysis of sociological and psychological-pedagogical literature, as per analysis of our research's results, which concern pupils' gender distinctions in their attitude to health-related physical culture activity, it has become clear that for formation of certain strategy of pupils' involving in systemic physical culture trainings, formation of their attitude to motion activity, it is necessary to consider not only physiological, morpho-functional qualities of pupils, but also gender distinctions. For this purpose it is necessary to study interests, motives, value orientations in sphere of physical culture, implementing gender approach to process of school physical education.

Further researches will be devoted to determination of gender distinctions of consuming-motivation sphere of boys and girls of different age categories and to influence of gender identity on formation of pupils' value orientations.

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Cite this article as: Marchenko O.Y. Gender differences in relation of students to sports activityl. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 47-51. doi:10.6084/m9.figshare.775328

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 03.07.2013
Published: 30.09.2013

MODEL FEATURES AS THE BASIS OF PREPARATION OF BOXERS INDIVIDUALIZATION PRINCIPAL LEVEL (ELITE)

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State Scientific-Research Institute of Physical Culture and Sports

Annotation. *Purpose* - to improve the system of training boxers of higher categories (elite). Individualization of the training process using the model characteristics special physical preparedness. *Materials*: The study was conducted during 2000-2010. Participated boxers national team of Ukraine in the amount of 43 people. Of those honored masters of sport - 6, masters of sports of international class - 16, masters of sports - 21. The average age of the athletes - 23.5 years. *Results*: justified and features a specially designed model of physical fitness boxing class. It is established that the boxers middle weight classes (64 - 75 kg) have an advantage over other boxers weight categories (light and after a hard) in the development of speed and strength endurance. The presented model characteristics can guide the professional fitness boxing (elite), as representatives of the sport. *Conclusions*: It is established that the structure of the special physical training boxers depends on many components, such as weight category, tactical fighter role, skill level, stage of preparation.
Keywords: model, characteristics, physical training, individualization, competitive activity.

Introduction

Modeling has entered in theory and practice of sports relatively recently, though in not quite definite forms. By the present time there have appeared rather many works dealing with creation of models of historical and many years' dynamics of sport results (V.I. Balandidn, 19896; I.P. Degtiariov, 1983; L.P. Matveyev, 1972; V.I. Shaposhnikova, 1984; Ts. Zhelezniakov, 1981). There were created model characteristics of the strongest sportsmen and preparedness levels of sportsmen of different qualification (V.B. Popov, 1988; B.N. Shustin, 1995; A.P. Strizhak, 1992), of training process's fragments (A.V. Gaskov, 1999; L.P. Matveyev, 1999; V.N. Platonov, 1997; V.N. Seluyanov, 1998, M.P. Shestakov, 1998).

Practice of models' using in boxers' training process points at need in differentiation of training loads (G.I. Mokeyev, Yu.B. Viktorov, 1983), development of individual-typological specificities (V.Ya. Rusanov, 1985), studying of psycho-physiological functions' peculiarities (Yu.M. Bludov, V.A. Plakhtiyenko, V.S. Sokolov, 1981) et al.

A.A. Novikov, V.V. Kuznetsov (1975) note that in creation of models of the strongest sportsmen significant assistance can be rendered by complex of indicators of psycho-physiological, psychological and bio-mechanical tests, which should be realized as per requirements of technical-tactic physical condition's level. Authors mark out three levels of strongest sportsman's model:

- At first level –characteristics of strongest sportsmen's activity **(competition model).**
- At second level – characteristics of special physical and technical-tactic preparedness (**model of special preparedness).**
- At third level – characteristics of functional level, morphological attributes (**model of functional preparedness).**

In theoretical aspect the presented schema can be successfully used under conditions of complete filling of schema's "cells". But particular tasks of many researches and their fragmentary character often do not make it possible to completely fill all the "cells".

Realization of principle of individualization in such specific activity as boxing implies correction of training process considering specificities of technical-tactic and special boxer's qualities. Complexity of control is also in the fact that it is impossible to directly influence on changing of sport results. Actually coach controls only actions (behavior) of sportsman: he gives him certain program of exercises (load) and makes him to execute them correctly.

For coach and sportsmen model characteristics can be bench-marks of preparedness level and technical-tactic sportsmanship, which must be achieved by the end of training stage. Mean testing results are compared with model characteristics and, thus, boxers' level is evaluated. Successful control is possible only if there are feedbacks, permitting to determine object's state; in particular to compare actual state of object with "model", (programmed).

In our further researches we mark out the following model characteristics of boxers:

- Models of elite boxers, as representatives of this kind of sports;
- Models of boxers' readiness in pre-competition period;
- Boxers' models at basic stage of training;
- Boxers' models, depending on their qualification (MS, CMS);
- Models of general and special physical preparedness.

In this work only models of highest grades' boxers –representatives of kind of sports- are presented.

doi: 10.6084/m9.figshare.775329

The research was carried out in the frames of scientific topic 2012.2 "Control of functional state and metabolism of qualified sportsmen in Olympic cycle of training", which was approved by Order of Ministry of education and science, youth and sports of Ukraine № 1241 dt. 28. 10. 2011.

Purpose, tasks of the work, material and methods

The purpose of the work is improvement of elite boxers' training system; individualization of training process with using of model characteristics of special preparedness.

The methods and organization of the research:

1. Analysis of scientific-research literature;
2. Pedagogical observations and analysis of competition activity;
3. Timing – dynamometry;
4. Mathematical statistics.

Parameters, which characterize model characteristics, shall meet requirement of information content and reliability of testing.

Information content of testing is degree of accuracy, with which it measures properties, for evaluation of which it is used. Reliability of tests – is level of results' coincidence with repeated testing of one at the same people in the same conditions.

In earlier researches (V.N. Osyanov et al., 1985) there were determined indicators of boxers' special physical preparedness in respect to criteria of boxers' technical-tactic sportsmanship (see table 1).

Table 1

List of laboratory methodic, informative in respect to technical-tactic sportsmanship tests

№	Description of test of technical-tactic sportsmanship	Symbols of laboratory methodic
1.	Defense effectiveness	$Q_{10,}$ N, PA
2.	Quantity of parried punches	TSR, PA
3.	Quantity of scores in fight	TT-50, $Q_{10,}$, PA
4.	Quantity of failed punches	F_{10}, TT10
5.	Quantity of successful punches	TT-50, $Q_{10,}$, PA
6.	Effectiveness of attack	Q_{20}
7.	Activity of fight	TCR, Q-50, $Q_{10,}$, PA
8.	Missed punches	TT-10, PA
9.	Fight effectiveness	$Q_{10,}$ N, SC, TT-1

Q_{10} – quantity of punches in test « 10 s », Q_{20} – quantity of punches in test « 20 s ", F_{10} – total power of punches in test "10 s", F_{20} – total power of punches in test "20 s", TT-50 – total time of execution of 50 punches at distance of 50 cm, TT-10 – total time of execution of 10 punches at distance of 50 cm, TT-1 – time of 1 punch execution at distance of 50 cm, TSR – time of simple response, TCR – time of complex response, SC – spurt coefficient of specialized test, PA – punch accuracy, N – punches power.

Indicators of competition activity, such as: quantity of successful punches in the process of fight; effectiveness of attack; effectiveness of defense; activity of fight and etc. were accepted as criteria of technical-tactic boxers' preparedness.

As indicators of special physical preparedness the following was accepted: quantity and power of punches in tests "10 seconds" and "20 seconds"; time of execution of 10 and 50 punches at distance of 50 cm; time of response (simple and complex); accuracy of punches, power of punches.

Control of special preparedness was carried out with the help of timing-dynamometry method. Further, this method was improved. For creation of the mentioned models we used indicators, informative in respect to criterias of boxers' technical-tactic sportsmanship, registered in competition fight.

Organization of the research

The research was conducted during 2000-2010 with participation of boxers of combined national team of Ukraine – 43 persons. From them: 6 – honored masters of sports; 16 international masters of sports; 21 – masters of sports. Average age of sportsmen was 23.5 years.

For determination of special physical preparedness level we applied method of timing-dynamometry on base of timing dynamometer ПОФ-2 with using of computer program for registration of parameters of boxers' punching actions. In particular, there were registered: power, time and quantitative characteristics of direct double-punch combinations; quantitative and power indicators as well as power of specialized tests "8 s" and "40 s"; power of one punch, mean power of punches (in conv. units) and so on.

There were calculated the following statistical parameters: mean arithmetic (X), dispersion (G), error of mean (m), coefficient of pair correlation (r).

In the present research there are presented model characteristics of elite boxers, as representatives of kind of sports. All tested sportsmen were divided into three weigh groups: light categories 49-60 kg; middle categories – 64-75 kg; heavy categories – 81-91 kg.

Results of the researches

Analysis of research's results showed that boxers of middle weight category (64-75 kg) have advantage over boxers of other weight categories (light and heavy) in development of quickness and power endurance (see table 2).

Analysis of boxers' power of punches in tests "8 s" and direct double punch combination (characterizing explosive power) showed its gradual increasing with increasing of sportsmen's weight. Also attention is attracted by the fact that quantity of punches of light and middle weight boxers in test "8 s" is nearly the same 56.8 ± 1.10 and 56.93 ± 0.63, accordingly.

In test «40 s" indicators of punches' quantity (characterizing special speed endurance) of middle weight boxers are confidently higher than the same indicators of light weight boxers 234.8 ± 2.06 against 241.25±2.16 of punches accordingly. Average power of one punch in test "40 s", which characterize special endurance, practically does not differ from the same indicators of heavy weight boxers: 50.20 ± 1.66 and 50.81±1.08 conv.un. accordingly.

Analysis of results of special physical preparedness' testing showed that for n middle weight boxers high level of punch actions' power is characteristic in test «40 s". It is known that this indicators characterizes level of glycolytic mechanism of sportsman organism's energy supply. Middle weight boxers have advantage, comparing with light and heavy weight boxers.

Table 2

Model characteristics of special physical and technical preparedness

Indicators of specialized test		48 – 60 kg	64 – 75 kg	81 - +91 kg
"8 second"	Quantity of punches	56.80 ± 1.10	56.93 ±0.63	53.62 ±0.43
	Average power of punches (conv.un.).	51.34±1.54	67.72±1.80	80.89±1.35
	Power of punches (conv.un.)	356.68±7.55	484.32±9.70	531.28±7.98
«40 seconds»	Quantity of punches	234.78±2.06	241.25±2.16	226.37±1.61
	Average power of punches (conv.un.).	40.64±1.14	50.20±1.66	50.81±1.08
	Power of punches (conv.un.)	236.85±6.20	306.13±8.95	280.19±673
Correlation of punches' quantity in tests «8» and «40» seconds		15.70±0.87	15.66±1.59	15.51±1.16
Correlation of punches' power in tests «8» and «40» seconds		19.58±2.46	18.86±3.49	33.11±2.79
Power of first punch in direct double punch combination, conv.un.		58.61±2.33	76.22±4.02	77.11±3.65

Conclusions:

1. System of boxers' training envisages individualization of training process, considering special physical and technical-tactic features of boxers. The presented model characteristics are a "step" on the way to individualization of elite boxers' training.
2. Analysis of theoretical and experimental researches showed that structure of boxers' special physical preparedness depends on many components, such as: weight category, tactic role of a boxer, qualification level, stage of training. It has been stated that middle weight boxers (64-75 kg) have advantage over boxers of other weight categories (light and heavy) in development of quickness and power endurance.
3. The presented model characteristics can serve as bench mark of elite boxers' professional adequacy, as representative of kind of sports.
4. The prospects of further researches imply development of model characteristics of elite boxers at pre-competition and basic stages of training.

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Cite this article as: Pavelec O.J., Ostyanov V.N., Maydanyuk O.V. Model features as the basis of preparation of boxers individualization principal level (elite). *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 52-55. doi:10.6084/m9.figshare.775329

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 12.07.2013
Published: 30.09.2013

DETERMINING THE LEVEL OF MOTIVATION AND ATTITUDE OF STUDENTS FOR CLASSES IN PHYSICAL EDUCATION IN HIGHER EDUCATION INSTITUTIONS

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Annotation. Pressing questions of the motivation of students to attend physical education classes in high schools. Shows the level of their physical fitness. Presented by the personal attitude to studies and evaluated for a target orientation, forms and practical training. The study involved 79 students. It was stated that the motivation of students to the motor activity generated from them is wrong. Found that the greatest preference is given to students of the development of force: a meager 26 students (33%), flexibility - 20 students (25.3%), speed - 18 students (22.8%), endurance - 11 students (13.9 %), agility - 4 students (5%). The data on the poor state of physical fitness of today's youth and its negative attitude to physical education and sport.
Keywords: survey, motivation, learning, students, activities.

Introduction

In connection with the fact that at present students' health has worsened, their level of motion activity reduced and there is observed insufficient motivation for physical exercises' practicing, there appears need in creation and realization of practical measures, directed at improvement of physical education methods and means.

The process of students' physical education at higher educational establishments shall base on synthesis of wide complex of scientific-theoretical and scientific-applied principles, which should be determined as a result of researches of interconnections and interactions between different elements of special, psychological-pedagogic, medical-biological knowledge, their subsystems and links. Physical education classes are the most effective only when participation in them is stimulated by appropriate motives (G.V. Bezverkhnia (2003), T.Yu. Krutsevych (2009), O.Yu. Marchenko (2009)) [1-5]. As on to day the task of first priority is search of rational approaches to physical education and students' health improvement, considering their motivation to physical culture classes (M.B. Musakayeva, A.Z. Zynnatnurova (2008) [6, 7]. Health related effect of every physical exercises training can be quite different depending on specificity of this training and the state of person's organism (I.V. Muravov (1989), Ye.G. Bulych, I.V. Muravov (2003) [8-10]. Training of students can be successful only if achievement of target of teaching becomes dominating motive of pedagogical process in physical education. Main condition of motivation's formation is involving of students in appropriate educational activity. In this case motives of trainings become dominating and training process – active and conscious.

Purpose, tasks of the work, material and methods

The purpose of the work are development of questionnaire and determination of the level of students' motivation for physical culture at HEE, their attitude and appraisal of target orientation, forms and methods of physical culture trainings.

Results of the research

As a result of fulfilled questioning we found that at ХНАДУ main department of physical education includes 61 students, that is 77.2% from total quantity of the questioned. Special health department includes 11 students (13.9%) as per results of medical examinations and only 7 students, that equals to 8.9% are in sport department (see fig.1).

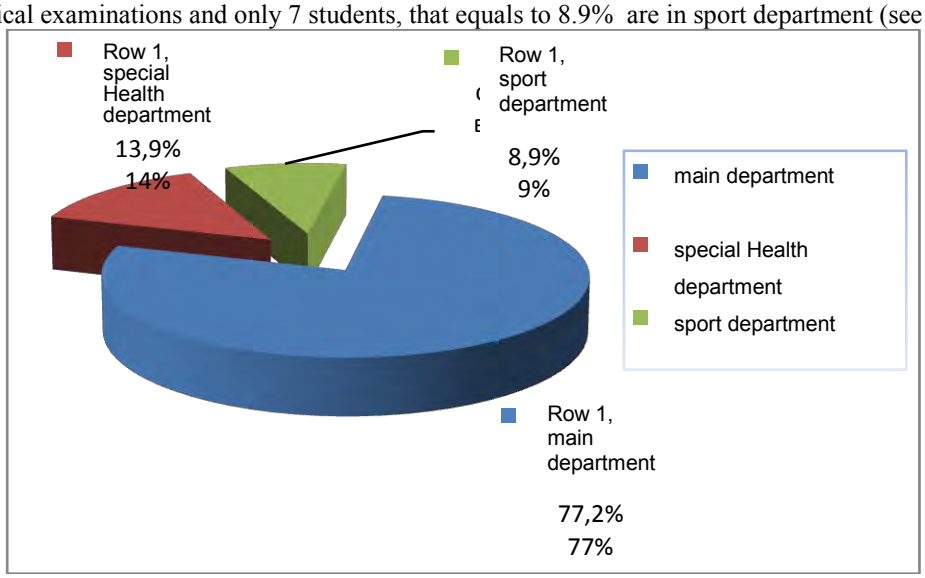


Fig. 1. Distribution of students by health groups

doi: 10.6084/m9.figshare.775330

It witnesses that most of students have no counter indications to active physical culture and sports trainings, but only their insignificant part attends sport circles and go in for sport actively. In this connection we may conclude that involving of students in active sport training is not paid proper attention to in education of a student. Concerning attendance of physical education lessons we received the following answers: 64 students (81%) answered that they attend trainings with pleasure, 12 (15.2%) could not answer and 3 (3.8%) gave negative answers. In our opinion these answers are interconnected with students' theoretical level and qualitative characteristics of trainings as well as with improper level of students' motivation for physical culture and sports trainings. This opinion is proved by answers to question concerning students' attendance of sport circles (see fig.2). From total quantity of the questioned only 22 students, that is only 27.8%, attend sport circles, while 57 students (72.2%) are not interested in sports at all.

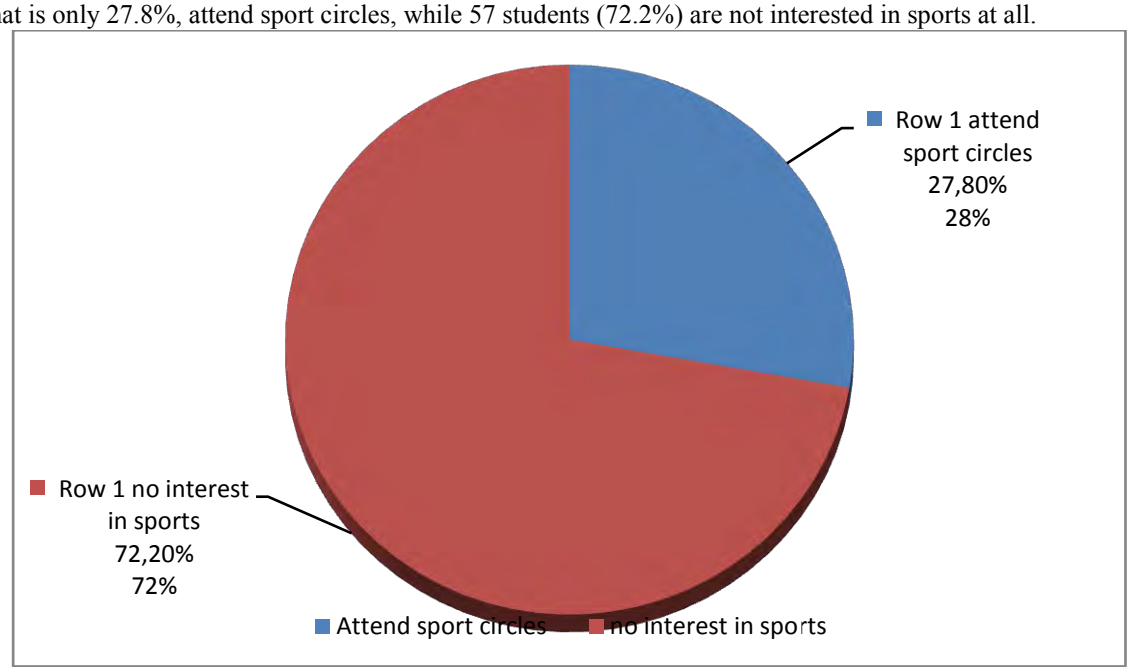
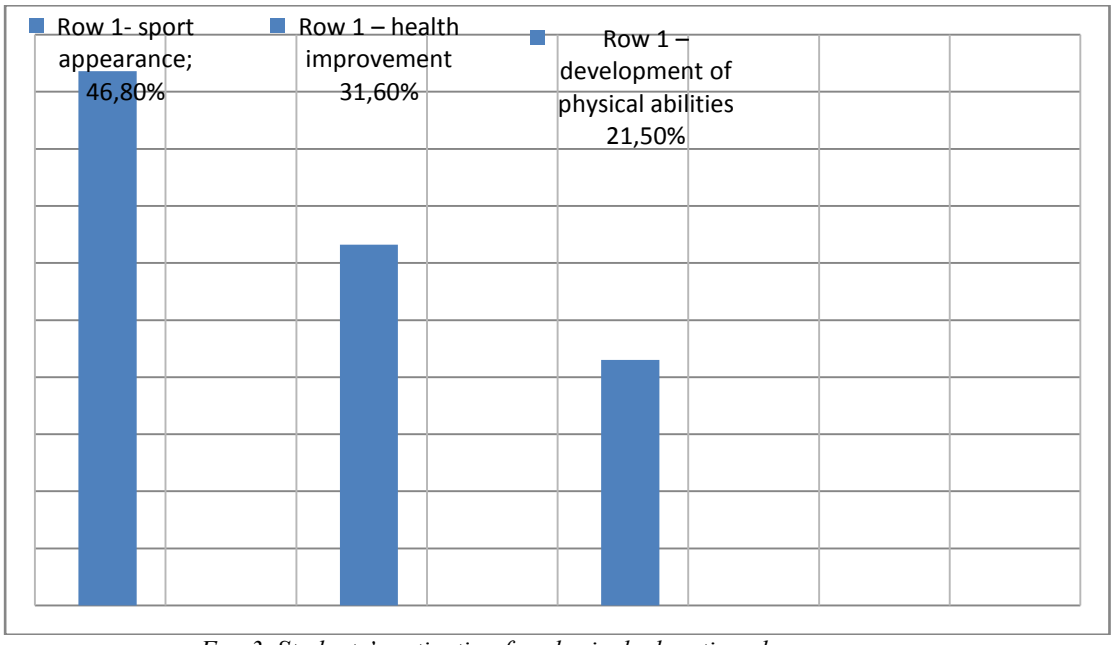


Fig. 2. Attendance of sport circles by students

These data prove information about unsatisfactory state of modern youth's physical condition and their negative attitude to physical education and sports.

Concerning students' morbidity, we received the following answers: 12 students often are ill (15.2%); 1-2 times a year – most of students – 68 persons (78.5%) and only 5 students are not ill at all (6.3%). The question, what is the sense of students' motivation to physical education lessons 37 students (46.8%) answered that they are attracted by sport appearance, 25 students (31.6%) attend physical culture classes for health improvement and only 17 persons (21.5%) attend trainings for development of physical abilities (see fig. 3).



Fog.3. Students' motivation for physical education classes

Most of all students prefer development of strength; positive answer was given by 26 students (33%), flexibility was preferred by 20 students (25.3 %), quickness – by 18 students (22.8%), endurance – by 11 students (13.9%) and dexterity – 4 students (5%).

In our opinion it is necessary to introduce in lecture material topics, connected with general characteristic of physical abilities and methodic of their development. After classes in physical education 47 students (59.4%) feel partially tiredness, 21 students (26.6%) feel strong tiredness and 11 (14%) persons feel no discomfort. The mentioned above conditions need in introduction of pulse metering – method, which can help to obtain information about actual effect of physical load. As per provided answers most of students prefer athletic exercises and aerobics, 28 (35.4%) and 21 (26.5%) accordingly; then goes shaping - 13 students (16.4%), rhythmic gymnastics – 9 students (11.3%) and pilates - 8 students (10.1%) (see fig. 4).

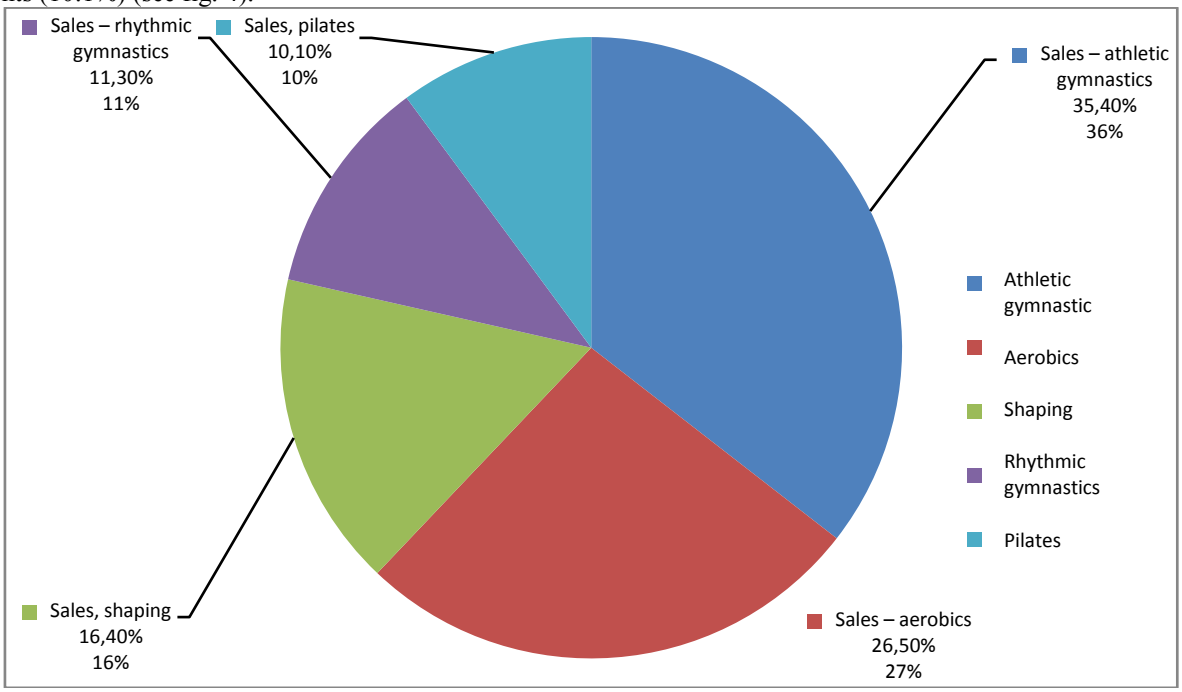


Fig. 4. Kinds of activity

44 students (55.7%) practice physical exercises independently, 27 students, that equals to 34.2% - do it sometimes and 8 persons (10.1%) do not include physical exercises in their daily regimen except academic classes in physical education. Such situation conditions need in certain assistance to students in their independent trainings from physical culture instructors. Outdoor games are preferred by 27 students that is 34.2%, running is chosen by 24 students (30,3%) a little bit less quantity of respondents consider gymnastic exercises with objects to be the best – 22 students (127.8%). Significant part of students 73 persons (92.4%) wish to be trained under musical accompaniment. Just this quantity of students likes modern music, under accompaniment of which they fulfill with pleasure the mastered exercises and learn new complex movements. 44 students (55.7%) actively go in for sports, 30 persons (38%) manifest interest to sport events; 5 persons (6.3%) are indifferent to sport life.

Concerning corrections of physical education content we received the following answers: 15 (18.9%) students consider it necessary, 42 students, that equals to 53.2 % of the questioned, are against any changes and 22 students (21.9%) did not answer this question, though 19 students (24%) stress that changes in organization of physical education classes are required and 28 persons (35.4%) thinks that it is necessary to introduce corrections in content of classes.

The question, concerning students' attitude to physical education classes, as well as to other disciplines, was answered in the following way: 28 students (35.4%) expressed their equal attitude to physical culture and to other disciplines, 24 students (30.4%) think that there is a kind of unequal attitude to physical culture and other disciplines and 26 students (34.2%) answered that their attitude to physical culture is as to discipline of secondary importance.

Conclusions:

Thus, the carried out questioning, which was oriented on determination of motivation level and students' psychic readiness to physical culture classes, permitted for us to state that students' motivation for motion activity has not been formed sufficiently and requires to find the way of solution of this problem. Besides, questioning results witness the fact that the basis of students' psychic readiness is motivation of their academic activity.

Owing to the fulfilled questioning we determined demand in further foundation of psycho-emotional selection of health related gymnastics' means, development of appropriate training methodic and implementation of pedagogic conditions of physical culture trainings with means of health related gymnastics.

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Cite this article as: Pavlenko T.V. Determining the level of motivation and attitude of students for classes in physical education in higher education institutions. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 56-59. doi:10.6084/m9.figshare.775330

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 09.07.2013
Published: 30.09.2013

ANALYSIS OF THE RELATIONSHIP OF LIFESTYLE AND SOME OF THE PARAMETERS OF RESPIRATORY DISEASES OF CHILDREN 7 - 9 YEARS OLD IN POLAND AND UKRAINE

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Annotation. Purpose - defining the relationship between the state of knowledge in the field of preventive health care, lifestyle characteristics, health status of students 7-9 years after an illness of the respiratory system. Developed a diagnostic system for the study of health status and level of physical fitness. Anthropometric measurements were carried out and samples Genchi and Stange, heart rate, blood pressure at rest. The level of adaptation was determined by the method of R.M. Baevsky. Opinion of parents, morphology and function, and medical records 553 students of secondary schools of Kiev and 538 students of Szczecin and Konin. Found that the incidence of respiratory systematically increased. It was found that the lack of physical activity of the body is 60-75% needed to maintain the health and development of physical standards. The ratio of 28 hours of lessons on general subjects with 2 hours of physical training per week in school indicates non-compliance with the physiological regulation of mental and physical stress during the growth and development of children.
Keywords: children, respiratory diseases, health-oriented technology, physical education.

Introduction

Diseases of respiratory system belong are considered to be one of the most serious problem by modern medicine. First of all it is connected with increasing of different micro-organisms' toxins' and allergens' influence on organism. Nowadays, chronic destruction diseases of lungs, cancer of lungs, tuberculosis and pneumonia have become the second by quantity of deaths reason of mortality, after diseases of cardio-vascular system. But in contrast to cardio-vascular system's diseases, frequency of diseases of respiratory organs constantly increases. In practice of any pediatrician infection of respiratory organs is the most important reason of sick children's visits [13, 20]. Considering physiological immaturity of organism's immune system, as well as influence of risk factors (crèche, kindergarten) children of 2-5 years old age are the group, which is most infection-sensitive. Acute bronchitis are the most frequent among children up to 2nd year of life, with it 2 – 3% of cases require hospitalizing. Second wave of morbidity happens at age from 8 to 15 years old, when from 1/5 to 1/3 of all children suffer from bronchitis [14, 17, 18].

The most often reasons of these diseases are viruses, especially RSV and influenza, which create a basis for infection with bacteria, invading nasopharynx. As per the above mentioned infection of air passages, as one of main reasons of acute affecting of junior school age children's respiratory systems, is also main reason of respiratory system's chronic diseases of children [15, 16, 19].

According to statistical data, 2-4 times a year, in winter-spring period there happen cases of virus infection of 7-9 years old children. And that is why correction of content and level health-related means' dozing for such children are one of the most important tasks for specialists in the field of physical education. For its solution it is very important to know, which dependences exist between factors, influencing of children's life style, level of their morbidity and physical activity [8].

In Republic of Poland for 7-9 years old children discipline "Physical education" is taught in compliance with Order of Minister of People's Education, dt. December 23rd, 2008, as a part of program basis of pre-school education and comprehensive education in schools (Rozporządzenia Ministra Edukacji Narodowej z dnia 23 grudnia 2008 r. w sprawie podstawy programowej wychowania przedszkolnego oraz kształcenia ogólnego w poszczególnych typach szkół (Dziennik Ustaw z dnia 15 stycznia 2009 r. Nr 4, poz. 17) (załącznik Nr 2) [20].

Physical education classes are conducted in groups of 3 types, which consist of children, qualified by their physical condition and state of health.

Group A includes children, who are capable to endure physical loads of physical education trainings without limitations, practice sports or attend sport circles in schools or out of schools (sub group As). Group B consists of children, who are capable to endure physical loads with limitations, or require special attention of teacher; sub-group Bk includes children with state of health, requiring additional correcting trainings. Group C includes children, who can not take part in physical trainings owing to their poor health. Sub-group C1 includes children, who pass rehabilitation trainings (kinesio-therapy) Pupils with chronic inflammations of upper air passages are qualified for group B (limitation of trainings in poor atmospheric conditions, at low temperature and in dusty gyms). The same group includes pupils with sinusitis (prohibition to swim, water kinds of sports) Pupils with infection of upper air passages are temporarily qualified to group C.

In Ukraine physical education, as a discipline of comprehensive schools and higher school is taught as per standards of Ministry of Education and Science of Ukraine in three kinds of groups: main health group, preparatory group and special health group. Trainings of special health groups' pupils (students) are conducted out of hours' net, 2

doi: 10.6084/m9.figshare.775331

times a week [5, 9, 11].

Special health group can include children with very weak health and their peers, who, by any reason, previously did not fulfilled any physical exercises.

According to statistical data of Institute of Hygiene, named after Marzeyev, of AMS of Ukraine, for 2010 most often children after acute diseases of respiratory system and after acute respiratory infections at age of 7-10 years old are most often qualified to special health groups [10].

In most of post-Soviet countries and in Ukraine, prophylaxis of respiratory system's diseases and application of physical culture means for their rehabilitation have been studied by many authors: L.S. Zakharova (1988), V.A. Syluyanova (1995), N.L. Ivanova (2000), Ye.V. Sokolov, O.Yu. Yermolayev (2001), M.P. Verevkyna (2002), Ye.Yu. Sedykh, I.A. Vlasova et al, (2002), V.A. Sokolynska (2002), A.Ye. Agapytov (2003), I.I. Nykolayeva (2003), A.O. Okunyeva (2004) [1, 2, 3, 6, 7, 10].

Considering children organism's sensitivity to environmental factors' influences and further growth of acute respiratory system's morbidity, problem of organization of educational processa is rather urgent both for modern Ukraine and for Poland [7, 20].

The researches has been fulfilled as per combined topic of Kyiv university, named after Borys Grynchenko "Philosophical, educational and methodic principles of competence, personality-oriented professional multi-profile university education" (state registration number 0110u006274) for 2011-2015, in the frames of topic "Theoretical-methodic principles of competence personality-oriented professional activity of specialists in the field of physical education of different population's groups" of physical culture and sportsmanship department of Humanitarian institute.

Purpose, tasks of the work, material and methods

The purpose of the research is determination of dependence between state of knowledge in the field of health-related prophylaxis, peculiarities of life style and state of health of 7-9 years old pupils after respiratory organs' diseases.

The tasks of the research:

1.Analysis of literature data about life style, health state, 7-9 years old children's morbidity in Poland and in Ukraine.

2. Carry out comparative studying of life style, of some parameters of respiratory organs' morbidity of 7-9 years old children in Poland and in Ukraine.

3. Determine correspondence of actual 7-9 years old children's motion activity to their physiological age standards in Poland and in Ukraine.

The methods and organization of the researches

We have analyzed parents' opinions, morpho-functional state and medical documentation of 553 pupils of comprehensive schools (Obolonskiy district, Kyiv) and 538 pupils of Schetsyn (Zakhidnopomorskiy district) and Konin (Velykoposkiy district). Parents of all children signed written permission for access to medical records of their children.

For achievement of our purpose we worked out diagnostic complex for examination of health state and physical condition (estimation of possible after-effects of upper air-passages' diseases against the background of season virus infections). Research complex included questionnaire, in which parents answered 38 questions and the answers to which gave information about day regime of a child, level of his (her) physical activity. Besides, we executed main anthropological measurements in the course of our research (mass of body, height, chest circumference at inhale and exhale), Genchi's and Shtange's tests; we registered heart beat frequency in rest, systolic and diastolic BP.

Foe estimation of organism's adapting ability we used adaptation potential, which was determined as per methodic of R.M. Bayevskiy (1988) by formula:

$$BP = 0,011\text{-}HBF * 0,014\text{-} BPs * 0,008\text{-} BPd + 0,014*A + 0,009\text{-} BM - 0,009* H -0,27,$$

where:
HBF – heart beat frequency (b.p.m.);
BPs systolic BP, (mm. of merc, col.);
BPd diastolic BP, (mm. of merc, col.);
A – age, years;
BM – mass of body, kg;
H – height, cm;

Standard vital capacity of lungs was calculated by formula:

For girls: [height * 0.041 – age * 0.018]- 3,7

For boys: [height* 0.052 – age * 0.022]- 4,6

Dependence between weight and height was determined with the help of index BMI (klg.p.m^2) by formula:

BMI = Body mass, kg / height^2, $м^2$.

For statistical processing of the obtained results we used method of mean values and rank correlation coefficient of Spirman (as per L.Ye. Poliakov 1971) [11]. This is non-parametric method, which is used for determination od statistic connection between phenomena. In this case actual degree of parallelism between two quantitative rows of the studied properties is determined and estimation of closeness of the determined connection is given with the help of quantitatively expressed coefficient.

With the help of rank correlation coefficient, conventionally closeness of connection between properties is evaluated with assuming that coefficient equal to 0.3 and less is an indicator of weak connection; value more than 0.4 but less than 0.7 – moderate closeness, value 0.7 and more – means high closeness.

Results of the researches

Analysis of the studied parameters showed that passport data and anthropometrical indicators of examined children in Poland and in Ukraine practically do not differ (see table 1). However there were registered some differences when evaluating such indicators as: pause after inhale and heart beat frequency in rest, which had trend to approaching standard among children from Poland in contrast to their peers from Ukraine (see table 1).

Table 1

Passport data and functional state of cardio-vascular and respiratory systems of the examined children

Indicators	Poland	Ukraine	Total
Quantity of examined children	553	538	1091
Sex, male /female, %%	62.41/37.4	58.0/52.0	62.4/37.4
Age, years	7.985±1.148	8.054±0.926	8.325±1.124
Height, cm	133.958±10.638	134.939±9.669	134.209±10.371
Mass of body, kg	32.134±7.799	33.344±7.699	32.434±7.689
BMI, kg/m^2	17.901±1.201	18.310±1.241	18.02±1.351
Standard vital capacity of lungs, l	1.524±0.245	1.489±0.279	1.482±0.243
Breathing pause at inhale, sec	28.000±14.651	23.327± 14.524	25.515±7.847
Breathing pause at exhale, sec	20.938±11.658	12.000±4.630	19.050±12.466
Chest circumference at inhale, cm	67.802±3.615	68.871±3.800	67.365± 4.290
Chest circumference at exhale, cm	57.025±2.701	59.601±3.374	58.666±2.652
Heart beat frequency, b.p.m.	76.025±12.112	92.212±14.804	80.752± 14.858
Systolic BP, mm of merc. col.	105.45±10.45	98.12±9.57	99.97±11.01
Diastolic BP, mm of merc. col.	65.74±6.57	60.47±1.24	63.45±5.71
Index of adaptation potential (as per methodic of R.M. Bayevskiy 1988)	3.177±0.282	3.231±0.323	3.193±0.295

Special attention should be paid to value of Bayevskiy's index in both groups of the tested, which characterizes level of organism's functional adaptation. Functional reserves are a range of possible changes of physiological systems' functional activity, which can be ensured by organism's activation mechanisms. The most important role in organism's vital activity is played by vegetative nervous system. Vegetative disorders manifest with emotional stresses, because they are, first of all, reserves of regulatory and self-regulatory mechanisms, which ensure adaptation to environmental factors. Payment for adaptation, which outcomes the frames of organism's reserves' possibilities, results in malfunctioning of adaptation mechanism and appearance of steady pathological changes. For diagnostics of vegetative changes they use, first of all, parameters of cardio-vascular system, on the base of which they determine the level of organism's functional adaptation – adaptation potential. Though we did not find any confident differences in both groups of the tested ($p > 0.05$), mean values of adaptation potential by Bayevskiy in group of Ukrainian children can be interpreted as pointing at insufficient adaptation level (as per Bayevskiy – 3.21 – 4.3), which is characterized by reduction of organism's functional abilities in adaptation to continuously varying environment. Mean values of the same indicator of Polish children are at low limit of level and it witnesses about straining of adaptation mechanisms (as per Bayevskiy – 2.11 – 3.2). Straining of adaptation mechanisms as per Bayevskiy is achieved by sufficient organism's functional abilities at the account of re-distribution of its functional reserves (see table 1).

Analysis of children's sleeping regime showed that only 32.75% of Ukrainian children and 36.02% of Polish children have sufficient, as per hygienic standards for their age, duration of night sleep (10 hours). Other children (from the words of their parents) sleep less time – 8 hours (35.67% - Poland; 29.26% - Ukraine) and 9 hours (20.02% - Poland and 23.64% - Ukraine). With it, 70.26% of Poland children's parents and 72.51% of Ukrainian children's parents consider duration of their children's night sleep to be sufficient.

Indicator of quantity of children, who do morning exercises (ME), is also critical: 8.32% - Poland; 8.15% - Ukraine. The main reason of not doing ME is determined by these children's parents as their insufficient self-discipline (39.85% - Poland; 33.09% - Ukraine).

Main health-related means, which harden children, in opinion of their parents are: swimming pool (20.42% - Poland; 16.24% - Ukraine), swimming in river or in lake in warm seasons (9.84% - Poland; 10.89 % - Ukraine), and sun-bathing on beach in summer nearly every day (8.99% - Poland and 11.25% - Ukraine). With it, in average 25% of Polis and Ukrainian children spend from 1 to 4 hours every day in the open air.

Didactic classes take most of time of modern junior pupil. In average they are 4-5-6 didactic hours a day, except Fridays, in which approximately 75% of parents declared 4-5 hours classes. Besides, 23.54% Ukrainian parents and 20.34% of Polish parents noted participation of their children in optional classes on Saturdays.

Domestic work also takes both Ukrainian children (36.79 and 47.68% accordingly) and their Polish peers (32.58 and 52.36% accordingly) in average 1-2 hours every day.

Traditional preparation of home tasks in exact sciences takes the most of time in both tested groups (48.97% - Poland; 40.98% - Ukraine). 82.70% of all questioned parents consider mental load on their children to be moderate and only 3.63% of Polish parents and 5.32% of Ukrainian parents note that it is excessive.

With analyzing children's eating schedule, it should be noted that most of parents noted 4-5 times eating of their children. Most of Ukrainian parents mentioned 4-times eating of their children (38.98%), while Plosh parents mention 5-times eating (52.49%).

Unfortunately physical activity in the form of sports trainings takes only 17.05% of spare time of the questioned. As it was mentioned above 25.13% of Polish children and 24.58% of Ukrainian children spend free time walking in the open air and communicating with friends. However, substantial part of free time of the questioned children is taken by watching TV (23.44% -Poland; 19.56% - Ukraine) and computer games (8.65% - Poland and 6.08% - Ukraine). The same activity takes most of time in days off. If in average watching TV in days off takes 13.48% of the tested children (14.97% - Poland and 12.59% - Ukraine), then only 6.37% of the questioned parents declare sports trainings as main mean of spending leisure time as days off. With it, parents of the tested children (90.97%) consider that motion activity's level of their children is generally normal for their age. Restrictions of children's motion activity are realized only by recommendation of doctor – 69.70%. In Poland parents restrict motion activity of their children in 12.12% of cases; by recommendation of physical culture instructor – in 12.12% of cases. In Ukraine it was difficult for parents to answer to what extent and when they restrict children's motion activity after recovering from respiratory organs' diseases.

Among tested children the following kinds of sports are the most popular: swimming (28.7% - Poland; 14.98% - Ukraine), football (22.22% - Poland; 20.98% -Ukraine), track and fields (14.97% - Poland; 20.99% -Ukraine), martial arts (11.7% - Poland; 13.69% -Ukraine).

When fulfilling physical exercises 65.41% of children did not have any unpleasant sensations. With it, in average, physical activity of 4.51% of children caused short breath (3.98% - Poland; 4.87% - Ukraine), of 4.59% - coughing (4.54% - Poland; 3.99% - Ukraine). Other disorders, connected with functioning of respiratory organs, were not noted. With it, examination showed that parents of the tested children understand completely that physical activity is an integral part of healthy life style and it was demonstrated by percentage of their answers to question "Would you like to choose from below given answers the one, you agree with?" (See table 2).

It should be noted that parents themselves observe relatively sound way of life. 82.71% do not smoke. From 71,98% of smoking parents nobody do it in the presence of their children.

Analysis of frequency of respiratory system's morbidity of the tested children showed the following: 15.78% of parents noted that their children had not been suffered from respiratory system's diseases for the last academic year. 30.08% of all respondents noted that their children were sick twice a year (30.99% - Poland; 32.65% -Ukraine). Children of 12.78% of parents were sick one a year (14.97% - Poland; 11.96% -Ukraine). And at last children of 14.29% of parents were sick three times a year (13.03% - Poland; 15.97% -Ukraine).

Table 2

Opinion of the tested children's parents about role of physical activity in human life

Would you like to choose from below given answers the one, you agree with (you may chose several variants):	Poland	Ukraine	Total
Physical activity's trainings are necessary, because they maintain physical condition	25.29	29.63	27.33
Physical activity's trainings are important because they bring enjoyment	29.47	23.36	25.28
Physical activity's trainings are necessary for health protection	23.99	24.52	24.15
Physical activity's trainings can be dangerous for health		.	1.59
Physical activity's trainings permit to avoid excessive weight	21.54	19.58	20.96
Physical activity's trainings are necessary for those, who are going to become professional sportsmen			0.68

As per analysis's data of medical records of the tested children acute virus infection of upper air passages was the main reason of children respiratory organs' diseases in Poland and in Ukraine. General structure of respiratory system's morbidity of the tested children is given in table 3. The most often there were such clinical forms of respiratory organs' diseases as: catarrhs of nose and larynx, inflammation of tonsils, vocal cords, bronchi, lungs (see table 3).

In average, duration of diseases was from 4 to 7 days. 28.56% were sick 6-7 days (28.04% - Poland; 29.33% - Ukraine). In average 19.54% were sick for five days (19.99% - Poland; 18.70% -Ukraine). 10.52% of children were sicj 4 days (11.69% - Poland; 9.95% - Ukraine).

Table 3

Structure of respiratory system's morbidity of the tested children (1657 cases per 1091 children)

Description of disease	Poland	Ukraine	Total
Bronchial asthma	0.75	0.59	0.61
Chronic bronchitis	1.04	1.98	1.21
Acute bronchitis	10.09	15.36	11.52
Nasal catarrh	43.69	45.11	44.24
Larynx catarrh	15.87	11.08	12.12
Quinsy	13.64	12.89	13.02
Pneumonia	4.25	4.99	4.85
Inflammation of vocal cords	8.04	9.21	8.48
Other	1.28	1.15	1.25

Favorable effect of special physical exercises' application after diseases of respiratory system is also unknown to sick children's parents both in Poland and Ukraine. For example, 54.89% of all respondents do not know about positive influence of breathing exercises after children's diseases of respiratory organs (53.66% - Poland, 55.02% - Ukraine). Only one third part of the questioned respondents pointed that their children can fulfill simple breathing exercises (32.00% - Poland, 33.30% - Ukraine). With it, 81.21% of respondents would have liked their children to be able to fulfill breathing exercises. And they would have liked that these exercises would be of dynamic character (31.47% - Poland, 30.03% - Ukraine): sound gymnastics with singing elements (24.89% -Poland, 29.27% -Ukraine), static dynamic breathing exercises (19.09% -Poland, 21.99% -Ukraine) and elements of Yoga (15.69% -Poland, 17.98% - Ukraine).

Estimation of some respiratory system indicators' dependence on 7-9 years old children's life style with method of Spirman's rank correlation (level of confidence $p < 0.05000$, $n = 1091$) showed that strong direct dependence exists only between application of hardening health related means and value of chest circumference at inhale (see table 4). Discomfort during fulfillment of physical exercises and frequency of 5respiratory organs' morbidity on the one hand and time of breathing pause after exhale on the other hand were in reverse (negative) moderate interconnection (see table 4). Child's ability to fulfill elementary breathing exercises is moderately positively connected with time of breathing pause after exhale and chest circumference at inhale (see table 4).

Table 4

Estimation of some respiratory system indicators' dependence on 7-9 years old children's life style with method of Spirman's rank correlation (level of confidence $p < 0.05000$, $n = 1091$)

Indicators	Application of hardening means	Frequency of respiratory organs' morbidity	Child's ability to fulfill breathing exercises	Discomfort at physical loads
Breathing pause after exhale, sec.	-	- 0.493	0.303	- 0.610
Chest circumference at inhale, cm	0.758		0.501	-

Human life and health is the main value of society. Health is the factor without which a person can not be happy. Health can be only formed, acquired by means of heavy purposeful work and obtaining knowledge - knowledge of life style principles, order of life activity, which would preserve and even strengthen health, instead of destroying it. Children are the future of any state, the prospects of its economic, social and spiritual development.

Health has always being been the main factor of nation's security. Task of pupils' health improvement can not be solved only by medical workers' efforts. Health shall be one of results of education.

One of main tasks of modern society is creation of such educational system, which would prepare not only educated, cultural person but would preserve and develop health.

School is life space of a child, in which he (she) spends about 70% of time, that is why just school shall give knowledge and skills to organize life, to make diagnosis, to protect and improve child's health. With it, it is necessary to consider social-economic, ecological, climate and other regional and individual conditions, in which a child is educated.

As our researches have shown inadequate rest, reduction of motion activity, reduction of daily physical load are closely connected with children's morbidity of respiratory organs.

According to data of Ministry of health protection of Ukraine, as on to day 90% of pupils have health abnormalities and more than 50% - insufficient physical condition.

For last five years morbidity of 7-14 years old children increased nearly by 35%. There is a trend to reducing of quantity of healthy pupils from 33% (first form) to 6-9% (senior forms). General infantile disability also is growing [3, 8].

In world structure of infantile morbidity second place is taken by diseases of respiratory organs – 22.7% [8].

Analysis of children's health state in Ukraine and countries of European Community proves that prospecting of educational methods, forms of their organization, considering preservation and strengthening rising generation's health

are of special importance for all states. Successful achievement of this purpose is possible only with methodic, complex and agreed work of parents, pedagogues, medical workers, lawyers and sociologists. .

There are different definitions of health and approaches to its preservation and strengthening in ethno-pedagogic.

As per definition of World health protection organization "health" is state of full physical, psychic and social welfare, but not simply absence of diseases or physical defects".

Education can be maximally effective and minimally traumatic for child's psychic only if it is strictly coordinated with age physiological and psychological abilities, when pedagogue considers inherited potential of personality. Education shall be oriented on organism's abilities to resist stresses and these abilities are nothing but health.

Human health is ability to maintain suitable for age and sex psycho-physiological stability in conditions of continuous change of quantitative and qualitative units of structural and sensor information.

Health reflects quality of organism's adaptation to environmental conditions, is a process of human interaction with environment; state of health is formed as a result of interaction of external (natural, social) and internal (heredity, sex, age) factors.

If to take conventionally health level as 100% then 20% depend on inherited factors, 20% - on social-economical and ecological conditions, 10% - on activity of health protection system, 50% depend on a person himself, on his (her) life style [1, 3, 8].

Life style is a bio-social category, which characterizes human life activity, his (her) labor), domestic conditions, forms of material and spiritual demands' satisfaction, rules of individual and social behavior. That is, life style – is "face" of an individual, which reflects also the level of social progress [4, 9].

As per modern conceptions, "healthy life style" includes the following [12]:

– Optimal motion regime;
– Rational eating; загартовування;
– Personal hygiene;
– Positive emotions;
– Rejection of harmful habits (smoking, using alcohol, drugs).

Health of adult person is formed in his childhood and to large extent depends on healthy life style.

Conclusions:

1. Analysis of literature data showed that unfortunately only from 2.8% to 11.9% of children can be considered to be healthy; 53-64% of children have chronic pathologies. With it, pathological processes increased from junior to senior forms. It should be noted that more than 40% of children entered school with already formed chronic diseases.

2. It was found that motion activity's level of most of children in Ukraine and Poland does not correspond to standard norms, required for ensuring proper physical health.

3. It was established that at school correlation 28 hours of general subjects to 2 hours of physical culture weekly witnesses about not observance of physiological dozing standards of mental and physical loads in period of children organism's development and growth. Deficit of motion activity of young organism of 7-17 years old is 60-75% form the required for health preservation and development of physical condition.

Basing on all above mentioned, in order to correct health state of children after respiratory system's diseases we came to conclusion that it is necessary to create adequate program of physical culture classes, which would consider not only such components as quantity of exercises' repetitions, their intensity, duration of breaks between exercises, but would actively include elements of therapeutic physical culture (kinesio-therapy). The greatest attention should be paid to such kinds of motion activity, which have therapeutic effect and are the most popular among parents and their children, i.e. static and dynamic breathing exercises, sound gymnastics, elements of Yoga.

The prospects of further researches. Importance of this problem conditions demand in new understanding of situation and development effective approaches to increasing of motion activity, preservation and strengthening of children's somatic health. But effectiveness of the methods to be applied shall depend not only on character of muscular activity, but also on level of adaptation mechanisms' and main organism's functional systems' development. The prospects of further researches imply solution of the mentioned problems.

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Cite this article as: Radziyevska M.P., Knotowicz J., Radziyevsky P.A., Dyba T.G., Nesterova T.V., Dyba E.V. Analysis of the relationship of lifestyle and some of the parameters of respiratory diseases of children 7 – 9 years old in Poland and Ukraine. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 60-67. doi:10.6084/m9.figshare.775331

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 11.08.2013
Published: 30.09.2013

CORRELATION BETWEEN THE CADMIUM, CALCIUM AND POTASSIUM IN THE BODY AND INDICES OF CARDIOVASCULAR SYSTEM OF ATHLETES

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Annotation. Performed a functional examination of the cardiovascular system in 80 students (40 players, 40 students are not involved in sports). Used the method of electrocardiography and computer rheography. The study was conducted in a state of physiological rest during exercise and during the recovery period. The level of chemical elements in the hair was determined by X-ray fluorescence analysis. The element of balance of athletes showed that the elemental balance of athletes in terms of the built environment is more satisfactory than the students. Students have a shortage of essential items. The study features of response of the cardiovascular system to exercise physiological significance of cadmium found in athletes. Character correlations essential elements with indices cardiovascular system conform to their known roles in physiological processes at the cellular level.
Keywords: cardiovascular system, sportsmen, chemical elements, cadmium, potassium, calcium.

Introduction

Worsening of human population's health state, which takes place recent decades, is to large extent conditioned by high rates of biosphere's anthropogenic transformation and decreasing of organism's adaptation abilities under influence of anthropogenic pressing [4; 5].

Adaptation of organism to unfavorable effects of environment, especially chemical loads, requires wide range of functional abilities and adequate re-switching of most important physiological systems to new mode of life activity 7]. It is known [6] that this process goes the most quickly and "painlessly" in organisms of sportsmen and people, who systemically practice physical exercises. On the other hand, just human organism in conditions of systemic physical loads, especially organisms of highly qualified sportsmen, need full-fledged micro- and macro-elements' provision. With it, special attention shall be paid to cardio-vascular system, the state of which, on the one hand reflects the state and effectiveness of adaptation processes [1;6] and, on the other hand, provides the most objective picture of sportsmen's adaptation abilities. From the point of view of this system's provision with chemical elements, the following elements are the most interesting: calcium (Ca^{++}) [3], potassium (K^{+}) and (Cd^{+}), which is antagonist to Ca^{++} and is considered to toxic one.

At present, in literature there is rather limited quantity of works about interconnections of microelements' content and indicators of sportsmen's heart activity; and available works do not give sufficiently complete picture about how interaction of microelements is realized in organism and how this interaction reflects in circulation system's functioning and in training and competition activity [9, 10].

The researches were fulfilled as per plans of scientific & research work of Tavricheskiy national university, named after V.I. Vernadskiy, "Medical-biological foundation of physical education system. Development and perfection medical-pedagogical observations' methods in training process" State registration number 0101U005752), as well as in compliance with plan of Crimea state medical university, named after S.I. Georgiyevskiy, by program "Physiological approaches to evaluation of ecological risks for health" (State registration № 0102U006172).

Purpose, tasks of the work, material and methods

The purpose of the work – determination of specific features of cardio-vascular system's functional state and its response to sport physical load, depending on content of Cd^{++}, Ca^{++} and K^{+} in organism.

The methods and organization of the research. The research covered 80 sportsmen (mail) of 18-22 years old age, from whom: 40 sportsmen – professional football players (1^{st} group) and 40 students, training physical exercises in the frames of academic program – (2^{nd} group). The tested were examined for content of Cd^{++}, Ca^{++} and K^{+} in biologically stable tissues (hairs) with the help of X-ray-fluorecent method in laboratory of scientific & research center "VIRIA" (Kiyev).

Evaluation of cardio-activity was conducted by registration of indicators with method of electric cardiography (ECG) with apparatus "Ergocard" (Italy). In the course of examinations the following ECG indicators were registered: intervals PQ (s) and QPST(s), segment ST (s), complex QPS (s), and interval R-R (s).

ECG was taken in state of physiological rest with combined step-by-step physical load on bicycle ergometer, which consisted of 8 stages (each stage – 3 minutes) and in restoration period (5 minutes duration).

For registration of indicators of central cardio-haemo-dynamics we used rheo-analyzer PA5–01. Rheograms were recorded in state of physiological rest after 12 minutes of physical load on bicycle ergometer and 5 minute of restoration. The following indicators were registered: stroke volume (SV, ml), minute blood volume (MBV. l.p.min.); cardiac index (CI, l.p.min.m); stroke index (SI, ml.p.m ^{2}); total peripheral resistance of vessels (TPRV, dyne s.p.cm $^{-5}$).

Statistical processing of data was carried out with non parametrical correlation analysis by Spirman and with statistical comparison by Manna-Wittny.

doi: 10.6084/m9.figshare.775332

Results of the researches

First of all it should be noted that average content of chemical elements in organisms of the tested sportsmen was in the limits of conventional accepted , as on to day, norm [4; 8]**,** while students, who did not practice sports, had deficit of essential elements (see table 1).

Table 1.

Concentration (mkg.p.g) of of chemical elements in hairs of tested students

Chemical element	Minimal	Maximal	X±Sx	Con
Cd^{++} (cadmium)				
1st group	0.00	0.28	0.08±0.01	0-1
2nd group	0.00	0.17	0.05±0.01**	
Ca^{++} (calcium)				
1st group	183.67	929,69	353.31±28.40***	300-700
2nd group	145.62	718.19	179.50±25.38	
K^{+}(potassium)				
1st group	0.00	185.34	84.90±10.26	70-170
2nd group	0.00	301.21	40.49±8.87***	

Notes: Differences between groups are confident ** – with $p<0.01$; *** – with $p<0.001$.

Reduced content of essential elements in students' (not going in for sports) organism can be conditioned by a number of reasons: their low content in food, increased consumption connected with stress situation, excessive using of products with caffeine, smoking [2; 6]. At the same time obtained by us data comply with data about differences in elements' content in hairs of professional sportsmen, which is higher by concentration of most of chemical elements in comparison with healthy persons, who are not sportsmen [5], but it should be noted that increased concentration of calcium in hairs can reflect not so its increased content in organism as point at increased metabolism of this element and its excretion from organism with systemic physical loads.

Results of correlation analysis of students' cardio-vascular system indicators with content of studied chemical elements in organism permitted to state the following.

The most substantial influence on ECG characteristics was registered from the side of toxic Cd^{++} (see table 2).

Table 2.

Data of correlation analysis of cadmium content and cardio-vascular system's indicators of the tested students

Stages of research	Indicators	Sportsmen		Students (not sportsmen)	
		r	p	r	p
rest	Interval PQ	-0.47	0.01		
	Complex QRS	-0.47	0.01		
	SI	-0.55	0.02	0.31	0.05
load	Interval PQ	0.54	0.01	0.40	0.01
	Complex QRS	-0.35	0.02		
	Interval QRST	-0.53	0.01		
	Segment ST		.	0.46	0.02
	Interval R-R	-0.45	0.02	0.35	0.02
	SI	-0.56	0.01		
restoration	Interval PQ	-0.43	0.05		
	Interval QRST	-0.56	0.01		
	Segment ST	0.52	0.01	-0.37	0.01

Concerning sportsmen, such dependence was observed even in state of physiological rest, pointing at direct dromotropic and chronotropic action of Cd^{++}.

For cadmium we have registered confident reverse correlation connection with SI indicators of sportsmen, i.e. the more was content of cadmium, the less quantity of blood was pumped by heart per one systole (see table 2). In not practicing sports students' organisms cadmium acted in the opposite way.

Rendering of physical load permitted to find more correlation connections both for sportsmen and for students-not sportsmen, in whose organisms, besides it, there was registered negative chronotropic effect of Cd^{++}. As far as mechanical work of heart concerns, it also in a certain way responded to level of Cd^{++} organism by character opposite to its manifestation in sportsmen's organisms. Less than with physical load, but greater that in state of physiological rest sensitivity of heart ECG parameters to presence of Cd^{++} in organism was observed also in restoration period.

Thus, we can note that significance of Cd^{++} for functional state of cardio-vascular system was, mainly, of cardiotropic character, as far as it manifested, mainly, in relation to cardio-indicators.

The revealed physiological significance of essential elements is of special interest. For example, K+ showed a lot of correlation connections in students' organisms and proved negative chronotropic effect. It facilitated increasing of

ventricles' excitation time and, owing to it, all cardio cycle, with physical load of students, not practicing sports, while, at the same time, in sportsmen's organisms K^+ influenced in opposite way on ventricle complex in general. It also, probably, "improved" mechanical work of heart, showing positive correlation connection with a number of heart work parameters (see table 3).

Table 3.

Data of correlation analysis of potassium content and cardio-vascular system's indicators of the tested students

Indicators	Sportsmen		Not sportsmen					
	load		rest		load		restoration	
	r	p	r	p	r	p	r	p
Complex QRS					0.36	0.01	0.31	0.05
Interval QRST	-0.54	0.01			0.40	0.03	0.40	0.02
Segment ST					-0.45	0.02		.
Interval R-R					0.40	0.03		.
MV			0.51	0.01	0.44	0.01	0.40	0.02
SV			0.54	0.01	0.39	0.04	0.41	0.02
SI			0.61	0.01	0.45	0.02	0.42	0.01
CI			0.57	0.02	0.37	0.04	0.41	0.02
TPRV			-0.52	0.01				

Essential Ca^{++} rendered classical positive chronotropic effect, facilitating decreasing of cardio cycle's duration of sportsmen, while for students, not going in for sports, this effect was insignificant.

With the help of rheography it was found that Ca^{++} significant for two indicators of cardo activity (MV andf CI) of sportsmen that points at well-known role of this element in providing of myocardium contraction ability (see table 4).

Table 4.

Data of correlation analysis of calcium content and cardio-vascular system's indicators of the tested students

Stages of research	Indicators	Sportsmen		Students (not sportsmen)	
		r	p	r	p
rest	MV	0.45	0.02		
	CI	0.40	0.07		
load	Interval QRST	0.44	0.05		
	Interval R-R	-0.46	0.01		
restoration	Interval R-R	-0.47	0.04		

Total quantity of correlation connections witnesses about high sensitivity of cardio-vascular system of students, who are not sportsmen, to imbalance of essential elements, first of all – K^+, probably in connection with its low content in organism, then Cd^{++} and Ca^{++}.

In sportsmen's organisms, for which normal balance of the studied elements was characteristic, the most substantial influence was rendered by Cd^{++}, and then – by essential Ca^{++} and K^+.

Besides, basing on total quantity of the found correlation connection, we may state that their maximal quantity was found with applying physical load, then – in restoration period and minimally – in state of physiological rest, that permits to say about compensated changes of cardio-vascular system's responsiveness and its adaptation potentials, conditioned by change in content of appropriate chemical elements.

Conclusions:

1. It has been found that mean content of chemical elements in sportsmen's organisms was within conventional physiological norm, while students, who did not practice sports, had deficit of calcium and especially potassium in organism.

2.It has been stated that cadmium rendered certain influence on cardio indicators of sportsmen; both on electric-physiological: interval PQ, complex QRS, interval QRST, segment ST, interval R-R with $-0.35 \le r \le -0.56$ и $0.01 \le p \le 0.04$, - and on parameters of rheogram (SI; $r=-0.55$; $p \le 0.02$), in state of physiological rest, with physical load and in restoration period. In organisms of students, who were not sportsmen, cadmium was not so significant, excluding its general influence on duration of cardio cycle with, by the way, in opposite than in sportsmen's organisms way and practically only under physical load.

3.Functional significance of essential elements for students, who do not practice sports, manifested only after physical load and, to rather less extent, in restoration period, while in sportsmen's organisms such dependence was observed also in state of physiological rest, pointing at higher need on micro-elements' provision with systemic physical loads.

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Cite this article as: Reshetniak O.A. Correlation between the cadmium, calcium and potassium in the body and indices of cardiovascular system of athletes. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 68-72. doi:10.6084/m9.figshare.775332

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 02.08.2013
Published: 30.09.2013

TECHNOLOGY OF FORMATION OF VERTICAL STABILITY BODIES OF CHILDREN AGED 7 - 10 YEARS OF HEARING LOSS

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Annotation. Purpose - the development of technology forming the vertical stability of the body of primary school children with impaired hearing. We study the main directions, methods and techniques used in the process of physical education primary school children with impaired hearing. There was a significant backlog of children in this nosology in the development of the equilibrium function. Highlighted the principles of technology forming the vertical stability of hearing children. The technology includes: the goals, objectives, direction and implementation stages, means and methods, criteria for evaluation and the expected effect of the pedagogical impact. The technology will fulfill its function in the event that the child was significantly improved lung function equilibrium amplitude common center of gravity of the body in the main stand on a fixed support with their eyes open; amplitude common center of gravity in the sample Romberg, while retaining posture in the test Bondarevsky. It is noted that the criterion of efficiency of the technology are: improved posture, increase the level of physical fitness, the appearance of confidence in his walk and accuracy in the movements and gestures.
Keywords: technology, posture, function, balance, retention, criteria.

Introduction

Existing in the world trend to increasing of quantity of disabled people, significant part of which are people with poor hearing, stimulates scientists to search the most effective pedagogic methods and techniques, facilitating such people's successful socialization, which is possible only if all compensatory abilities of children with poor hearing would be mobilized. Actually, owing to special perceptiveness and plasticity of children's mind, problem of social-cultural integration of deaf children is closely connected with social adaptation of children of junior school age.

The fact that there is close connection of junior pupils' physical condition and development of psycho-physiological qualities [17] permits to say that reasonable, specially organized process of physical education would not only facilitate leveling of after-effects of physical condition's lagging of children with such nosology, that is pointed at by some researchers [16], but would also ensure activation of cognitive processes of the pupils that influence positively on their speech skills. Therefore, social integration of pupils with poor hearing is a complex problem of improvement of their somatic health, workability, motion activity and development of psycho-physical abilities [4].

It should be noted that specialists have responded to society's demand and now are actively work out methods of application of innovative approaches, methods and means of physical education of children with poor hearing, considering searching the most effective mechanism for correction and compensation of physical defects. However, existing programs do not solve spectrum of tasks of this category junior pupils' social education.

Ideas of education humanization reflected in creation of conditions for opening po6tential of every child, including children, who have health problems. Creation of required pedagogic conditions implies development and implementation in academic-educational process some technologies, application of which would facilitate preservation and improvement of health, development and formation of physical abilities, opening creative potentials of pupils.

Review of literature sources showed that there is sufficient amount of works, in which specialists deal with problems of physical education of children with poor hearing.

As per literature data specific features of development of pupils with poor hearing are lagging of physical condition's indicators, reduction of coordination abilities, weak muscular strength and slow development of speed-power abilities [6, 12, 16] in comparison with their practically healthy peers. Accordingly, researchers try to correct defects, characteristic for children of such category, using all variety of physical culture means.

In opinion of S.A. Koroliov main means of physical education of deaf children and children with poor hearing are physical exercises, oriented on formation and comprehensive development their motion-coordination abilities, including exercises, which would stimulate development of "hand dexterity" [11], and I.P. Vypasniak considers Ukrainian folk games to be the best exercises for this purpose [4].

A.L. Kramarenko, in the course of his researches, offered to carry out physical culture trainings of pupils with hearing problems with the help of audio-visual influence, videlicet, low-frequency sound oscillations and light impulses [12]. In the author's opinion combination of rhythmic music and pulsing colors can effectively control motion activity of children with poor hearing [12].

In order to solve health-related, educational, teaching and correction tasks of adaptive physical education (APE) of children with poor hearing A.I. Kartavtseva proposed pedagogical technology of trainings, which include application of universal sport complex in extra-curriculum time [8].

In his turn, A.P. Kirgizov proved purposefulness of using basketball at physical education classes at boarding schools of 1st degree for deaf children and necessity of application of academic-training modules of game and competition orientation at additional classes with such children [14].

doi: 10.6084/m9.figshare.775333

V.V. Verbina offered to introduce additional complexes of fit-ball gymnastics: "small" acrobatics, articulation gymnastics in program of children' physical education of special educational establishments [3]. Alongside with it T.S. Golozubets theoretically grounded and experimentally tested effectiveness of application of creative means (APE) [6].

Review of existing technologies can be continued because, as it has been already mentioned, problem of physical education of children with poor hearing is widely discussed in scientific circles [1, 4, 16]. Nevertheless, in spite of the fact that the most noticeable distinction of children with poor hearing from their healthy peers is their weak ability to keep static and dynamic balance [3, 4, 6, 19, 20], at present time there has not been developed a technology for training balance function of junior pupils with poor hearing. Besides, development of new technologies in the field of human bio-mechanics of stability is hindered owing to absence of single scientific conception about keeping of vertical posture [2] that proves timeliness of our research.

The work has been fulfilled as per combined plan of scientific & research work in the field of physical culture and sports for 2006-2010 by topic 2.2.1 "Improvement of bio-mechanical technologies in physical education and rehabilitation, considering space organization of human body" (state registration number 01060106U010786) and combined plan of scientific research work in the field of physical culture and sports for 2011-2015, by topic 3.7. "Improvement of bio-mechanical technologies in physical education, sports and rehabilitation, considering individual human features" (state registration number 0112U001860).

Purpose, tasks of the work, material and methods

The research was oriented on development of technology of vertical stability's formation of junior school age children with poor hearing.

In the course of the researches we used such methods as study, analysis, generalization and systemizing of literature data and understanding of advanced pedagogical ideas.

The object of the research is technology of selection and application of physical culture means for development of 7-10 years old children's with poor hearing function of balance, while the subject of the research is scientific foundation of the selected techniques, methods and means, to be used in the frames of the offered technology.

Results of the researches

As a result of conducted work, thinking over experimental results and systemizing of gained pedagogic experience we developed technology of formation of vertical stability for children of junior school age with poor hearing.

In our research we regarded technology of body vertical stability's formation of children with poor hearing as preparation and organization of APE process on the base of scientific principles and ideas, in the course of whose realization there executed stage-by-stage implementation of its components, oriented on formation of the mentioned features, using forms, methods and means, adequate to peculiarities of physical condition of children with poor hearing.

The purpose of the offered technology is formation of vertical stability of junior pupils in APE conditions.

In the course of our work we determined the following tasks of the offered technology:

- Provision of full-fledged physical progressing of children with abnormalities of organism's functions, ensuring perception of sound oscillations;
- Development of vertical stability of 7-10 years old children;
- Provision of balance keeping ability;
- Training of movements' accuracy and confident gait;
- Formation of ability to regulate own actions in space;
- Increasing of motion activity;
- Correction of posture;
- Correction of supporting-springing function of feet.

Technology of vertical stability's formation of 7-10 years old children with poor hearing consists of conceptual component, which includes foundation of pedagogic technology with the help of principles, ideas and postulates, on which it is based; content part, consisting of systems of educational purposes and content of academic material as well as of procedural component, including general requirement to organization of teaching process, methods and forms of teachers' work and criteria and methods of estimation of teaching results [17].

It is necessary to stress that conceptual approach with development of technology was correcting-developing direction of pedagogic process alongside with realization of personality-oriented approach [10, 18]. Besides, analysis and systemizing of data of APE specialists permitted to point out the following approaches to formation of body vertical stability of children with poor hearing:

- Individual approach, according to which optimal physical load for a pupil shall be selected individually, depending on specific features of his (her) constitution and physical condition as well as considering children's protection functions [15];
- Integrative approach, according to which in the process of APE it is necessary to combine forms of educational-teaching, correcting-developing, therapeutic-preventive and health related training work [9];
- Differentiating approach, the sense of which implies registration of poor hearing degree, presence of accompanying diseases [7];
- Innovative approach, which imply application of up-to-date technical means for training motion actions of children with poor hearing [12].

Besides, in the base of the offered technology there are main postulates of theory and methodic of motion actions' formation with predicted result [5], and ideas and conceptual principles of advanced specialists in the field of theory and methodic of physical culture [9, 13, 15].

It should be noted that main conceptual principle of our research is the fact that poorly hearing junior pupils have low indicators of vertical body stability and improvement of process of vertical body stability's formation shall be built on the base of adequacy of means and methods to specific features of this category of children.

The created technology bases on a number of didactic principles, among which key place is taken by principle of correcting-developing orientation of pedagogic influence, that implies pointing of efforts not only at overcoming, smoothing, leveling of physical and psychic children's defects, but also at active development of their cognitive activity, mental processes, physical abilities and moral qualities [18].

Ione more important principle is principle of compensatory orientation of pedagogic influence, which means compensating of retarded, breached or lost functions at the cost of increased using of undamaged ones. In the course of realization of created technology, guiding by this principle, we strived for stimulation of compensatory processes in damaged organs and systems by activating protection functions, with the help of specially selected physical exercises, methods and methodic techniques [18].

Development of physical exercises' complexes for training of junior pupils' vertical stability was carried out considering age peculiarities, adequacy and optimal character of pedagogic influence and variability of pedagogic influences, in compliance with which we introduced in programs physical exercises and games of different orientations and coordination complexity, with application of different sport equipment and in different conditions of their fulfillment.

When developing the technology we considered that formation process of vertical stability of 7-10 years old boys with poor hearing will be effective, in our opinion, under the following conditions:

– Availability of theoretically grounded and experimentally tested APE technology, oriented on formation of the mentioned quality;
– Availability of means and methods , adequate to the set tasks;
– Presence of clear criteria for estimation of vertical stability;
– Readiness of physical education instructor for realization of the technology in academic process.

As a result of analyzing, studying, systemizing and generalization of scientific-methodic and special literature data, implementation and estimation of the technology were preceded by the following stages:

– Organizational, which included theoretical foundation of urgency of targeted measures on formation of children's with poor hearing vertical stability;
– Diagnostic, which stipulated studying of specificities of physical condition of children with poor hearing and registration of the studied indicators;
– Designing, which consisted of direct planning and development of technology on the base of advanced pedagogic experience and development of criteria for evaluation of its effectiveness;
– Operational, implying motivation-setting sub-stage, consisting of creation of favorable emotional background;
– Sub-stage of activity, in the base of which there is direct implementation of the technology in teaching educational process of junior pupils with hearing deprivation;
– Correcting, consisting of intermediate control of results of technology implementation and correction of physical education programs, if required;
– Resulting, stipulating estimation of technology's effectiveness in development of vertical stability of 7-10 years old children with poor hearing on the base of created criteria.

Now – content of the technology more specifically. Basing on the offered directions of technology implementation in APE process of 1-4th forms pupils with hearing deprivation, we divided the content part of the technology into modules.

Module 1, or theoretical module, elucidates specific features of vertical stability development of junior pupils with poor hearing as well as interconnection of balance function with coordination abilities. This module implies formation of children's motivation for committed development of body vertical stability through understanding of balance role in structure of pupil's physical condition as well as widening of theoretical base in the field of physical culture.

– Module 2, consisting of complexes of exercises, oriented on formation of body vertical stability both in time of classes and out of classes; besides formation of the mentioned ability, it facilitates strengthening of motivation by selecting of exercises and games, adequate to age off children and interesting for them.

Module 3. It stipulates monitoring of vertical body stability of 7-10 years old children with hearing problems and consists of special tests for operative and final control of the formed abilities.

With selecting of motion actions' training methods we paid attention to game and competition methods, as the most adequate for training of junior school age children. Alongside with the mentioned methods, owing to hearing analyzer's abnormalities of children of such nosology, we used demonstration method and considering the fact that instability of attention is a specific feature of children with poor hearing, we applied also method of divided exercise and method of preparing exercises.

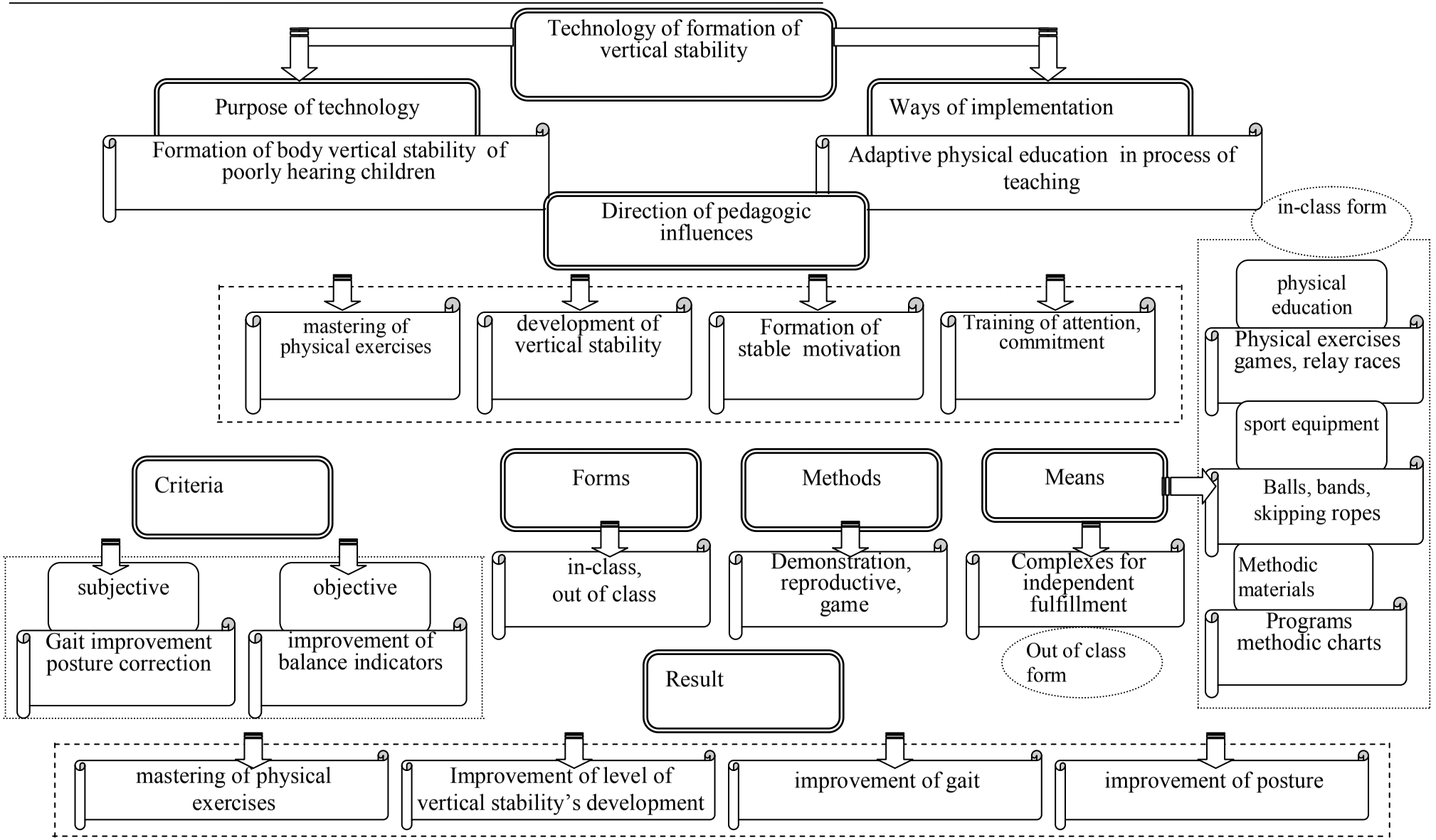

Fig.1. Technology of vertical stability's formation of poorly hearing 7-10 years old children

Determination criteria for evaluation of the technology's effectiveness played important part in its development for formation of vertical stability of 7-10 years old children with poor hearing. For this purpose we generalized experience of our predecessors [17, 18] and chose that evaluation of technology shall be conducted both by subjective and objective criteria.

From our point of view technology fulfills its function only if a child manifests statistically better indicators of balance function, videlicet amplitude of oscillations of general body mass center (GMC) in main stand on immovable support with open eyes, amplitude of GVC oscillations in Romberg's test and time of keeping posture in Bondarevskiy'as test. Besides, we consider improvement of posture, physical condition, confident gait and accuracy of movements and gestures also to be criteria of effectiveness.

Conclusions:

Activity of scientific circles in searching of mechanisms of optimal influence on organisms of disabled children, in order to develop their motion and psycho-physiological qualities, stimulated specialists for creation and implementation of innovative programs on physical education.

At present importance of vertical stability formation of 1-4 forms pupils, as a mean of comprehensive development of a child with hearing problems is misunderstood.

In order to form vertical stability of junior pupils with poor hearing we developed and theoretically grounded technology, whose main directions are teaching of physical exercises, development of vertical stability of body, formation of stable motivation for fulfillment of complexes of exercises, selected for development of pupils balance, correction of posture and prevention from flat-footedness, education of attentiveness and commitment.

Content part of the technology is presented in the form of modules: theoretical, containing general concepts about bio-mechanics of orthograde posture, role of balance function in strengthening of compensatory abilities of sensor systems, interconnection of balance function and other motion qualities, complexes of exercises for development of balance function and tests for determination of formation level of body vertical stability.

The prospects of further researches imply implementation of the offered technology of stability function's development of junior pupils with hearing problems in APE process and estimate on of its effectiveness as per developed criteria.

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Cite this article as: Storozhik A.I. Technology of formation of vertical stability bodies of children aged 7 – 10 years of hearing loss. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 73-79. doi:10.6084/m9.figshare.775333

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 30.07.2013
Published: 30.09.2013

CONTROL OF PHYSICAL FITNESS OF ATHLETES SPECIALIZING IN COMBAT SAMBO

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Annotation.. Confiscation of informative educational tests to assess motor qualities of skilled athletes. The survey was attended by 94 athletes (18 to 30 years). This group of tests includes: running too far on the bridge (second) coups in space (second); perform 100 punches on the punching bag (second), perform 50 kicks on the punching bag (second). It was found that the highest correlation between the result and the qualifications of athletes seen in tests involving the use of wrestling skills (rushing on the bridge and from the place of revolutions). It is shown that in the groups of athletes of medium and heavy weight categories in tests measuring the speed of the application of various attacks on the punching bag have a weak relationship with the level of sportsmanship. The trend is strengthening correlation sports training and exercise, describing the power of athletes of different skills to increase their weight classes.
Keywords: control, test, physical fitness, combat sambo.

Introduction

In modern conditions training process is built on the base of objective information about state of sportsmen's motion function, which permits to prepare them on level of requirements, appropriate for controlled processes [4]. In this connection it is necessary to ensure permanent, purposeful control of effectiveness sportsmen's training by mean of physical condition's evaluation, which consists of combination of interconnected indicators: physical workability, functional state of organs and systems, physical condition, physical development [1, 6].

However, any research is connected with certain difficulties, as far as it requires significant time periods and energy consumption from the tested as well as application of modern apparatuses. Very often coach needs prompt information about current physical state for further correction, for predicting of results in competition season and sports prospects, for revelation of strong and weak sides of his disciple's physical preparedness [3, 7]. It can be required in the frames of training process for evaluation of functional progress's level and for selection of prepared sportsmen for competitions [5, 10].

In this connection the most important is development of methodic, which would permit to evaluate sportsman's preparedness in the most confident way and in the shortest time [3, 5, 7, 9].

The work has been fulfilled as per "Combined plan of scientific & research works in sphere of physical culture and sports for 2011-2015" No.2.22 "Development of complex system for determination of sportsmen's individual-typological qualities on the base of genome characteristic".

Purpose, tasks of the work, material and methods

The purpose of the research is to select informative pedagogic tests for evaluation of motion abilities of qualified sambo-sportsmen for researching of their physical preparedness.

The methods of the research. The tests and examinations were carried out with assistance of sport club "Kyiv center of self-defense" on sport bases of National agrarian university, Suvorov Military School, CSCA (Kyiv). In the research 94 sportsmen took part. They were of age from 18 to 30 years old, among them there were 2 IMS, 28MS, 32 CMS, 32 – of 1st grade.

Group of tests «speed endurance" and "special" were to be fulfilled with one attempt. For group of tests "quickness", "explosive power" there were given three attempts and the best results were registered. In tests, connected with demonstration of maximal strength (initial weight was ordered by tested himself), in every following attempt weight was increased by 5 kg, until it was impossible for the tested to raise the weight.

Results of the researches

With the help of analysis of combat sambo coach's practical experience, scientific and scientific-methodic literature in martial arts, we determined that speed-power abilities of sportsmen are the most important feature of wrestlers' physical preparedness [4, 6]. In this connection we selected pedagogic tests, which characterize different sides of speed-power sambo-sportsmen's preparedness and are used win testing of martial arts sportsmen of other specializations [1, 6, 8]. The offered tests were divided in 4 groups as per their qualitative orientation:

1. Speed endurance: rising of torso from lying position in sitting one during 1 minute (quantity of times); 400 meter run from high start (seconds).

2. Quickness: 30 meters run from high start (sec.); chin-ups during 10 seconds (quantity of times).

3. Explosive power: long jump from the spot (m); putting the shot (4 kg) from below-forward (m); putting the shot from below – backward (4 kg, m.).

4. Maximal strength: bench press (kg); snatching (kg); half-squat with weight (kg); dynamometry of hand (kg).

For estimation of special physical preparedness we selected tests with elements of competition activity of sambo-sportsmen and are widely used in testing of sportsmen of other martial arts' kinds. Group of "special" tests

doi: 10.6084/m9.figshare.775334

included: running from bridge (sec.); overturns from the spot (sec.); 100 punches on punching bag (sec.); 50 kicks on punching bag (sec.).

All tests were selected, considering specificity of this kind of sports and were fulfilled in equal for all tests conditions independent on sportsman's qualification. For better interpretation of data all examined sportsmen were divided into three groups, depending on their weight category:

1. Light weigh category (up to 52 kg, up to 57 kg, up to 62 kg);
2. Middle weight category (up to 68 kg, up to 74 kg);
3. Heavy weight category (up to 82 kg, up to 90 kg, above 90 kg).

In the course of the research we determined indicators of physical preparedness of sportsmen of different qualification, specializing in combat sambo.

However, analysis of absolute values of results, obtained in offered by us tests, does not completely reflect interconnection of one or another indicator with level of sambo-sportsmen's qualification.

For evaluation of interconnections' degree between sport qualification and indicators of sambo-sportsmen's physical preparedness we used method of pair correlation of the studied indicators.

As it is known, the most important characteristic of correlation between two variables is strength of connection, which is determined by correlation coefficient (r). This indicator can take values from 1 to -1, with it, if its value is closer to 1, it means presence of strong connection, if it is closer to 0 – it is weak connection [2].

Table 1

Correlation interconnection of sport qualification and testing results of sambo sportsmen's physical preparedness

Test	Sportsmen		
	Light weight	Middle weight	Heavy weight
Torso rising from lying in sitting position	0.633**	0.692**	0.201
30 m run, sec. from high start	-0.599**	-0.27	-0.136
Long jump from the spot, m	0.4**	0.333	0.189
400 m run, from high start, sec.	0.213	0.335	0.106
Chin ups for 10 sec (q-ty of times)	0.752**	0.551**	0.302
Right hand dynamometry, kg	0.553**	0.575**	0.488**
Left hand dynamometry, kg	0.469**	0.704**	0.586**
Bench press, kg	0.679**	0.603**	0.723**
Snatching (kg);	0.503**	0.664**	0.833**
Half squat with weight, kg	0.668**	0.574*	0.736**
Putting the shot (4 kg) from below-forward, m	0.682**	0.809**	0.604**
Putting the shot (4 kg) from below-backward, m	0.701**	0.822**	0.639**

*Notes: *- p≤0.01; **- p≤,05*

As per results of testing there are high values of correlation in light weight category in chin ups for 10 sec. r = 0.752 (p <0.01), 30 m run r = -0.599 (p <0.01), which reflect high level of quickness and in putting the shot from below-forward r = 0.682 (p <0.01) and from below- backward r = 0.701 (p <0.01), which characterize sportsmen's, specializing in combat sambo, explosive power. 400 m run is a non-informative exercise for light weight sambo-sportsmen.

The highest correlation coefficients og middle weight sportsmen were obtained in putting the shot from below-forward r = 0.809 (p <0.01) and from below-backward r = 0.822 (p <0.01), which characterize sportsmen's, specializing in combat sambo, explosive power and witness about great significance of this quality for efficiency of martial arts' sportsmen. Such tests as 30 m run and 400 m run from high start were non-informative for this weight category as well as long jump from the spot.

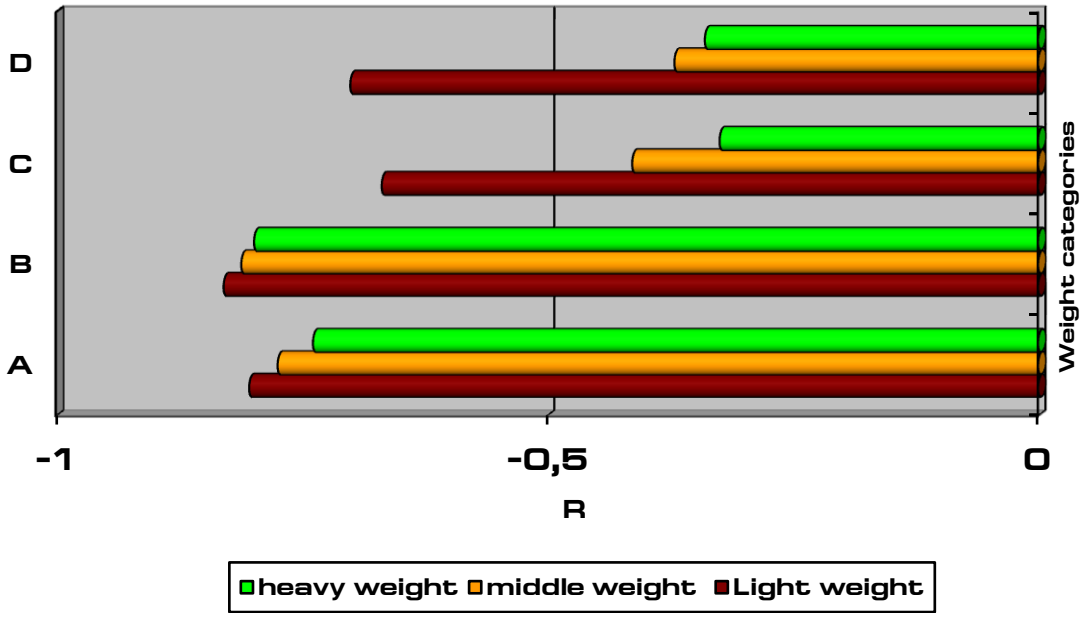

Fig.1. Results of pair correlation's analysis between physical preparedness and qualification of martial arts' sportsmen, specializing in combat sambo

A –running from bridge B – turnovers from the spot
C – 100punches on punching bag; D - 50 kicks on punching bag

Correlation analysis of heavy weight sambo-sportsmen's results showed weak interconnection between qualification and results of the following tests: 30 an 400 m run from high start, torso rising from lying in sitting position, long jump from the spot and chin-ups for 10 seconds. The closest connection was registered in tests, connected with demonstration of maximal strength: snatching r = 0.714 ($p < 0.01$), bench press r = 0.833 ($p < 0.01$) and half squat with weight r = 0.736 ($p < 0.01$).

Studying of correlation connection of results of different weight categories' sportsmen, demonstrated in different pedagogic tests, with their sport qualification showed that for all weight categories high connection in special exercises (turnover from the spot and running from bridge) is characteristic.

Testing of special physical preparedness showed that in exercises with elements of fight, MS demonstrated better results than CMS and 1st grade sportsmen (fig.1) In tests, for measuring of punches (kicks) on punching bag, groups of middle and heavy weight sportsmen showed weak connection between results and qualification level. In our opinion it witnesses that with rising of sport qualification some sportsmen pay little attention to training of punching (kicking) technique, relying on their more effective application of wrestling skills in competition duel.

As it has been shown above results of different weight categories' sambo-sportsmen significantly vary in one and the same tests. In our opinion it depends on different physical qualities. Accordingly, in the process of physical training's control there is a need in applying of only those exercises, which are interconnected with efficiency of sportsmen of certain category.

Conclusions:

1. We have selected complex of tests, which permit to objectively evaluate sportsmen's, specializing in combat sambo, physical preparedness.
2. It has been determined that with rising of sport qualification, sambo-sportsmen's results in tests, oriented on speed-power abilities, are improved.
3. The highest correlation dependence between results and qualification of martial arts' sportsmen of all weight categories was found in tests, connected with application of wrestler's skills, videlicet: running from bridge and turnover from the spot.
4. It was registered that results of tests for quickness of different blows on punching bag have weak connection with sportsmanship of sambo-sportsmen of middle and heavy weight categories.
5. Light weight sambo-sportsmen demonstrated high connection between quickness and sport qualification.
6. There was registered certain trend to increasing of correlation connection between qualification and exercises, which characterize strength of different qualification sportsmen with increasing of their weight category.

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Cite this article as: Tron R.A., Ilyin V.N., Bitsyura R.V. Control of physical fitness of athletes specializing in combat sambo. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 80-83. doi:10.6084/m9.figshare.775334

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 02.08.2013
Published: 30.09.2013

SCIENTIFIC KNOWLEDGE GENESIS OF PHYSICAL EDUCATION AND SPORT ORIGIN IN UKRAINE (THE INVESTIGATION WERE BASED ON THE SOVIET SCIENTISTS' ESSAYS)

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Annotation. *Purpose:* Dynamics of development and priority research areas in the field of Soviet science were viewed with the aim of elucidating scientific knowledge genesis of physical education and sport origin in Ukraine. *Material:* Problematic of the research is revealed in the following periodization: (1939-1965 years) (1966-1990 years). 232 abstracts of essays on physical education and sport origin of the Soviet scientists were analyzed. *Results:* Nihilism of the Soviet scientists on the physical education and sport origin in the pre-Soviet period of Ukrainian and other ethnic groups who lived on the territories annexed to the USSR in 1939, 1940 and 1945 years is observed. We note the lack of working out of the problem of physical education and sport origin in the Soviet period, within the territory of the USSR. *Conclusions:* In the Soviet period, the science genesis of physical education and sport origin in Ukraine is characterized as a stage of scientific knowledge formation.
Keywords: history, physical culture, education, sport, Soviet science.

Introduction

History of physical culture and sports is one of profile disciplines in system of higher physical culture education and one of directions of scientific researches in sphere of physical culture and ports' science. Monitoring of scientific activity is one of important components of further certain directions and specialties' development. Attention of advanced domestic and foreign scientists is directed at problems of cataloging, methodological analysis and monitoring of dissertation researches [2; 3; 8; 9]. Separate aspects of these problems were opened in scientific works of our scientists [1; 7; 10;]. But systemizing and analysis of results of physical culture and sports history have been paid insufficient attention to.

System of historical scientific knowledge of Ukraine was inherited from theoretical and methodological problems of Soviet science in physical culture and sports history. One of urgent tasks of modern domestic historical science is analysis of dissertation researches of Soviet scientists and solution of unsolved or not correctly solved problems of history of physical culture and sports of Ukraine.

The research has been carried out as per "Combined plan od scientific-research works in the field of physical culture and sports for 2011-2015" of Ministry of education and science, youth and sports of Ukraine in the frames of scientific-research topic of department of physical education's theory and methodic 3.2.1 "Improvement of program-normative principles of physical education in educational establishments", state registration No. 0111V001733, which is now being realized in National University of physical education and sports of Ukraine.

Purpose, tasks of the work, material and methods

The purpose: elucidation of genesis of scientific knowledge in history of physical culture and sports in context of Soviet scientists' researches.

The tasks: to carry out analysis of scientific knowledge development's dynamics in history of physical culture and sports in Soviet period; determine the most important directions of historical researches in dissertation works of Soviet scientists; determine the extent of development of physical culture and sports' history problems on the territory of Ukrainian SR.

The material and methods. The problems of the research were studied within the following time-frames: (1939-1965); (1966-1990). We have analyzed 232 abstracts of thesis of Soviet scientists in history of physical culture and sports. Besides, general-scientific and special historical methods of research were used.

Results of the research

Chronological frames of our research are marked by period from 1939 to 1990. Dynamics of development of Ukrainian physical culture and sports have been developed in the following periods: I – (1939-1965); II – (1966-1990). Initial step of 1st period was conditioned by publishing of the first Ph.D. thesis (author – F.I. Samoukov – 1939). Initial step of 2nd period was determined by first DPhil in history of physical culture (author – M.I. Ponomariov – 1966). 1990 – is a limiting year of the researched period owing to collapse of the USSR and declaring of Independence of Ukraine in 1991.

Conception "Soviet period" we define by the following chronological frames: (1923 – 1990) – considering annexation of some territories to Soviet state and Ukrainian SR in 1939, 1940 and 1945.

Territorial orientation of the research in the aspect of physical culture aspect of ethnic communities of Ukrainian SR covers Ukraine in compliance with modern national boundaries.

Analysis of Soviet scientists' researches in history of physical culture and sports was fulfilled as per the following historic directions.

doi: 10.6084/m9.figshare.775335

1. *International physical culture and sports (IPC and S).* This direction included researches, elucidating development of physical culture and sports out of territorial USSR boundaries at different stages of history as per periodization accepted in Soviet historical science.

2. *Physical culture education and sports (PCE and S) of peoples of the USSR (pre-Soviet period).* This group generalizes researches. Which were oriented on elucidation of ethnic traditions of physical culture education of USSR population in pre-Soviet period.

3. *Physical culture education and sports (PCE and S) in republics of the USSR (Soviet period)* – included thesis, which dealt with mentioned problems within territories of Soviet republics in the mentioned period.

4. *Physical culture education and sports (PCE and S) in the USSR* – involved studying of researches, which dealt with history of physical education and sports in Soviet state in general.

Key conception of all above listed historical directions of researches was "physical culture education" [6, pg.10]. In our opinion "physical culture education" in context of categories "physical culture", and "education" contains the following components: 1) acquiring of special knowledge, skills and abilities in sphere of physical culture"; 2) formation of world-vision and physical health on this basis; 3) readiness for full-fledged life and social activity [11]. This conception stipulates also higher physical culture education) training of pedagogues in the field of physical culture and sports).

5. *International sport and Olympic movement (MS and OM).* When analyzing researches of this group we kept interpretation of categories "sport movement" [4, pg.12] and "Olympic movement" [5, pg.11]. Besides, conception "International sport movement" (ISM) is wider than "International Olympic movement"(IOM). MSM includes IOM, the second relates to the first as part of the whole [8, pg. 233]. That is why in this direction we regarded researches, elucidating history of both: International sport and International Olympic movements.

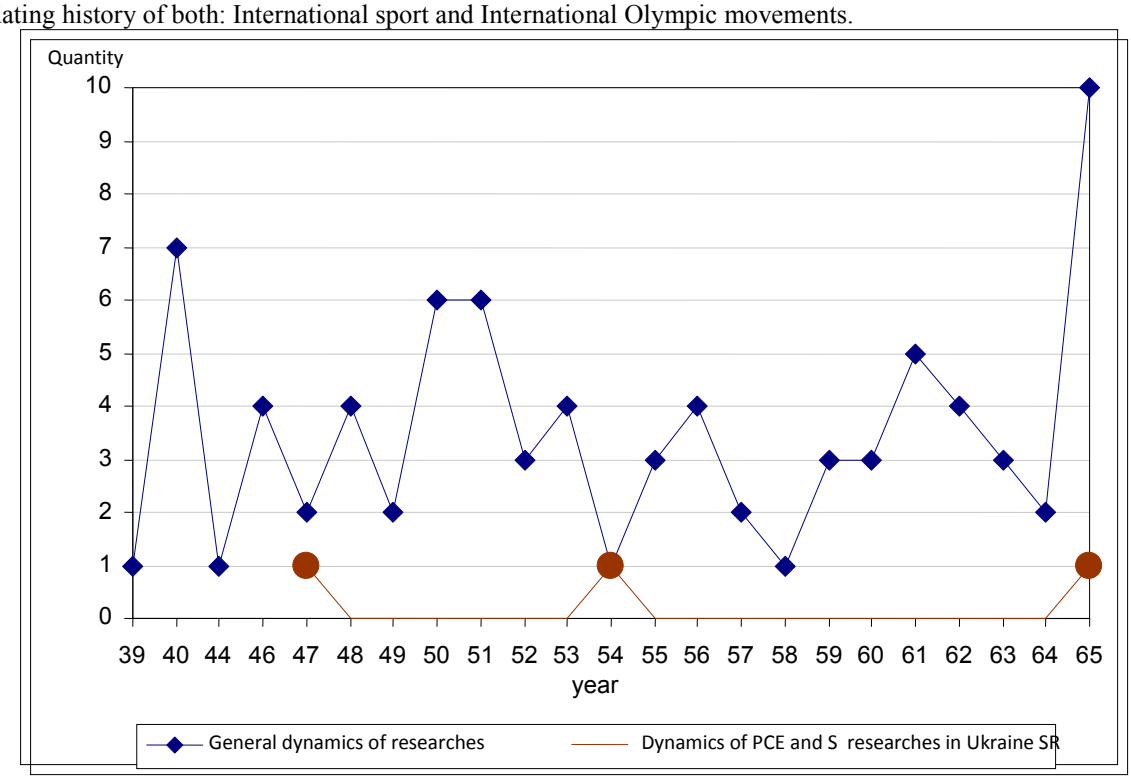

Fig.1. Dynamics of dissertation researches (1939-1965)

When analyzing content and quantitative indicators of researches in history of physical culture and sports of the 1st period (1939-1965) we used abstracts of data base of National library of Ukraine, named after V.V. Vernadskiy [www.nbuv.gov.ua] and results of scientific researches [8, pg. 594 - 597].

In fig. 1 quantity and data of dissertation researches' fulfillment are presented. Upper diagram reflects general dynamics of researches, lower – researches, which covered territory of Ukraine SR.

Thus, for the mentioned period 81 Ph.D. researches were carried out in history of physical culture and sports. The lowest quantitative indicators were in the following years: 1944, 1954, 1958 (1). Average indicator was marked in 1940 - (7). The highest indicator was registered in 1965 - (10).

In fig.2 percentage as per historical directions of researches in period 1939-1965 is shown.

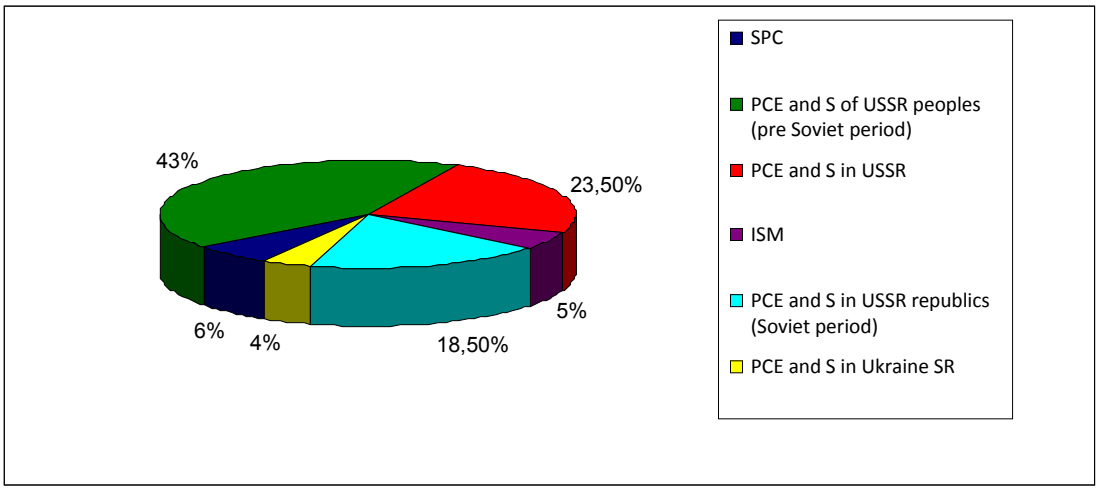

Fig.2. Historic directions of dissertation researches in 1939-1965

In direction *Physical culture in the world* there were 5 dissertation researches that is 6%.

History of physical culture education and sports of USSR peoples (pre Soviet period) was studied in 35 researches that equals to 43%.

Physical culture education and sports in republics of the USSR (Soviet period) was elucidated in 15 dissertation researches that is 18.5%. Three researches studied these problems on territory of Ukraine SR that is 4%.

Physical education and sports in the USSR were elucidated in 19 works that equals to 23.5%.

History of *International sport movement* is presented by 4 researches that equals to 5%.

Thus, inheritance of soviet scientists for the first period (1939-1965) can be determined as follows: World history of physical culture and sports was elucidated only for period from Ancient time to Middle Ages; there were no researches in history of International Olympic movement; there were no researches dealing with pre-Soviet history of physical culture education of Ukrainians and other peoples, annexed to Ukraine SR in 1939, 1940 and 1945; Soviet history of physical culture and sports in Ukraine SR was studied superficially; scientific school on history of physical culture and sports in Ukraine started to originate.

Dynamics of development and historic directions of Soviet dissertation researches for the second period (1966-100) is presented by us on the base of analysis of abstracts, received from data base of National library of Ukraine, named after V.V. Vernadskiy [www.nbuv.gov.ua] and results of scientific researches [8, pg. 599-608].

In fig. 3 there are presented quantitative indicators and dates of dissertation researches' fulfillment (DPhil – marked specially) for this period. Upper diagram reflects general dynamics of scientific knowledge development, lower – dynamics of researches relating to Ukraine SR.

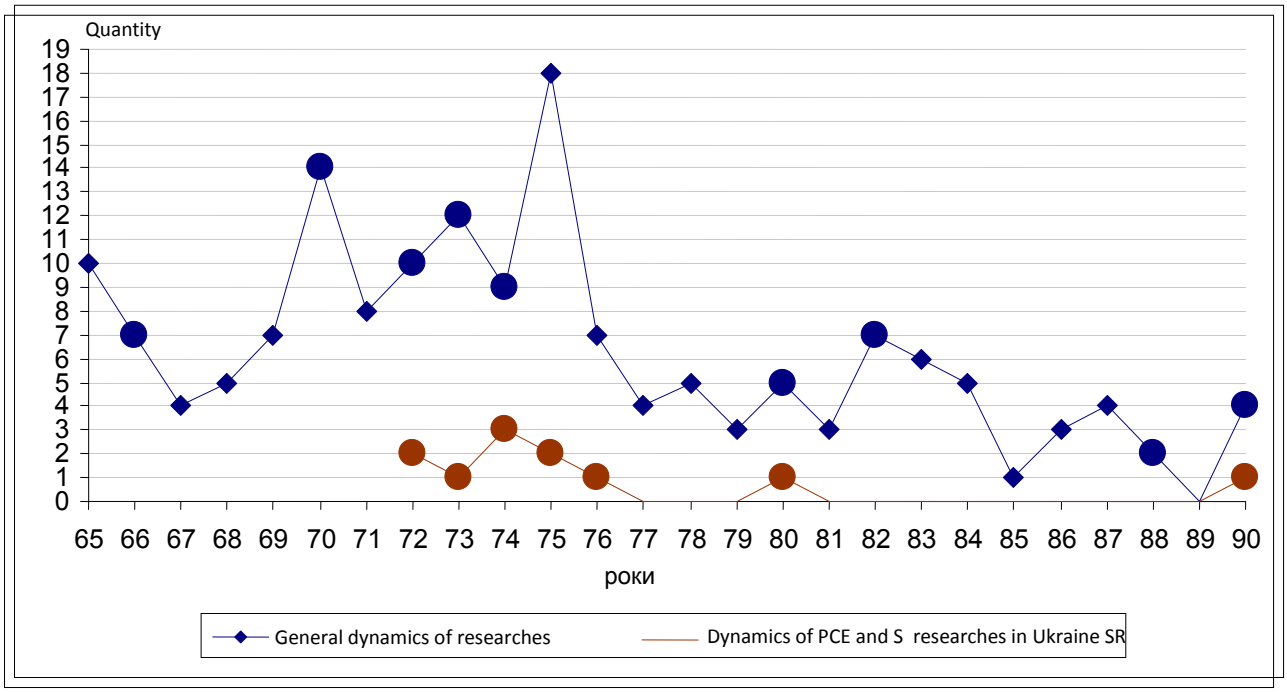

Fig3. Dynamics of dissertation researches (1966-1990)

So, for the mentioned period 151 dissertation researches were fulfilled. The lowest indicators were in the following years: 1985 - (1); 1988 - (2); 1979, 1981, 1986 - (3 each year). Significant quantitative results were registered in the following years: 1966, 1969, 1976, 1982 - (по 7); 1981 - (8); 1974 - (9); 1972 - (10); 1973 - (12); 1970 - (14). The highest quantitative indicator was registered in 1974 - (18).

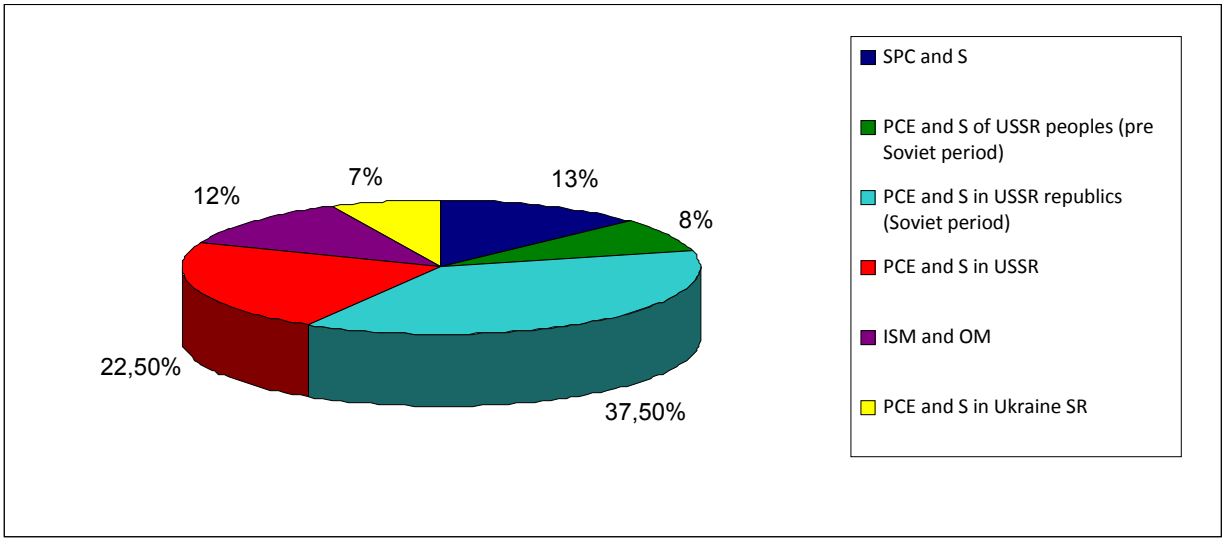

Fig.4. Historic directions of dissertation researches in 1669-1990

In fig.4 there is presented percentage of indicators by historic directions of researches of the second period (1966-1990).

History of *World physical culture and sports* was opened in 20 works (from them 4 – DPhil), that equals to 13%. History of *physical culture education and sports of peoples of the USSR (pre-Soviet period)* is presented by 12 dissertation researches that is 8%. History *of physical education and sports of peoples of the USSR (Soviet period)* is presented by 56 researches (1 DPhil among them) – 37.5%. History of physical education and sports in Ukraine SR (Soviet period) was studied in 11 dissertation researches that is 7%. In direction of history of *physical education and culture and sports in the USSR* there were fulfilled 34 dissertation researches (4 DPhil among them), that is 22.5%. History *of World physical culture and sports* was elucidated in 20 works (4 D Phil among them) that equals to 13%. History of *physical education and sports of USSR peoples (pre-Soviet period)* is presented by 12 researches – 8%. History of *physical education and sports of USSR peoples (Soviet period)* – was studied in 56 researches (1 DPhil) - 37.5%. History of physical culture education and sports in Ukraine SR was opened in 11 works that is 7%. In direction history of *physical culture education and sports in the USSR* 34 dissertation researches were fulfilled, including 4 DPhil, that is 22.5%. History *of International sport and Olympic movements* was studied in 18 researches that equals to 12%.

Thus, for the second period (1966-1990) there were fulfilled 151 dissertation researches, including 9 – DPhil. Quantity of works, elucidating World history of physical culture and sports increased two times. Significant reduction (three times) of researches of history of physical education and sports of USSR peoples in pre Soviet period was registered. There was significant increment (three and half times) of works in direction "history of physical education and sports of USSR republics (Soviet period). It should be noted that in this direction 11 works, which studied this problem on territory of Ukraine SR, were fulfilled. Quantity of works dealing with history of International sport and Olympic movements increased two times.

In general, for period from 1939 to 1990 soviet scientists fulfilled 232 dissertation researches, including 9 DPhil, devoted to history of physical culture and sports. Quantity of researches, which elucidate history of physical education and sports in Ukraine SR (Soviet period) is 14 Ph.D. that is 6% from total scope of dissertation researches.

Conclusions:

Quantitative and content components by historical directions of soviet scientists' researches was conditioned by political, ideological and social-cultural factors, which determined general trends of Soviet science development. We state nihilism of Soviet scientists concerning history of physical culture education and sports in pre Soviet period of Ukrainian and other peoples, living on territories, which were annexed to Ukraine SR in 1939, 1940, 1945. We note insufficient level of studying of physical education and sports' history of Ukraine SR. Genesis of science of physical culture and sports of Ukraine history is characterized by us as a stage of scientific knowledge formation.

Further scientific study will be oriented on formation and development of scientific knowledge of history of physical culture and sports of Ukraine in the period of our state's Independence.

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Cite this article as: Ustinova T.B. Scientific knowledge genesis of physical education and sport origin in Ukraine (the investigation were based on the Soviet scientists' essays). *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.10, pp. 84-88. doi:10.6084/m9.figshare.775335

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 08.07.2013
Published: 30.09.2013

DETERMINING THE LEVEL OF PHYSICAL DEVELOPMENT OF PRESCHOOL CHILDREN

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Annotation. An assessment of the physical development of preschool children. The study involved 74 children - 5 years (34 girls and 40 boys) and 84 pre-school children - 6 years (37 girls and 47 boys). Functional status was determined by measuring the heart rate at rest, lung capacity and sample Rufe. It was established that the children surveyed index indicator corresponds to the level of physical development is above average. Determined that the parameters of the functional state of preschool children meet the age norm. It is established that the determination of physical performance in preschool children 5-year life of the average level detected, and the children of the 6th year of life - satisfactory. It is shown that the average anthropometric measures sex-age groups correspond to the performance of preschool children surveyed, except for girls 6 years.
Keywords: physical, development, senior, pre-school age.

Introduction

Problems of pre-school age children's physical development, strengthening and preservation of their health can not loose its urgency. Especially it concerns the present time, as far as in some pre-school establishments quantity of sick children reaches 50-90%. Just owing to this fact, in compliance with Laws of Ukraine "On pre-school education" and "On physical culture and sports", physical education of pre-school children is oriented, first of all, on protection and strengthening of psychic and physical health of children, on strengthening of organism's immune system, education of stable interest to motion activity, formation of vitally necessary motion skills, abilities and physical qualities (quickness, endurance,, dexterity, coordination, flexibility), formation of health culture [2, 6]. Alongside with it, data of numerous researches witness that to day approximately 80% of children have one or several diseases, 40% of pre-school children have abnormalities of posture and 56% have insufficient physical condition [4].

In modern conditions of computerization, aggravation of social problems, unsatisfactory ecological conditions in Ukraine full-fledged development of children, rising of their organisms' adaptation level become of great importance. In such conditions just physical education can be special kind of activity, which would facilitate training of physical and moral qualities, optimization of psychic processes, which are connected with formation of harmoniously developed child's personality [5, 7].

Pre-school age – is a period, when the most intensive processes of organism's growth and development, formation of child's personality are going on. Exactly in this age the basis of future health state, physical condition, mental activity are embedded, which are extremely required for comprehensive harmonious development of a child [8, 10, 11].

A lot of researches are devoted to problems of pre-school age children's physical development and healthy life style of rising generation (O.L. Boginich, Ye.S. Vilchkovskiy, N.F. Denisenko, L.A. Svarkovska, I.I. Brekhman, O.D. Dubogay, R.Z. Potashniuk). At the same time, recent years there has been existing a trend to reduction of physical condition's level of pre-school children. It conditions search of new systemic approaches to application of physical education means in educational process of senior pre-school age children [1,3,9].

The problem of the present work corresponds to plan of scientific & research works of department of physical education's theory and methodic of National University of physical education and sports of Ukraine and to "Combined plan of scientific & research work in sphere of physical culture and sports for 2011-2015" by subject 3.1 "Improvement of program-normative principles of physical education in educational establishments" (state registration № 0111U001733).

Purpose, tasks of the work, material and methods

The purpose of the research is determination of physical condition of senior pre-school age children.

The tasks of the research:

1. Studying of some indicators of physical condition and functional state of pre-school age children.
2. Evaluation of physical condition's level of senior pre-school children.

The methods of the research: theoretical analysis and generalization of scientific and methodic literature, pedagogic observation, anthropometrical methods physiological methods and methods of mathematical statistics.

Organization of the research. At the beginning of 2012 we examined children of pre-school educational establishments No.23 (Vinnitsa) among whom there were 74 children of 5 years old age (34 girls and 40 boys) and 84 pre-school children of 6 years old age (37 girls and 47 boys). For evaluation of their physical conditions we used indices, which characterize interconnection between different anthropometrical indicators: height, chest circumference. By dynamics of children's growth and development it is possible to judge about their health, physical and psychic welfare.

Results of the research

For evaluation of physical condition's level we calculated index of physical condition as per O. Dubogray:

doi: 10.6084/m9.figshare.775336

IPC= H-(W+CC),

Where: H – height in position standing upright, cm; W- weight, kg; CC- chest circumference, cm;

Evaluation of physical condition of senior, pre-school children's bodies (as per O. Dubogray) showed that for 5 years old boys this indicators was 38.8±0.41 conv. un., for girls – 39.7 ±0.48 conv.un. For boys of 6 years old this indicator was 41.8±0,6 conv.un. for girls – 42.2±0.51 conv,un. (see table 1).

Table 1

Indicators of physical condition and functional state of senior pre-school age children

Age	Sex	Indicators							
		Index of physical conditions, conv.un.		Heart beat frequency (HBF) b.p.m-¹		Vital capacity of lungs (VCL) ml		Ruffiet's test, conv.un.	
		$\bar{x}$	S	$\bar{x}$	S	$\bar{x}$	S	$\bar{x}$	S
5years old (n=74)	B	38.8	0.41	91	7.4	890	175.4	8.1	3.2
	G	39.7	0.48	94	7.1	860	150.6	9.8	5.2
6 years old (n=84)	B	41.8	0.6	87	6.5	1090	236.8	10.0	3.9
	G	42,2	0.51	87	9.5	1060	961.5	10.0	5.2

Notes: B- boys; G- girls.

Comparative analysis of physical condition indicators of the tested children of senior pre-school age with the help of age standard (O. Dubogray, 2003) showed that this indicator of 5-6 years old boys and girls corresponds to level above middle.

Results of examination of cardio-vascular system's functional state of senior pre-school children are an important characteristic, which is included in evaluation of physical health and, therefore, children's physical condition. Functional state of children's cardio-vascular system is not only central indicator of health; it is important for adaptation of organism to physical loads and is one of main indicators of functional abilities.

Evaluation of functional state of pre=school children's cardio-vascular system was evaluated with the help of pulse metering in rest, measuring of vital capacity of lungs and Ruffiet's test. As per Ye.S. Vilchkobskiy (1998) heart beat frequency in rest shall be 80-100 b.p.m for children of this age. We registered the following results: 5 years old girls –– S=94 b,p,m -¹, boys – S=91 b.p.m.⁻¹; mean arithmetic of 6 years old children (both girls and boys) was 87 b.p.m ⁻¹. So pulse indicators in rest of 5-6 years old examined children corresponded age standard and prove the fact that girls have pulse higher than boys [2].

Functional state of children's respiratory system was examined with the help of spirometry method, which permitted to determine vital capacity of lungs. Analysis of table 1 data can help to determine that mean VCL indicators of 5-6 years old examined children correspond to middle level (as per data of M.M. Bezrukikh et al., 2002) and are 890 – 1090 ml, accordingly. But both some boys and some girls of 5-6 years old had indicators, corresponding to high level – 1500 – 1700 ml that witnesses about substantial individual discrepancies in the examined group of children.

For determination of physical workability of cardio-vascular system we used functional test of Ruffiet. The results, obtained by us, permitted to make conclusions about satisfactory level of physical workability of 6 years old boys and girls (S=10.0 conv.un.). Level of physical workability of 5 years old boys and girls is higher (girls– S=9.8 conv.un..; boys – S=8.1 conv.un.) and corresponds to middle level (see table 1).

It is known that evaluation of physical state is carried out by comparing of anthropometrical indicators of the tested with mean indicators of sex-age group.

As results of our researches witness, mean indicator of 5 years old girls' height is 109.9 ± 5.9 cm, and 6 years old girls – 116.5 ± 4.6 cm, i.e. increases by 6.6 cm. With it, in 5 years old age, difference between maximal (117 cm) and minimal (100 cm) height is 17 cm, that says about different rates of physical development of this age girls. Difference between maximal (123 cm) and minimal (108 cm) height – 15 cm - of 6 years old girls also witnesses about non-uniformity of group.

Boys of middle group (5 years old) show a little higher indicators of height– 110.8 ± 5.7 cm and difference between maximal (120 cm) and minimal (100 cm) height is 20 cm (see table 2).

Table 2

Mean indicators of physical condition of senior pre-school age children

Age	Sex	Anthropometrical indicators					
		Height, cm		Body mass, kg		Chest circumference, cm	
		$\bar{x}$	S	$\bar{x}$	S	$\bar{x}$	**S**
5 years old (n=74)	B	110.8	5.7	19.0	3.2	55.5	4.0
	G	109.9	5.9	18.0	3.1	53.1	5.5
6 years old (n=84)	B	117.8	4.5	20.5	1.9	58.8	2.7
	G	116.5	4.6	19.9	2.5	57.7	2.5

Notes: B- boys; G- girls.

At the age of 6 years old (senior group) mean indicator of height is 117.8 cm for boys, with it, maximal value is 124 cm and minimal – 106 cm. Difference of indicators is 18 cm. Height of boys increases by 7 cm in the period from 5 to 6 years and of girls – by 6.6 cm, that permits to say about absence of any significant difference in dynamics of height indicators of boys and girls, but witnesses about confident differences between indicators of 5 years old children and 6 years old ones.

Body mass of girls increases by 1.9 kg in the period from 5 to 6 years old age. With it, in 5 years old age mean mass indicator is 18 kg (maximal indicator is 22 kg and minimal – 13 kg) and difference equals to 9 kg that shows substantial difference in individual indicators in this age. In 6 years old age difference reduces to 8 kg.

Approximately the same rates of body mass increment are shown by boys, where in the period from 5 to 6 years old mass of body increases by 1.5 kg. Mean mass indicator of 5 years old boys is 19 kg (maximal value – 24 kg and minimal – 13.3 kg with difference of 10.7 kg). For 6 year old boys difference is 7.5 kg (between maximal value of 24.5 kg and minimal – 17.0 kg) and mean indicator is 20.5 kg. Thus, we can see different rates of body mass increment of examined children.

Indicators of chest circumference of girls increase by 4.6 cm from 5 to 6 years old age. Mean indicators of 5 years of girls is 53.1 ± 5.5 cm, (maximal - 62 cm, minimal– 45 cm, difference– 17 cm). 6 years old girls have the following indicators: mean arithmetic – 57.7 ± 2.5cm, maximal– 63 cm, minimal– 54 cm, difference– cm.

Boys of this age group have increasing of chest circumference indicators a little less than girls – 3.3 cm. Like girls they have significant individual differences. For example for 5 years old age mean arithmetic is 55.5 ± 4.0 cm (maximal value is 61 cm, minimal – 48 cm, difference – 13 cm). For boys of 6 years old age difference is 9 cm; so we can say that girls have a little bit higher rates of this indicator's increment (8.7%) than boys (6.0%).

Comparing indicator of body mass of 5 years old pre-school children with mean indicator of child's development (see table 3) we can see that boys meet norm but girls have less mass of body. 6 years old children have less mass of body (both boys and girls).

Table 3

Mean indicators of pre-school children's physical condition

Age	Sex	Anthropometric indicators		
		Mass of body, kg	Height, cm	Chest circumference, cm
4 years old	B	16. 8 ± 0. 9	101. 7 ± 2. 3	53. 6 ± 1. 4
	G	16. 2 ± 1. 2	100. 7 ± 2. 7	52. 7 ± 1. 1
5 years old	B	18. 8 ± 1. 2	109. 2 ± 2. 8	55. 7 ± 1. 4
	G	18. 5 ± 1. 7	110. 3 ± 2. 7	53. 6 ± 1. 6
6 years old	B	21. 4 ± 2. 4	116. 7 ± 2. 7	58. 7 ± 1. 8
	G	21. 2 ± 2. 6	115. 3 ± 3. 3	58. 3 ± 1. 93

Notes: B- boys; G- girls.

Comparing height indicators and chest circumference with mean indicators of pre-school children physical condition (see table 3) we can state that anthropometrical indicators practically do not differ; only 6 years old girls have chest circumference less ($\overline{x}$ = 57.7 cm), than it must be as per physiological norm.

Conclusions:

1. Results of our research have witnessed that indicator of physical condition's index of 5-6 years old examined children corresponds to level above middle. Indicators of functional state (HBF in rest, VCL) meet age standard. Evaluation of workability of cardio-vascular system of 5 years old children showed its middle level and concerning 6-years old children – satisfactory level.
2. Comparing anthropometrical indicators of the examined pre-school children with mean indicators of sex-age group we can state certain compliance, videlicet of height and chest circumference (except 6 years old girls).

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Cite this article as: Harina D.L. Determining the level of physical development of preschool children. *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 89-92. doi:10.6084/m9.figshare.775336

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 11.07.2013
Published: 30.09.2013

THE PECULIARITIES OF WORK OF THE EUROPEAN NETWORK OF HEALTH PROMOTING SCHOOLS (COMPARATIVE ANALYSIS)

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Annotation. *Purpose* – to analyze the main peculiarities of European Network of Health Promoting Schools functioning in European Union and Ukraine. *Results.* Students are a big group of population that demand introduction of health education in modern rhythm of life. A great example of such education is schools of Members States of European Union. Address to experience of forming of students' health culture in the Health Promoting Schools in countries of European Union, experience of that can become an example for the countries of post-soviet space and Ukraine in particular. In the article is shown main peculiarities and structure of the work of such school network. Single out the main principles and approached of network activity. *Conclusions.* The ENHPS is intended above all to be of practical help to schools and those working with schools on becoming more effective in health promotion and therefore ultimately more effective in meeting their educational goals.
Key words: European Network of Health Promoting Schools, health, school, promotion, student, culture.

Introduction

Health is a value not always appraised by children and young people; they do not understand that health can be lost and it needs support and caring. Forming of ability to care of own health and health of society, in that a man lives, must be successive and, coming from age of schoolchildren, to be base on educator process of educational establishment. Healthy existence of students is done by systematic attendance of school, effective studies, motivation to the studies. On the state of health of students loading, concentration, memory, rate of capture new skills influence also. Except it, healthy man has more chances to use the potential possibilities to satisfy the own necessities, attain the aims and vital aspirations.

Today the problem of threat to the health is examined by world community after the next marked threats of planetary scale: threat of world war; ecological cataclysms; contrasts in the economically even countries of planet; demographic threat; lack of resources of planet; consequences of scientific and technical revolution. Therefore the health of nation is presently examined as an index of civilized of society and quality of life of her citizens.

One of exits from a critical situation become an introduction of formation of healthy aspiration in most school educational establishments of countries of European Union. In fact, for today, school is only educational establishment, where it is possible to teach students to care of own health, form a setting in support of own health, to explain the features of inhibition and forming of healthy way of life, and, thus, to form the culture of health.

The European Network of Health Promoting Schools (ENHPS) in 90th overcame over 500 pilot grounds in almost 40 countries of Europe, and also in other countries of the world (Australia, Vietnam, Canada, Philippines and other). In ENHPS, each country has been encouraged to develop the health-promoting school idea in a way that seemed most appropriate for their needs and specific context [17]. The ENHPS has a conscious and planned strategy based on a setting approach to health, developed by the WHO in the 1980s. This also applies to other settings for health promotion for example Healthy Cities.

Delegates from 43 European Countries considered the progress made in the health-promoting schools programme and identified the practical steps essential in building successful national health-promoting schools programmes resulted in the Egmond Agenda (conditions, programming, evaluation).

Including of Ukraine to the European Network of Health Promoting Schools was regulated by the inter-branch national programs "Children of Ukraine", "Physical Education – a health of nation", "Health of nation", by the corresponding orders of ministries of health and education and science ("About attaching to the international project the European Network of Health Promoting Schools", "About further introduction of international project the European Network of Health Promoting Schools in Ukraine").

Thus, address to experience of forming of students' health culture in the countries of European Union, experience of that can become an example for the countries of post-soviet space and Ukraine in particular, is actual for today.

Research of various aspects of creation of healthy educational environment at school, and also functioning of Health Promoting Schools in Ukraine examined by M. Bezrukich, L. Boyarska, G. Danilenko, O. Ionova, O. Lukashenko, L. Morozova-Khmarska, O. Savchenko, S. Sviridova, T. Savustiyanenko, Ye. Vainer, etc.; in Europe – E.D. Białek, N. Cavill, Z. Izdebski, S. Kahlmeier, K. Komosińska, A. Kowalewska, F. Racioppi, T. Williams, B. Woynarowska.

The article corresponds to the scientific-research work of Kharkiv state design and art academy.

Purpose, tasks of work, materials and methods.

Purpose – to analyze the main peculiarities of European Network of Health Promoting Schools functioning in European Union and Ukraine.

doi: 10.6084/m9.figshare.775339

Results.

The European Union. In Europe, children's right to health has been extensively elaborated. Both within the European Union and in the Council of Europe, developments have taken place that ground the right to health of all citizens and those of children in particular in different legal documents. Most far-reaching are the Guidelines on Child-Friendly Health Care of the Council of Europe as adopted by the Committee of Health Ministers on 21 September 2011 in Lisbon [12].

Among young people health should be considered in its widest sense. The concept of health in young people covers physical capacity, physiological functioning, social relationships and environmental potentials. Over the last years education has become increasingly important in young people's lives. Data from a 1995 Eurobarometer survey indicate that this change is still continuing; young people in all Member States attach great importance to their educational goals [11].

Health education is a right of every child. It makes possible for a child to get a competence in health care and perfect own health and health of people around him/her. Health education promotes positive adaptation to developing changes and challenges of everyday life, promotes to "stock" health in childhood, youth and further years and prevent disorders.

So, as mentioned B. Woynarowska, health education is a process, where children learn to take care about their own health and health of surrounding them people; is a didactic-educational process that learn children how to live for preserve and perfection own health, to make contributory environment for health; is a mean of health promotion [16].

According to T. Williams, one of the creators of health education, modern child lives in three worlds: real, media and virtual. School has no influence on media and virtual worlds, but it can use information technologies in realization health education and form skills in cutoff score of information that is getting from different sources, especially from advertisement and Internet [15].

There are such arguments that health and education is interconnected processes [10]. Better health makes better education and vice-versa. Scientists (B. Woynarowska, A. Kowalewska, Z. Izdebski, K. Komosińska, T. Williams, E.D. Białek) single out the following three phenomena:

1. Education as a reserve for health. The results of many researches specify that than higher level of formation of population, the less indexes of death rate and morbidity, less frequency of protracted illnesses and risky economies (smoking of tobacco, abuse of alcohol, wrong diet et cetera), more long life-span. It is possible to explain – education helps people to get knowledge and acquire necessary habits related to health care and its perfection.

2. Health as a reserve for education. Health assists children in school education, makes possible to visit school systematically and obtain satisfactory results. Good functioning of an organism, psychological and social well-being are also an integral part of this phenomenon.

3. Factors that influence on health and education are similar. Among these factors are social-economical factors of family, school, environment, networks, peers.

So, we can say that modern students need to be skilled in health through the educational process. Schools intend to help pupils acquire the knowledge and develop the skills they need to participate fully in adult life, but all too often fall short of this goal.

Students are a big group of population that demand introduction of health education in modern rhythm of life. A great example of such education is schools of Members States of European Union. One of the key features of the Health Promoting School initiative is its acknowledgement that the curriculum does not merely define what is taught but rather comprises the whole school experience – including its organizational structure and ethos – and the kinds of alliance established with the community and other external organizations.

The European Network of Health Promoting Schools was established in the early nineties by Council of Europe, the European Commission and WHO, Regional Office for Europe as an outcome of a series of workshops and conference focusing on the setting approach as a tool to develop health promotion in schools.

In 1992 the European Network of Health Promoting Schools started with pilot schools in four countries: Czech Republic, Poland, Slovac Republic. Today more than 40 countries are members of this network.

According to the World Health Organization these schools are basing on the following principles: democracy; equity; empowerment and action competence; school environment; curriculum; teachers' training; measuring success; collaboration; communities; sustainability [14].

The aim of health promoting schools is:

• to establish a broad view of health;

• to give students tools that enable them to make healthy choices;

• to provide a healthier environment engaging students, teachers and parents, using interactive learning methods, building better communication and seeking partners and allies in the community;

• to be understood clearly by all members of the school community (students, their parents, teachers and all other people working in this environment), the "real value of health" (physical, psychosocial and environmental) in the present and in the future and how to promote it for the well-being of all;

• to be an effective (perhaps the most effective) long-term workshop for practising and learning humanity and democracy;

• to increase students' action competence within health, meaning to empower them to take action – individually and collectively – for a healthier life and healthier living conditions locally as well as globally;

• to make healthier choices easier choices for all members of the school community;
• to promote the health and well-being of students and school staff;
• to enable people to deal with themselves and the external environment in a positive way and to facilitate healthy behaviour through policies; and to increase the quality of life [13].

Ukraine. On this time active work of pedagogical collectives is conducted in creation of friendly to the health students' environment, studies of students to abilities and skills of healthy way of life, elucidative work among parents. Most teachers insist on that, only uniting joint efforts of teachers and parents, it is possible to produce skills of healthy way of life and healthy culture of students [5].

Considerable attention in the problem of forming of healthy way of life and health culture in school educational establishments is pay by O. Voloshin [1]. An author was the first who introduce the concept "school of healthy way of life" in pedagogical science. It is a school in that it is necessary to form healthy educational system. The purpose of such school is conditioning for forming healthy way of life, maintenance and strengthening of health as major factor of development of personality; grant to every child of possibility to get education without the loss of health; to form in all participants of educational process a health culture.

Determination of main tasks in health saving of students in educational establishments, in opinion of O. Voloshin is: association of all pedagogical collective for the decision of tasks of forming education about healthy way of life and health culture of students; leading to of all elements of educational process in accordance with the state of health and psychophysical possibilities of students and teachers; realization of health accompaniment of educational process that envisages such work assignments, as: healthy ground and examination of educational-educator work, diagnostics and correction of health of students, prophylactic measures, help in development of children [1].

Taking into account that integral system of work of pedagogical collectives in relation to maintenance and strengthening of health of students in educational establishments as yet functions mainly only from the point of view of theory, but not practice, the active search of modern model of educational establishment – "Schools Promoting Health" is still exist. These educational establishments appear in Ukraine in connection with tacking of our country (in 1995) to the European Network of Schools Promoting Health [2, 6, 7, 8, 9].

Practically all models of "Schools Promoting Health" are base on principles of the personality oriented approach to studies and education that promotes, from one side, forming of positive motivation in relation to the health culture, to maintenance of own health, and from other – creation in every educational establishment of terms for a self-education and self-realization of students, grant of help to every pupil in realization of itself in life of school collective, in family, in public life [4].

By indisputable advantages of "Schools Promoting Health", that exist in domestic educational space of Ukraine, are: organization of skilled medicare, psychological accompaniment of educational process, providing of him health saving atmosphere (movable activity, positive emotional climate); realization of all-round athletic-health work; active activity in forming of value of health among students, teachers, parents, public, that assists the improvement of health of students – reduction of catarrhal and chronic diseases, decline of level of anxiety, fear, aggressiveness; development of various educational-cognitive interests, psychological readiness to active life [3].

In Ukraine appeared a row of new educational establishments ("School of Understanding", "School of Development", "School of Dialogue of Cultures" and other) that work according to the authorial programs of development of child. These programs inherited the ideas of well-known teachers-humanists of the past, and also were based on modern conceptions of developing education, dialogic studies, personality-oriented approach and other. Activity of such educational establishments had positive influence on forming of healthy way of life, health culture of students.

Conclusions. The European Network of Health Promoting Schools are intended above all to be of practical help to schools and those working with schools on becoming more effective in health promotion and therefore ultimately more effective in meeting their educational goals. A health-promoting schools aims to reach everyone in the school, pupils and staff alike, and also to develop good links with the community and families it serves.

Further research will devote to the analysis of forming a health culture of schoolchildren in the European Network of Health Promoting Schools of Poland.

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Cite this article as: Iermakova T.S. The peculiarities of work of the European Network of Health Promoting Schools (comparative analysis). *Pedagogics, psychology, medical-biological problems of physical training and sports,* 2013, vol.10, pp. 93-96. doi:10.6084/m9.figshare.775339

The electronic version of this article is the complete one and can be found online at: http://www.sportpedagogy.org.ua/html/arhive-e.html

Received: 02.08.2013
Published: 30.09.2013

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SCIENTIFIC EDITION (journal)

Pedagogics, Psychology, Medical-Biological Problems of Physical Training and Sports. 2013, vol.10, 100 p.

Editorial to the publisher department KSADA:
certificate DK №860 20.03.2002.
designer - Masterova Y.
editing - Iermakova T.
editing - Krasnikova S.
designer cover - Bogoslavets A.
administrator of sites - Ulanchenko Y.

———————————————————————

passed for printing 30.09.2013.
Format A4.

KSADA.

Red Banner str. , 8, Kharkov, 61002, Ukraine.