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CONTENTS

INFLUENCE OF PLACE OF BIRTH AND GENDER ON THE HEALTH COMPONENT OF THE QUALITY OF LIFE OF STUDENTS

Andriichuk O.J.[1], Kasarda O.Z. [2]
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Annotation.. *Purpose:* to analyze indicators of physical and mental health components in quality of life of students according to gender and place of birth. *Material*: the study involved 513 students aged 17 - 22 years old. Depending on the place of birth of the students were grouped into 5 groups: residents of large cities, small cities, towns, and villages; sat. *Results*: the highest rate of physical activity in girls (91.75 points) and men (94.9 points) of the major cities. The lowest rates are indicator role activities (47.86 points) girls from small towns, vitality index (57.25 points) in men hail from towns. The correlation coefficients between the indicators of quality of life of students: high rates of mental health component in comparison with the physical component. *Conclusions*: it was found that students regardless of sex, physical health component above the psychological component. Gender difference between physical health component is greater among residents of the town. In terms of mental health component of the residents of small towns.
Keywords: health, quality of life, students, place of birth, sex.

Introduction

Characteristic of population's life quality in narrow meaning can be given with the help of direct health indicators: morbidity, mortality, expected span of life. Though in wide sense, it is necessary to study such life quality aspects, which directly influence on human health. Alongside with general indicators self feeling belongs to such indicators [6].

There exist many approaches to researching of life quality: social- [3; 13], psychological [9; 14], medical 2; 8; 11; 15]. In scientific works still more attention is paid to characteristics of a person, his (her) emotions, inner state[1; 7; 16]. There are a lot of works, in which theoretical-methodic foundation of life quality of different population's strata is given [9; 10; 17-20].

Among many factors, influencing on level of population's life in general and on quality of life in particular there are marked out two big groups: factors-characteristics of population itself and factors of environment. Among the latter, one of the most important is type of residential area. This factor is a residential aspect: its type (town or village) and size, administrative level, role in system of setting, level of territory's arranging. The place of family's residence – large and developed city or periphery and undeveloped settlement- influences on mode of life, leisure and etc. Historic-geographic and ethnic factors are connected with birthplace; is a person is a native or came from other residential place, with person's way of life, traditions [14].

Analyzing factors, which influence on development of different components and general psychological readiness of students for future professional carrier, scientists proved that there is statistically significant connection between social-demographic (including birthplace) and organizational-professional characteristics of students [5].

Influence of climate conditions, place of residence on population's life quality was a subject of research [12], in which it was cleared up that in spite of governmental support these natural factors cause negative changes in health and reduce life quality.

The present research has been fulfilled as per topical plan of scientific-research works of Eastern-European national university, named after Lesya Ukrainka, for 2014.

Purpose, tasks of the work, material and methods

The purpose of the work is researching of influence of students' birthplace on physical and psychological components of health in students' life quality.

The methods and material of the research: in total 513 students of Eastern-European national university, named after Lesya Ukrainka, of Lutsk national technical university and Kherson state university participated in the research. When processing the data, received with the help of questionnaire SF-36 [18, 19], we used appropriate recommendations and instructions [4], on determination of such life quality components as general physical component of health (PCS - physical component summary) and psychological component of health (MCS-mental component summary). Strength of correlation connection was evaluated with the help of Cheddock's table.

Results of the research

Formation of personality of any person, especially young person, is influenced by a complex of factors, which accompany him (her) from very childhood. They are: environment, specificities of life mode, relatives. For analysis of influence of these components on further formation of student's personality and his (her) attitude to own health we conducted research of quality life components depending on students' birthplaces. In total we composed 5 groups: groups of born in cities, in towns, in settlements, in villages. In cities 125 persons were born (24.5%), in towns - 69 persons (13.5%), in settlements - 43 persons (8.5%), in village - 222 (43%) in small towns– 54of the questioned or 10.5 % (see fig. 1)

Concerning gender division of the questioned students: among girls the largest group – 132 (43%) girls – was composed of persons, born in village; nearly quarter of girl students (74 persons) – from cities; practically equal

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quantity of girls were from towns and settlements (39 and 38 accordingly) and the least group was composed from girls, born in small towns– 23 persons (7.5%).

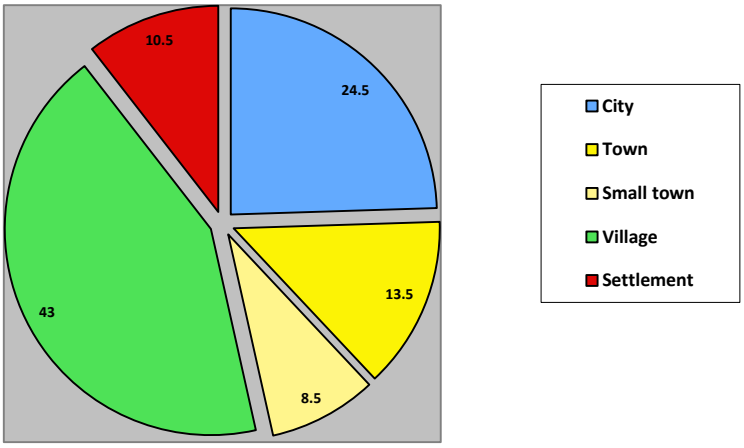

Fig.1. Distribution of students, depending on birthplace %.

The questioned boys were mainly born in village (43%), quarter of the questioned (51 persons) – in cities, nearly15% - in towns, 9.5% of students - in small towns and only 8% - in settlement. Thus, distribution in percentage of both sexes' students, depending on birthplace, is practically equal. See graphs in fig. 2. T

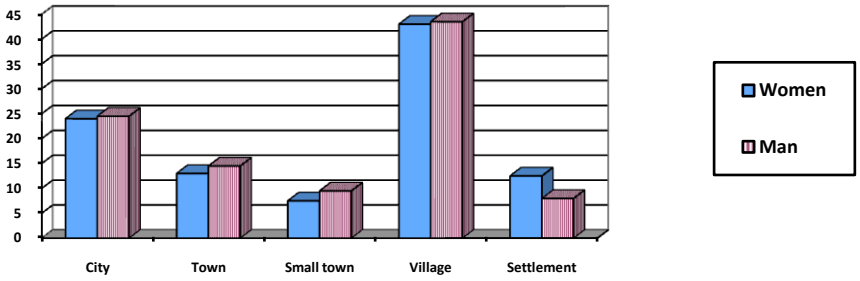

Fig.2. Distribution of students by sex and birthplace, %.

Results of questioning witnessed that the highest students' indicator was indicator of physical functioning (PF), though those, who were born in small town had this indicator the least (80.0 points) comparing with the born in village (90.45), settlement (90.52), town (89.1) or city (91.75). The second place for girls students of all tested groups is taken by indicators of social functioning (SF), which, alongside with indicator of physical functioning, is the least in girl students from small towns (69.56), and the highest in those, who were born in cities (78.37) (see table 1).

Indicators of role functioning, conditioned by physical state (RP) is the highest among girl students from cities (76.01), the second place is taken by girl students from towns (70.51), the third and forth places are taken by girls from settlements and villages (69.07 and 62.12) and the last place – by born in small towns (51.08).

Table 1

Main indicators of physical and mental components of health in students' life quality, depending on birthplace, points

Birthplace	Sex	PF	RP	BP	GH	VT	SF	RE	MH
City	W, n=74	91.75	76.01	74.62	69.2	61.14	78.37	60.36	66.0
	ЧМ n=51	94.90	73.03	74.01	75.74	63.92	78.18	62.09	67.37
	Xc.	93.04	74.8	74.376	71.872	62.28	78.3	61.06	66.56
Town	W, n=39	89.1	70.51	60.92	62.05	56.79	72.43	47.86	62.35
	ЧМ n=30	93.0	65.83	68.86	75.16	64.0	78.33	60.0	72.26
	Xc.	90.79	68.47	64.37	67.75	59.92	75.0	53.14	66.66
Small town	W, n=23	80.0	51.08	66.0	67.73	55.43	69.56	53.62	62.78
	M, n=20	90.5	66.25	71.0	69.35	57.25	80.0	80.0	66.0
	Xc.	84.88	58.13	68.32	68.48	56.27	74.41	56.58	64.27
Settlement	W, n=38	90.52	69.07	72.47	68.63	61.31	75.98	51.75	62.73
	M, n=16	95.0	68.75	80.43	71.37	64.6	78.90	70.83	66.25

	Xc.	91.85	68.98	74.83	69.44	62.31	76.85	57.40	63.77
Village	W, n=132	90.45	62.12	67.03	65.89	56.96	74.24	57.82	64.75
	M, n=90	94.16	71.38	72.01	72.7	68.22	82.77	72.22	71.95
	Xc.	91.95	65.87	69.04	68.65	61.53	77.7	63.66	67.67

Notes: W – women, M – men, Xc. – mean value.

Indicator of intensity of pain (BP) is the most expressed in girl students from cities (74.62) and settlements (72.47), in born in small towns (66.0) and in villages (67.03) these indicators are practically equal and the lowest is in girls students from towns (60.92). General health condition, indicator of which is indicator GH, is the lowest in girl students from towns (62,05); the rest have practically equal indicators.

Girl students' vitality – indicator VT – is practically equally high in girl students from cities (61.14) and settlements (61.31), the lowest is in born in villages (56.96); in the rest students this indicator at middle level. Indicator of role functioning, conditioned by emotional state – RE – being at the same level as VT, is also on the first place for girl students from cities (60.36). The second by value indicator RE is in girl students from villages (57.82), the third and the forth place s are taken by girl students from small towns (53.62) and settlements (51.75) and the fifth place belongs to girl students, born in towns (47.86).

Girl students' indicator of mental health (MH) is practically equal for born in cities (66.0) and villages (64.75) and a little lower for girl students from settlements (62.73), small towns (62.78), towns (62.35). These data are shown in fig. 3.

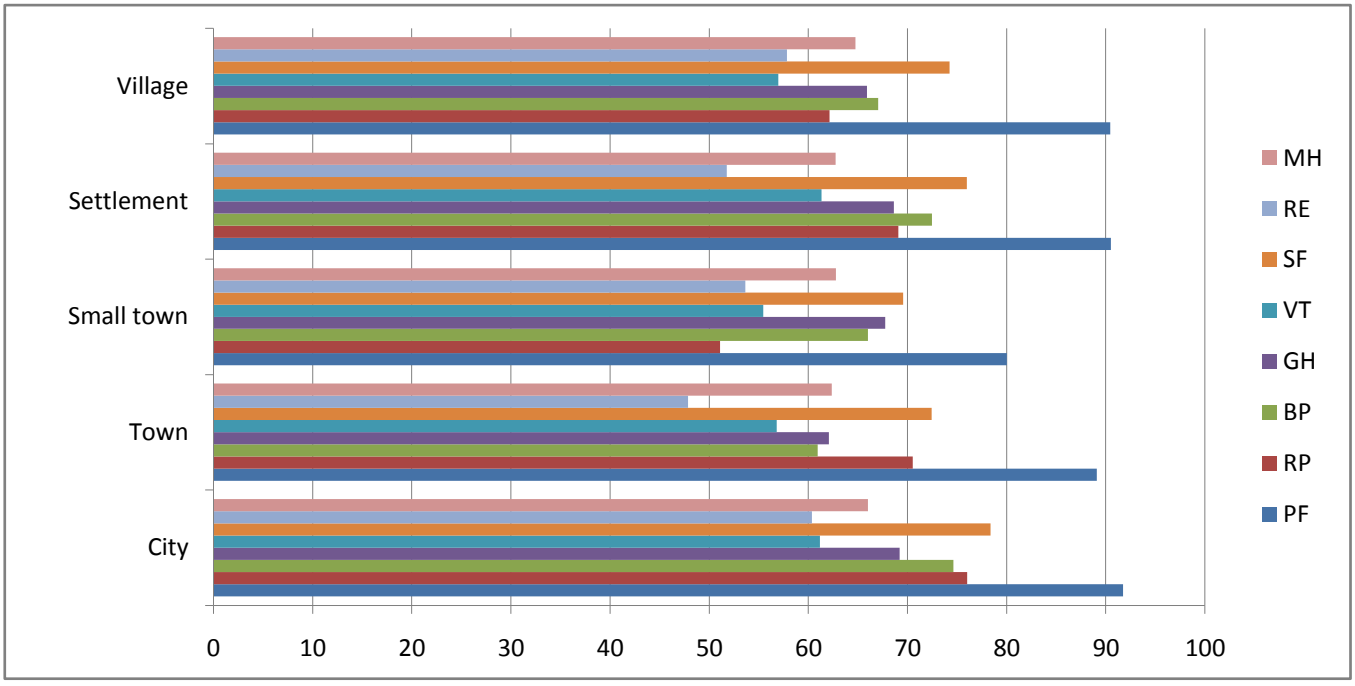

Fig. 3. Components of girl students' life quality depending on birthplace, points.

For boy students the highest, more than 90 points, was indicator of physical functioning (PF) in all tested groups. Indicator of social functioning (SF), was the highest in born in villages (82.77), the second place is taken by students from small towns (80.0). Students from settlement, towns and cities have practically equal indicator of social functioning (78).

Comparing with indicator of girl students, indicator of role functioning, conditioned by emotional state of students (RE), born in small towns is rather high (80.0), lower values belonged to students from village (72.22) and settlements (70.83), the lowest belong to students from towns (60.0) and cities (62.09).

Role activity, conditioned by physical state (RP) was the highest in students from cities (73.03), a little bit lower for students, born in villages (71.38); the rest have practically equal values (65-68). Indicator BP, with reflects intensity of pain, is the highest (80.43) in respondents – boys from settlement; the second place is taken by students from cities - BP= 74.01, the third place was shared by students from village (72.01) and settlement (71.0) and the lowest indicator BP=68.86 belonged to students from towns.

General health (GH) is on equal level in students from cities and towns (75) and students from villages 72.7) and settlements (71.37); the lowest indicator (69.35) belonged to students, born in small towns. MH – indicator of mental health of students, born in villages (71.95) and in towns (72.26) is on the same level; for students, born in settlements, small towns and cities indicator MH is at the lowest level but practically equal (67-66).

Indicator of vitality (VT) is one of factors, which reflects students' self-evaluation of own forces, energy or weakness. The highest indicator belongs to students from villages (68.22), the lowest – to students from small towns (57.25), indicator of the rest is on middle level. It should be noted that this indicator is one of the lowest from all tested indicators in all tested groups. It is a motivation and basis for more detail studying of just this component of health, to seeking of ways of its correction for improvement of rising generation's health in particular and their life quality in general. In fig. 4 we present components of students' life quality, depending on their birthplaces.

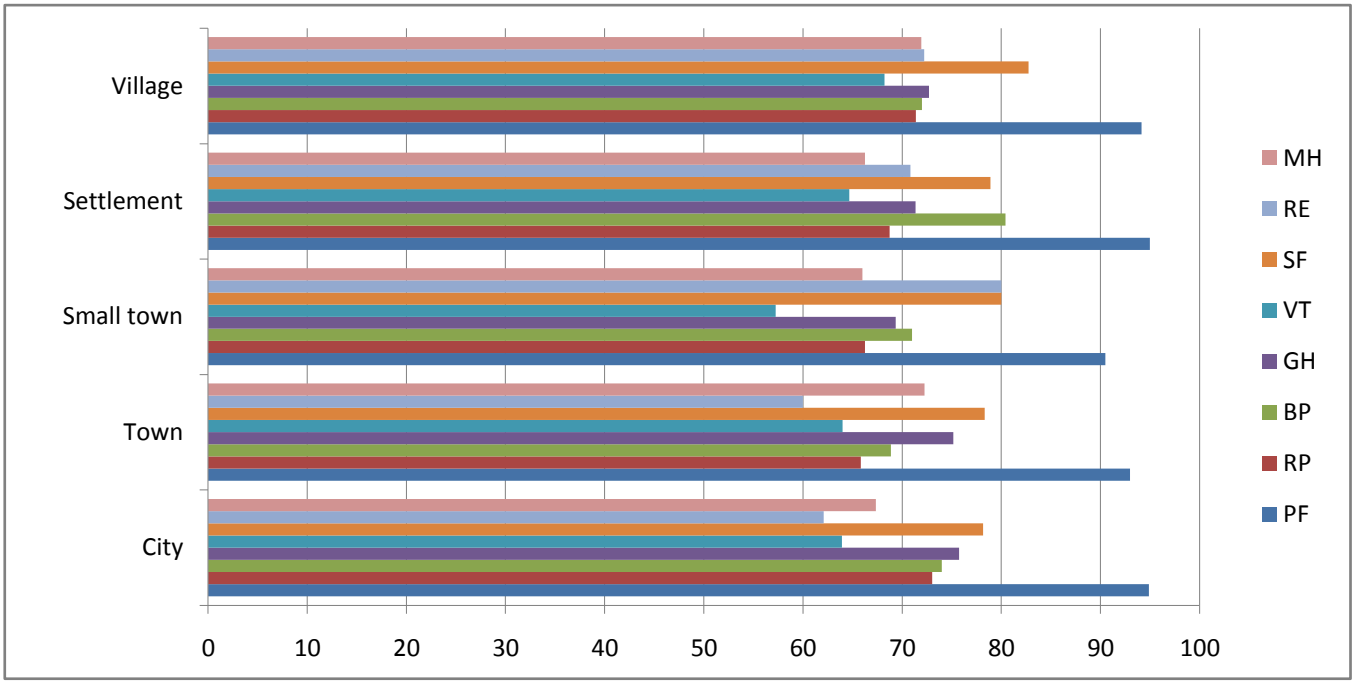

Fig. 4. Components of boy students' life quality depending on birthplace, points.

Generalizing th received data by recommended methodic we obtained two the most important components of life quality: physical component (Physical component summary – PCS) and mental component (Mental component summary – MCS). In all tested groups physical component prevails comparing with mental one that is an evidence of higher students' self-evaluation of physical health instead of mental.

Concerning gender analysis, girl students, independent on birthplace have lower indicators of physical and mental components in comparison with boy students.

Among girl students the highest indicator of health's physical component (PCS) belongs to born in city (52.63) and village (52.23), the second place is taken by girl students from towns and villages (49) and the lowest indicator belong to those, who were born in small towns (47.25).

Among boy students indicators of health's physical component (PCS), distributed practically in the same way as among girls. So, the highest indicator belonged to students from cities (53.4), the second place was taken by students from settlements (52.93), a little bit lower – by students from villages (51.34) and towns (51.05) and the lowest indicator belonged to students from small towns (50.87). The data of physical components of students' life quality (both sexes) are given in fig.5.

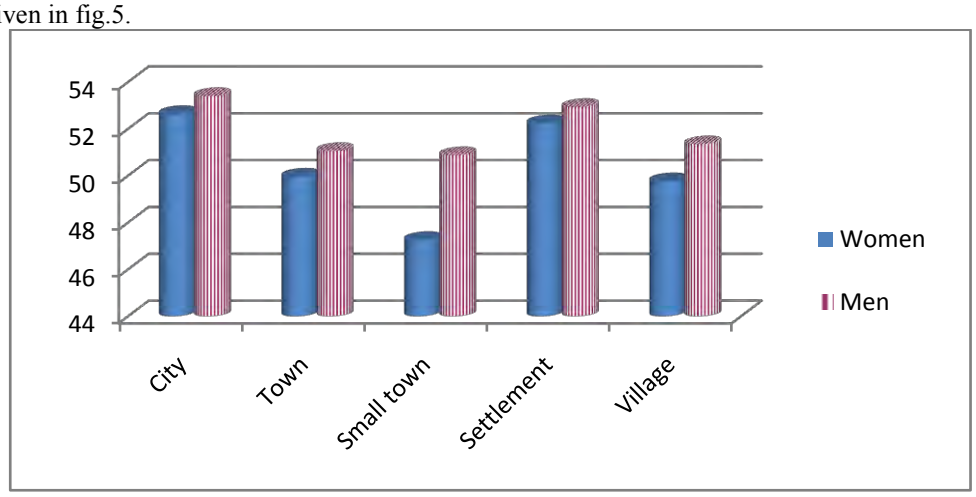

Fig. 5. Physical component of health of students' life quality depending on their birthplace.

Concerning mental component of girl students' life quality (MCS), the highest belong to those, who were born in cities (43.76), a little bit lower – to girl students from village (43.11), still lower – to girl students from small towns (42,77) and the lowest – to girl students from settlements (41.95) and towns (41.02).

Boy students have higher indicators of health's mental component (MCS), in comparison with girl students. For example, the highest indicators of students from village were 48.26; at the second place were students from towns (46.16), at the third place – students from settlements (45.35) and at the last places – students from cities (44.42) and small towns (44.). The data are given in fig. 6.

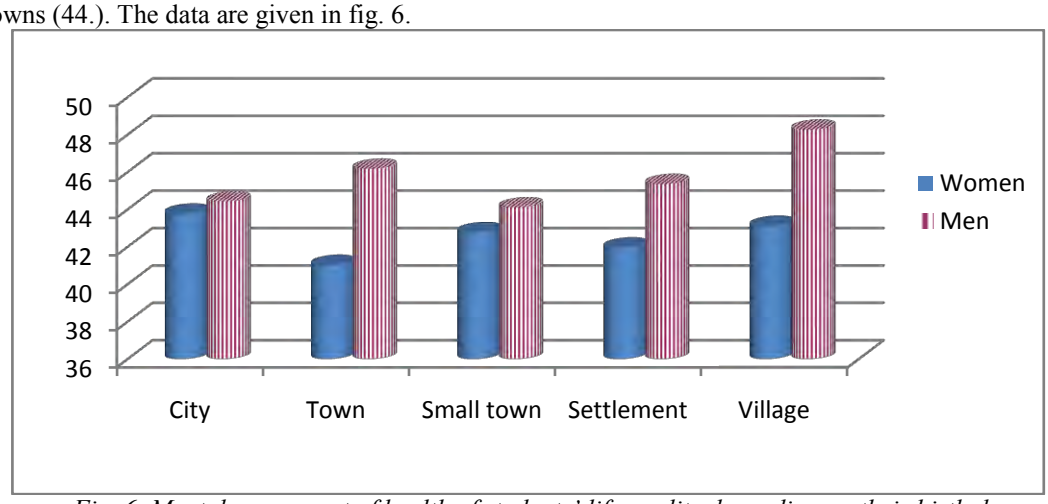

Fig. 6. Mental component of health of students' life quality depending on their birthplace.

Digital values of health's physical and mental components are given in table 2.

Table 2

Health of students' life quality depending on birthplace

Birthplace	Sex	Physical component summary – PCS			Mental component summary – MCS		
		$\overline{X}$	S	$S\overline{x}$	$\overline{X}$	S	$S\overline{x}$
City	W	52.63	6.04	0.7	43.76	9.9	1.15
	M	53.40	6.56	0.91	44.42	10.46	1.46
	Xc.	52.94	6.25	0.55	44.03	10.09	0.9
Town	W	49.96	6.39	1.02	41.02	9.63	1.54
	M	51.05	6.25	1.14	46.16	11.29	2.06
	Xc.	50.44	6.31	0.75	43.26	10.62	1.27
Small town	W	47.25	7.62	1.58	42.77	11.8	2.46
	M	50.87	9.14	2.04	44.1	10.69	2.39
	Xc.	48.93	8.46	1.29	43.39	11.18	1.7
Settlement	W	52.23	5.84	0.94	41.95	9.64	1.56
	M	52.93	5.89	1.47	45.35	10.84	2.71
	Xc.	52.44	5.81	0.79	42.96	10.03	1.36
Village	W	49.76	7.21	0.62	43.11	10.07	0.87
	M	51.34	5.96	0.62	48.26	8.39	0.88
	Xc.	50.40	6.76	0.45	45.2	9.74	0.65

Notes: W – women, M – men, Xc. – mean value.

We have analyzed correlation connections between indicators, which form physical and mental components of health in students' life quality. When interpreting strength of correlation connections we used Cheddock's table. For example it is accepted to note weak correlation (WC) (r=0.10—0.29), moderate correlation (MC) (r=0.30—0.49), significant (SC) – (r=0.50—0.69), strong correlation (SC) - (r=0.70—0.89), very strong correlation (VSC) (r=0.90—0.99). Besides, correlation can be positive and negative. As it is known, negative correlation – is *a feedback between values* – increasing of one value is connected with reduction of other (negative correlation coefficient). Positive correlation – *direct connection* – means that increasing of one value is connected with increasing of other (positive correlation coefficient).

Concerning correlation influence of indicators on formation of health's physical component, in the process of analysis we noticed different direct connections. Moderate connection is present in students of all groups by GH indicator (general health), except students from village, where strength of connection is significant (r=0.6). Significant correlation was also determined by all other indicators in students, born in villages. As far as other groups concern then moderate correlation between indicator PF of born in cities and towns, villages (r=0.5), between indicator RP of students from small towns (r=0.6) were determined. The rest of indicators show strong correlations (see table 3).

Table 3

Correlation of indicators of physical and mental health's components in students' life quality, depending on birthplace

Indicators PCS	Birthplace									
	City		Town		Small town		Settlement		village	
	r	Correlation's level	r	Correlation's level	r	Correlation's level	r	Correlation's level	r	Correlation's level
PF	0.5	SC	0.5	SC	0.7	StC	0.5	SC	0.6	SC
RP	0.7	StC	0.5	SC	0.6	SC	0.7	StC	0.6	SC
BP	0.7	StC	0.7	StC	0.7	StC	0.7	StC	0.6	SC
GH	0.3	MC	0.4	MC	0.4	MC	0.3	MC	0.6	SC
VT	0.7	StC	0.7	StC	0.7	StC	0.7	StC	0.7	StC
SF	0.7	StC	0.7	StC	0.7	StC	0.7	StC	0.7	StC
RE	0.7	StC	0.8	StC	0.7	StC	0.8	StC	0.8	StC
MH	0.8	StC	0.9	MC	0.9	MC	0.8	StC	0.8	StC

Notes: WC- weak correlation; MC- moderate correlation; SC – significant correlation; StC- strong correlation; VSC – very strong correlation.

In influence on formation of health's mental component all indicators are strong, except indicators of mental health (MH) of students, born in towns and small towns (r=0.9).

Conclusions:

Researching students' life quality by SF-36 methodic we found out, that girl students from small towns had the lowest indicator of physical functioning (PF) (80.0), while girl students from cities had the highest indicator (91.75). Concerning boy students the lowest PH indicator belonged also to born in small towns (90.5), though the rest of students had this indicator high and nearly at the same level (93-95).

Health's physical component is higher than mental both in boy students' and in girl-students' groups. Gender difference between health's physical component was the highest in students, born in small towns (boys' PCS=50.87; girls' PCS= 47.25); concerning indicators of health's mental component: boys' MCS=46.16 (born in towns); girls' y MCS=41.02 (also born in towns).

Correlations between indicators, which form health's physical and mental components in students' life quality are higher and, accordingly, they influence stronger on formation of health's mental component.

In the future we intend to research other components, which influence oh youth's quality of life.

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THE WAYS OF IMPLEMENTING INTERACTIVE METHODS IN THE EDUCATIONAL PROCESS OF STUDENTS OF HIGHER EDUCATIONAL INSTITUTIONS

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Annotation. *Purpose*: theoretical basis and practical implementation of interactive methods in the educational process of higher education institutions. *Material*: ehe study involved 50 students of the Kharkiv humanitarian-pedagogical Academy. *Results*: ыhowing the possibility of introducing interactive teaching method "Joint project." The theoretical study and practical implementation of the method is the process of inclusion of all students in the joint study group (in the form of small groups) work on mastering the content of teaching material. Also, the presentation of educational options to solve their own problems, discussion of the results of joint activities, making optimal decisions. *Conclusions*: ehe development of theoretical foundations and practical implementation of an interactive method improved the quality of the educational process of students. This is reflected in the involvement of all students in active joint work on learning. Also provide an opportunity for each student to express their own opinions on those tasks. This increased level of theoretical knowledge of each student.
Keywords: teaching, method, interactive method, group, shape, training, method.

Introduction

Dynamic changes in the socio-economic and political life of Ukraine contributed to the actualization of the problem of modernization the higher education system in Ukraine. According to the State program «Education. Ukraine of the XXI century» [On the State national program "Education" ("Ukraine of the XXI century"): the Decision of 03.11.1993, [Electronic resource] / Official site of the Verkhovna Rada of Ukraine. - Mode of access: http://zakon4.rada.gov.ua/laws/show/896-93-п] one of the priority directions of educational reform is reaching a new level of specialist training.

To address the leading problems of education in recent times scientists [3, 7] are actively developed interactive teaching methods, which are based on the cooperation not only of the teacher with students, but also between the students themselves. The need for such forms of organization of educational process is confirmed by the results of several studies of domestic (O. Bida and others [1], N. Goncharova, [2], O. Komar [4], O. Pometun and L. Pirojenko [3, 7], V. Revenko, 2011 [6]) and foreign (T. Weert and A. Tatnall, 2005 [9]) scientists.

Despite the existence of objective preconditions for the implementation of participatory methods at the present time their use is sporadic. The study proposed the development of one of interactive methods in teaching called «Joint project», which aims to increase the level of theoretical knowledge of students.

Purpose, tasks of the work, material and methods

The aim of the research is the theoretical justification and implementation of interactive learning methods, «Joint project» in the educational process of students of Kharkiv humanitarian-pedagogical academy.

The goal of the study determined the number of inter-related **tasks**:

1. Identify opportunities interactive method «Joint project» to improve the theoretical knowledge of students.
2. To experimentally test the impact of the interactive method «Joint project» on the level of theoretical knowledge of students of Kharkiv humanitarian-pedagogical academy.

Methods of research. The analysis of the literature, observation, examination of documents, questionnaires, pedagogical experiment, testing, ranking method, methods of mathematical statistics.

The study involved 50 students of the Communal establishment "Kharkiv humanitarian-pedagogical Academy, Kharkiv regional Council.

Results of the research

Interactive method – 1) the process of interaction between teacher and students, between students themselves, resulting in the transmission and assimilation of knowledge, abilities and skills prescribed learning content [5]; 2) method of interrelated activities of teachers and students, which involves the subject-to-subject active interaction between participants in the learning process through collaboration and co-creation and aims to develop in students the necessary competencies, education and overall development as subjects of the educational process.

Compared with traditional methods, the interactive role of the teacher and the student acquires new forms: the teacher passes the initiative in the hands of students and he holds the position of coordinator of the educational process. Interactive method «Joint project» envisages the achievement of learning objectives through collaboration, in which each member of the team must perform a certain amount of work. What this involves is not isolated actions, and coordinated and interrelated cooperation, where the participants' activities are regulated and subject to the laws of existence of team: self-regulation and development of functioning. They reflect two forms of existence is currently in process. Thus, in the general understanding of the laws of staff laid the tension between stability and change, the desire of rest and motion, stability, and flexibility, reasonable conservatism and the necessary innovation, and finally, a desire to preserve established, to protect themselves from risk and the desire for new, progressive. Actually, this is the basic contradiction becomes the impetus for constant flickering mckerrow: anxiety (impaired balance) – forward (finding

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balance) – stop (finding balance) – rest (equilibrium) – backward (impaired balance) – anxiety – forward movement. And so the spiral of development, each time keeping their achievements and at the same time denying the results of [8].

Interactive method «Joint project» involves the distribution of tasks between team members, who take part in it, their decisions and the report of the results of each participant. In order to implement the specified method is assistance to increase the level of theoretical knowledge of students. Therefore, the question arose about the necessity of additional training environment, namely the establishment of close relationships between the educational process in a higher educational institution and pazaudeto work that best matches the capabilities that provides an interactive method «Joint project». Also a necessary component of the implementation of the «Join project» is not only an individual search and processing of the material, but also the knowledge of all other constituent parts of the overall project and exchange information with other participants. This should be done in extracurricular work when the phase retrieval and processing by each participant completed and you should see the results of work in General and to establish links with other team members.

To determine the impact of the interactive method «Joint project» on the level of theoretical knowledge of students conducted an experimental study that was conducted in several stages during the 2013-2014 based on almost the same level of theoretical knowledge of students in the course of ascertaining experiment identified two academic groups at twenty-five people each. One group identified as experimental, the second as a control. It is revealed that in the experimental group the number of ratings of «unsatisfactory» is 24 % (6 of 25), «satisfactory» - 44 % (11 students from 25), «well» - 24 % (6 of 25), «excellent» - 8 % (2 students out of 25).

Results in the control group the following: «unsatisfactory» - 20 % (5 students out of 25), «satisfactory» - 56 % (14 students out of 25), «well» - 20 % (5 students out of 25), «excellent» - 4 % (1 student out of 25).

During the formative stage of the experiment in the training of the experimental group was implemented interactive method «Joint project» and in the control group the training was carried out in conventional manner (during two month). The content of the method of «Joint project» provided for engaging students in active cognitive and educational activities through partial delegation of authority of the teacher, students, raising initiative of students, increase collective and individual search and information processing, improvement of professional skills of students through increasing the role of the group form of organization of students.

During the experiment we have implemented the following features of the «Joint project»:

- involvement of students in all groups to study specific conceptual components of the partition that is being studied;
- providing opportunities for each student to express the draft decision considered problem;
- the combination of theoretical training in a higher educational institution with pazaudeto search operation;
- the collaboration of the students during the educational process in a higher educational institution, but also in extracurricular time;
- chance election of the speaker before the presentation of the results of the joint project.

Performance test after each session, the experimental group are presented in table 1 and the control in table 2.

Table 1

Performance test after each session, the experimental group

Point scale of assessment	Learning session № 1, quantity of students	Learning session № 2, quantity of students	Learning session № 3, quantity of students	Learning session № 4, quantity of students	Learning session № 5, quantity of students	Final control, quantity of students
Unsatisfactory mark	8	5	3	3	2	4
Satisfactory mark	9	9	7	7	9	9
Well	5	10	11	12	10	9
Excellent	3	1	4	3	4	3

Table 2

Performance test after each session, the control group

Point scale of assessment	Learning session № 1, quantity of students	Learning session № 2, quantity of students	Learning session № 3, quantity of students	Learning session № 4, quantity of students	Learning session № 5, quantity of students	Final control, quantity of students
Unsatisfactory mark	6	6	5	4	5	5
Satisfactory mark	11	13	11	12	11	10
Well	7	5	6	7	7	8
Excellent	1	1	3	2	2	2

Comparing the results of the experimental group before the start of the experiment and after it can make the following conclusions: the number of students with a score of «unsatisfactory» decreased from 24 % to 16 %; with a score of «satisfactory» decreased by 8 % (from 44 % to 9 %); increased the number of students who earned a score of «well» (from 24 % to 9 %) and «excellent» (from 8 % to 12 %).

In addition, subjectively increased volume of new professional terms and increased the quality of their use by students.

At the same time in the control group had the following changes: the number of students with a score of «satisfactory» has fallen from 56 % to 40 %; with a score of «well» increased by 12 % (from 20 % to 32 %); the number of students with «excellent» increased from 4 % to 8 %.

Conclusions.

The development of theoretical foundations and practical implementation of the interactive method «Joint project» has improved the quality of the educational process of students. This is reflected in engaging all students in active collaboration in learning, providing opportunities for each student to express their own opinion on solving problems and as a consequence to increase the level of theoretical knowledge of each student.

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COMPARATIVE ANALYSIS OF METHODS OF TRAINING AND DIETARY HABITS OF SKILLED BODYBUILDERS IN THE RUN-GENERAL PREPARATORY STAGE

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Annotation. *Purpose*: comparative analysis of the characteristics of methods of training and nutrition bodybuilders in the run-general of the preparatory phase (duration 4 - 5 months or 20 microcycles). Analyzed the characteristics of different methods of training bodybuilders to increase muscle mass. *Material*: the study involved 8 skilled bodybuilders, are included in the team of the Kharkiv region. *Results*: a comparative characteristic of the most commonly used methods of exercise and nutrition in bodybuilding. Discovered and proved the optimal technique for athletes depending on the original form at the beginning of general-preparatory phase of training. Driven changes in body weight, depending on the amount used Athlete of carbohydrates, proteins and fats. *Conclusions*: throughout the training period was characterized by severe protein diet orientation. The proportion of the nutrient was 40% in the first quarter, 50% - in the second, 60% in the third. Only in the last two microcycle decreased to 50%.
Keywords: structuring, training, bodybuilding, proteins, fats, carbohydrates, optimal, method, microcycle.

Introduction

Body building is a kind of sports, in which eating determines sportsman's fitness and success. The most important is sportsman's eating in preparatory period of general training period as far as at this stage it is necessary to achieve maximum increasing of muscular mass [1; 2].

Though, up to the present time in domestic sports there has not been scientifically grounded eating methodic in preparatory period of general training period. That is why coaches and sportsmen have to acquire practical experience on the way of trial and error. Acute demand of body builders in scientifically grounded eating methodic in preparatory period of general training period requires analysis of this problem and working out of effective diet principles. One of the most perspective approaches is usage of specialized sport eating (gainers, amino acids, creatine monohydrates). Using of sport eating permits to create in sportsmen's diet rational proportion of proteins, fats, carbon hydrates, minerals and vitamins. It permits to achieve optimal increasing of muscular mass with minimum fat. In preparatory period of general training period sportsmen try to eat maximum vitamins and micro-elements for reducing risk of traumas [6; 9].

In body building preparatory period of general training period lasts 4 – 5 months and is composed of 20 micro-cycles. In this period sportsmen of different qualification, of different age groups and categories try to maximally master technique of exercises, to increase muscular mass at the account of training with maximal weights and at the account of increasing of carbon hydrates in eating. At the end of every micro cycle shape of a sportsman is evaluated by coach and the coach corrects training process and eating. Coach estimates somatic type (proportions, quantity of gained kilograms, volume of muscles and so on). As main criterion own mass of sportsman's body is taken [3;15;16, 17,18].

This problem was dealt with by such outstanding domestic physical culture specialists as V.M. Plaonov, L.S. Dvorkin, A.I. Stetsenko, B.I. Sheyko, V.G. oleshko, G.P. Vinogradov, V.D. Zveriev [4-10]. They based their researches on experience of such foreign specialists as Joe Wider, Ben Wider, E. Connors, T. Kimber, M. Mc Cormik [12-14].

This scientific research has been fulfilled as per topic of combined plan of scientific research works in sphere of physical culture and sports for 2011-2015, topic 3.7 "Methodological and organizational-methodic principles of determination of individual standard of human physical condition" (state registration number 0111U000192).

Purpose, tasks of the work, material and methods

The purpose of the research: comparative analysis of training methodic and eating of qualified body builders in preparatory period of general training period, considering maximal increasing of muscular mass.

The methods of the research: analysis and generalization of literature, pedagogic observation, pedagogic experiment, method of mathematical statistic.

Materials of the research: In the research members of combined team of Kharkov region participated. They were 8 bodybuilders, from them they were 2 masters of sports and 6 candidate masters of sports of 18-25 years old age. Mean body mass of sportsmen was 85±2 - 100±2 kg. The participants were divided by sport qualification into two experimental groups (first – 1 master of sports of Ukraine and 3 CMS and second – 1 master of sports and 3 CMS). The participants trained 4 times a week.

Results of the researches

Using of eating as a component of training conditioned using of two variants of diet, which differed by correlation of main elements (proteins, fats and carbon hydrates). Estimation was fulfilled with the help of eating diaries, in which quantity and kinds of food, taken during day, were registered. Content of main eating components was determined with the help of reference tables of eating chemical composition.

Effectiveness of training was estimated with method of expert evaluations, which stipulated using of information about fulfillment of coach's instructions, dynamic of power and endurance indicators and subjective characteristics (self-feeling, mood, desire to train and etc.).

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Sportsmen of first group trained during 20 weeks with high weights and applied diet with much carbon hydrates and low content of proteins, while sportsmen of second experimental group trained in smooth dynamic with static loads prevailing, with low weights and used diet with high quantity of proteins and low level of carbon hydrates. Quantity of fats in both groups was equal and was 10-20 % in diet, depending on micro-cycle. Before the beginning of experiment we conducted testing weighing of both groups. For weighing we applied body mass analyzer (scale TANITA BC-545 made of Japan). Body mass analyzer calculates sportsman's body mass in kilograms (see table 1, 2).

Statistical processing of the received results was carried out with electronic tables Excel and set of applied programs.

Table 1

Comparison of body mass of qualified body builders at the beginning and at the end I of preparatory period of general training period (first group)

Participants of experiments	Qualification	Mass at the beginning of experiment, kg	Mass at the end of experiment, kg	In total, increment of body mass, kg
1	MSU	92	105	13
2	CMS	87	98	11
3	CMS	95	111	16
4	CMS	85	95	10

Notes: MSU – master of sports of Ukraine, CMS – candidate master of sports.

Table 2

Comparison of body mass of qualified body builders at the beginning and at the end I of preparatory period of general training period (second group)

Participants of experiments	Qualification	Mass at the beginning of experiment, kg	Mass at the end of experiment, kg	In total, increment of body mass, kg
1	MSU	84	92	8
2	CMS	102	108	6
3	CMS	88	95	7
4	CMS	95	100	5

Notes: MSU – master of sports of Ukraine, CMS – candidate master of sports.

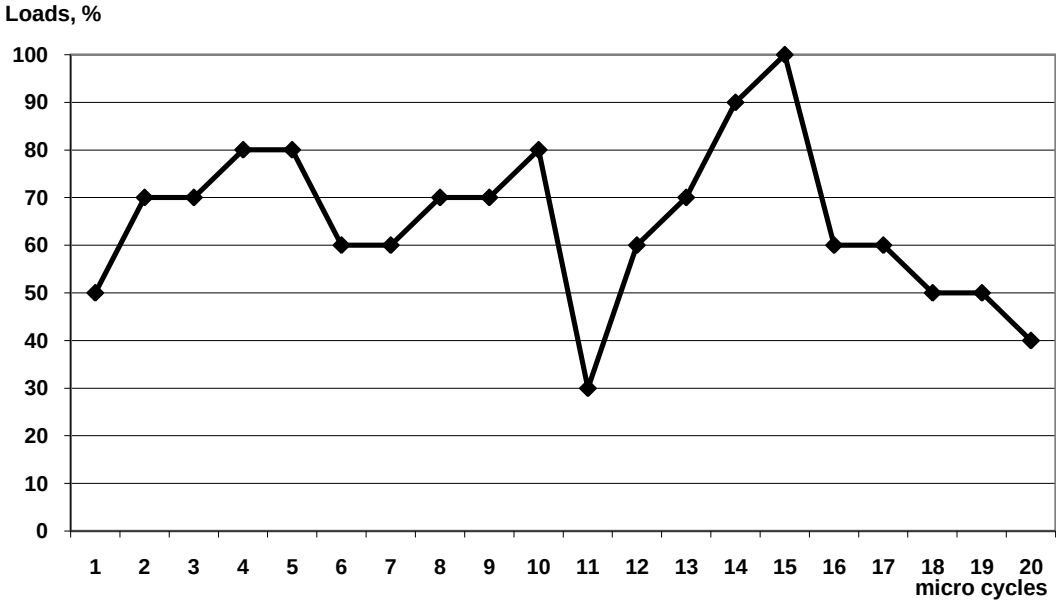

Fig.1. Dynamic of loads (in percents from maximum) in preparatory period of general training stage of qualified bodybuilders (1st experimental group)

The data provided in fig.1 illustrate dynamic of loads of 1st experimental group's sportsmen in the period of pedagogic observation. Specificities of training methodic conditioned significant fluctuations of loads (maximal from

30 to 100%) but such cases took place only in third quarter of training period that was conditioned by its significance in formation of basic physical qualities. Prevailing fluctuation in first quarter of the period was 50-80% from maximal that was oriented on making sportsmen's adaptation to trainings easier and on the most effective achievement of peak of sport form. The second quarter of training was built so that it should gradually increase level of fitness: loads in this period increases from 60 to 80% that is conditioned by demand in prevention from sport traumas and overloading.

As it has been mentioned above just in third quarter qualitative jump in training occurs – sportsmen has already been adapted for loads, ground for substantial improvement of sport form has been created and it permits to substantially increase loads. The last quarter is oriented on fixing of received results that is realized by gradual reducing of loads up to 60 and then to 40%. Thus, dynamic of training process permits to improve quality of training, but from positions of sport physiology it is not an excellent one as far as wide rage of loads' fluctuations increases probability of overloading, over-training, sport traumas and sets increased requirements to adaptation-compensatory mechanism. But the presence of such loads' fluctuations can be called a certain lever that inserts imbalance in homeostasis, reduces its stability. The purpose of such imbalance is to come to principally new level of training, but with it, as it has been already noted, tension of adaptation increases that in future can result in exhaustion and failure of protective mechanisms.

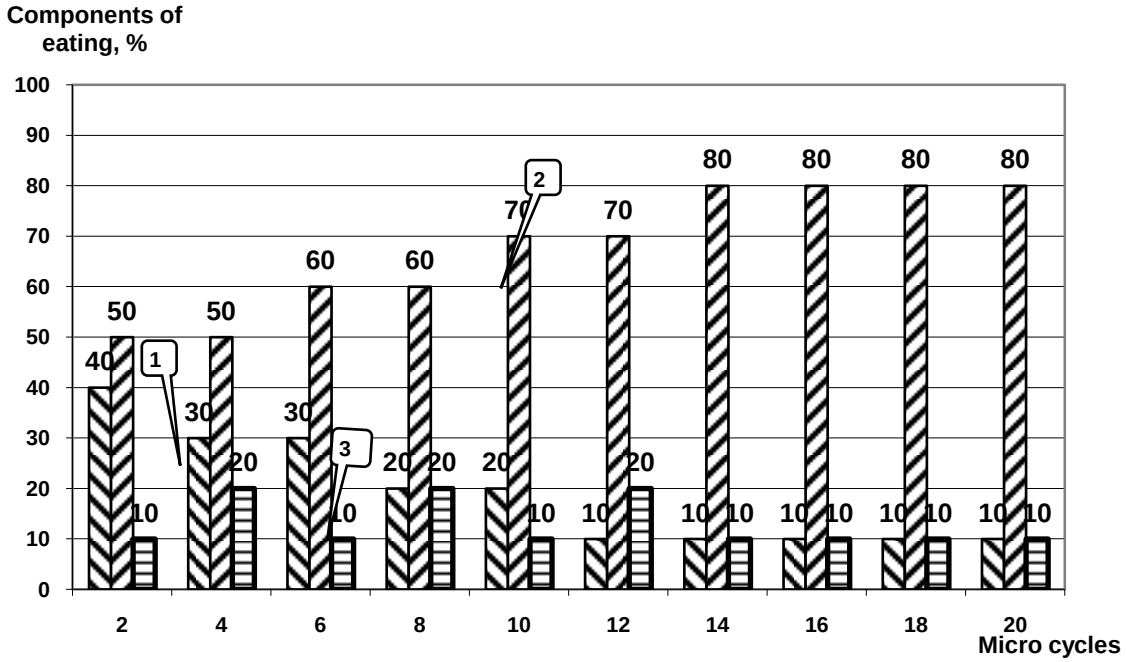

Fig.2. Dynamic of quantity of proteins and carbon hydrates in diet depending on micro cycle (week of training) (1 – proteins; 2 –carbon hydrates ; 3 – fats).

Dynamic of main components, given in fig.2, witnesses about substantial fluctuations of specific weight of proteins, fats and carbon hydrates in training period of general training stage. First quarter is characterized by expressed imbalance to side of proteins (40-30%), in second and third quarters – this disproportion still increasesy that is conditioned by demand in gaining body mass; specific weight of proteins in these quarters is 60-70%. Such situation shall be recognized a kind of test for organism's metabolism, increasing of load on liver and digestion tract. That is why in the last quarter the only way is renewal of proteins-carbon hydrates - fats balance by rational diet (1:1:4). Certainly, it, on the one hand is a protective measure for prevention from unfavorable disorders in organism and on the other hand, to certain extent worsens sport form at the account of slowing of body mass gaining.

Disadvantages of this methodic are also quick increasing of body mass, which negatively influence on strength and mobility of sportsman and brakes development of his muscles.

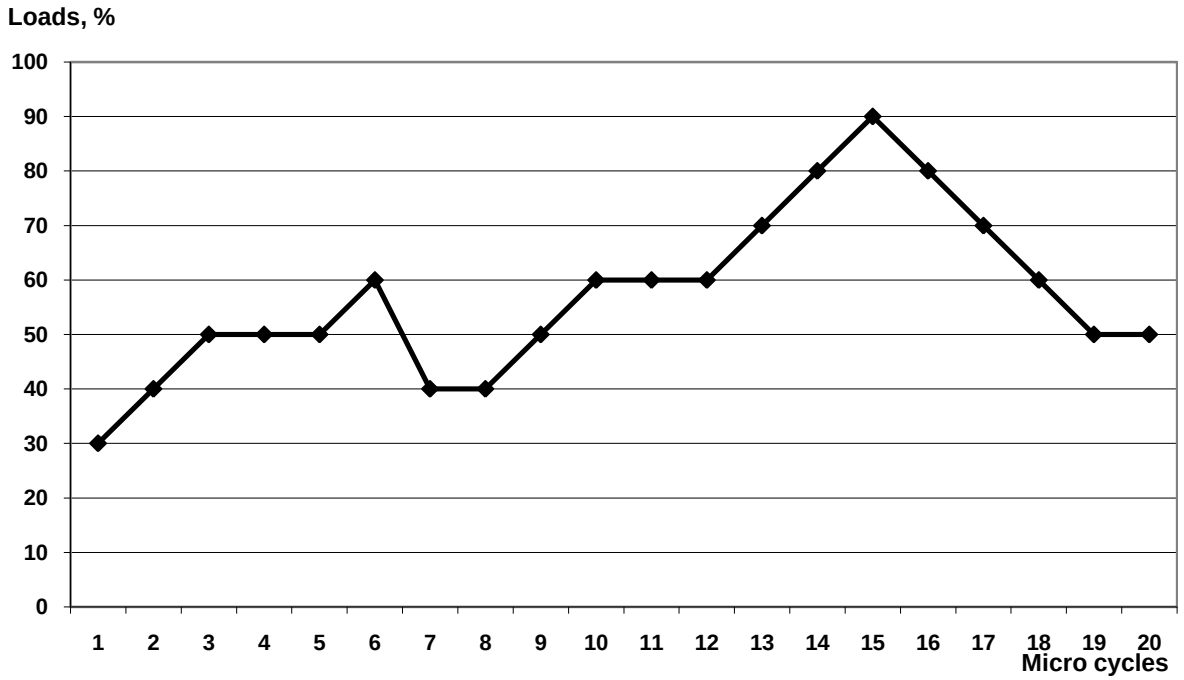

Fig 3. Dynamic of load (in percents from maximum) in preparatory period of general training stage of qualified bodybuilders (2nd experimental group).

Building of training process in EG2 is given in fig.3. With practically equal maximal fluctuations of loads (30-90%), it is characterized by principal difference from the previous one. Absence of zigzags in dynamic of loads permits to stabilize training; besides there is no demand in in reduction of loads in intermediate micro cycles. In general dynamic is characterized by gradual increasing both of loads and physical form of sportsmen. Important moment of training is the fact that specific weight of static loads is gradually growing that ensures prevention from overloading and permits to keep required form.

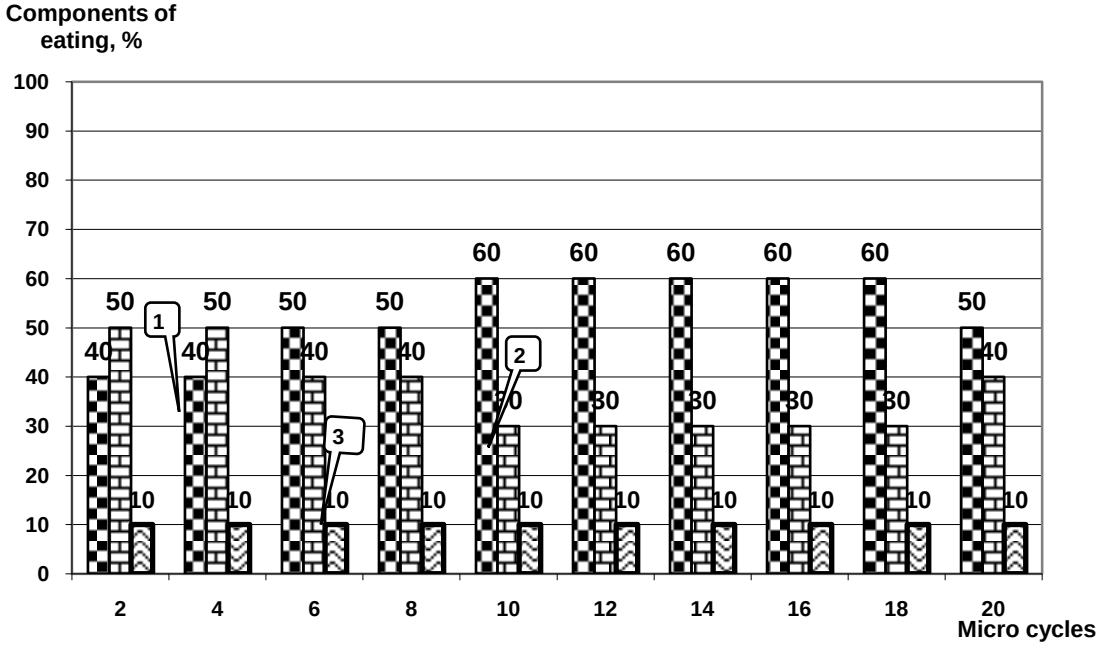

Fig.3. Dynamic of quantity of proteins and carbon hydrates in diet depending on micro cycle (week of training) (1 – proteins; 2 –carbon hydrates ; 3 – fats).

In EG2, during all period of training diet is characterized by expressed protein orientation; specific weight of this component was 40 % in first quarter, 50% - in second, 60 – in third and only in two last micro-cycles it was reduced up to 50 %. In our opinion it facilitates most effectively increasing of muscular mass, reduces to certain extent loading on metabolism at the account of gradual organism's adaptation to high content of proteins. But such building of

diet sets increased requirements to transitive period, when gradual re-construction of diet shall be oriented on forcing of main organs' functioning to usual mode.

The novelty of the methodic, except mentioned above, is also in gradual dynamic of loads' increasing, considering static exercises.

Conclusions:

Thus, comparative analysis of training methodic and peculiarities of eating permits to think that in EG2 effect was more expressed and level of fitness was more optimal. In this group loading dynamic substantially reduces probability of formation of unfavorable functional disorders (overloading, overtraining, traumas), permits to achieve required level of sport form without over-tension of adaptation-compensatory mechanisms. Concerning diet, in EG2 eating more facilitates fulfillment of the set task - increasing of specific mass of muscular mass, instead of all body mass that was characteristic for EG1 sportsmen..

This methodic can be recommended for training of qualified bodybuilders with observing of requirements of medical and sport control, ensuring effective and qualitative renewal in transitive period.

Further researches shall include foundation and working out of new methodic, oriented on renewal in transitive period, removal of metabolism's disorders, which can appear as a result of specialized eating.

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LEVEL OF ANXIETY AS ONE OF THE CRITERIA OF EFFICIENCY OF EMOTIONAL STABILITY IN SPORT DANCING

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Annotation. *Purpose:* improve the efficiency of performance of competitive sports dance in pairs due to the formation and improvement of indicators of emotional stability. The objectives of the study was to examine the personality characteristics of athletes in the dance couple, affecting their emotional stability. Also determine the conditions for the formation of emotional stability dancing. *Material*: the study involved 32 dancers aged 12-14 years old. Spielberger questionnaire was used. *Results*: it was found that the level of trait anxiety was 40.2 points. Athletes also met with high and low trait anxiety. The average level of situational anxiety at rest the dancers stood at 38.8 points. Before the tournament, this index increased significantly (54.5 points). *Conclusions*: for dancers with a high level of anxiety should generate a sense of confidence and success in their abilities. For dancers with low levels of anxiety requires waking activity, arousal of interest, a sense of responsibility in the task of training activity.
Key words: dance, emotions, stability, personality, athlete, activity, efficacy, anxiety.

Introduction

The ability to monitor one's own emotional experiences is very important in sport. It is not uncommon that athletes, when faced with the first failures in competitions, lose sense in playing sport, become despondent, refuse to compete and may suffer a defeat even by weaker contestants. It can be caused by athletes' inability to overcome unfavorable mental states in a competitive environment [1,2].

According to Kiseliov Y. A., dancesport's development trends require increased physical and mental stamina and a specially organized workout session. The peculiarity of dancesport is the relationship between the dancers in a dance couple, with a competitive environment causing additional psychological effects. That's why athletes' psychological compatibility issue is an unsolved problem in dancesport, as well as their emotional resilience which influences their sports outcome [3,5].

Yet at an early stage of training dance couples, competition performances take place in a tough competitive environment and are characterized by increased emotional tension [5].

It is for the first time that the necessity to elaborate the problems of development and formation of athletes' emotional resilience in dancesport has been marked by

N. Rubinshtein. In particular, she emphasizes that unfavorable emotional states impede high quality performance both training and competition [6,10].

Thus, prevailing negative emotions lead to mental activity disorganization, depletion of a mental resources pool of an individual and then to the substitution of the professional goal and search for a new one [7].

Despite the present scientific elaborations, Kosmolinskiy F. P. (1976) and Kovaliov L. H. (1970) focus on the absence of the common approach to studying the issue of emotional resilience criteria, as well as finding efficient methods for its diagnostics and regulation. In connection with it, Abolin L. M. states that it is not only the emotional state of an athlete, when taking the floor, matters but also the way he or she can regulate his or her performance taking into account this condition on the basis of dancers' own personality traits [1, 4, 12-20].

Many authors, such as Breslov H. M., Levitov N. D., Rodionov A. V. and others note that one of the most important personal traits of athletes which is interrelated with productivity in sporting activities is the level of personal and trait anxiety [7].

Anxiety is distinguished both as an emotional state and a stable personal trait. Having a definite level of anxiety is a natural and necessary peculiarity of an active personality. It is impossible to mobilize all body systems without it in order to achieve high sports results. However, an increased anxiety level serves as an unfavorable emotional state which is characterized by tenseness, anxiety and nervousness [3,5].

While investigating emotional resilience, Aleksandroskiy Y. A. pays attention to the fact that competitive activity efficiency depends on it, that, as a rule, influences greatly sports results and depends on the following criteria: [3,5] [7,11]

1. Interference resistance or the ability to resist external stimuli and internal disturbances.
2. Working efficiency or the condition when individual's physiological and mental body functions mark his or her ability to fulfill a desired amount of work of a certain quality within the required time frame.
3. Self-confidence, confidence in one's own resources and powers, that is inner perception of one's own powers and potential.
4. Lack of hesitancy and wavering [11].

Thus, it was found out that during the competition the emotional excitement of the athletes often reached an extremely high level, that, as a rule, affected technical elements being effectively performed and, consequently, had an adverse affect on sports results. A low level of anxiety reported during competitions, speaks of the athlete's protective factor which gives a dancer no possibility to bring out his or her full potential. It has a negative impact on sports

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outcome. Every person is an individual and to fully take in the dancer's mental approach during competitive activities, as well as the change in his or her personal and state anxiety in different situations, is impossible.

Purpose, tasks of the work, material and methods

The *aim of the study* is to increase performance efficiency of dance couples in competitive dancesport by means of forming and improving emotional resilience indicators.

The *objectives of the study* are: 1) to analyse the recent scientifically-based and practical approaches to the formation of emotional resilience, as the criterion of competitive performance efficiency in dancesport; 2) to study athletes' personality traits in a dance couple that influence their emotional resilience; 3) to define the conditions for the formation of dance couples' emotional resilience.

The *methods of the research* are: 1)theoretical analysis of data obtained from professional literature, as well as from best practice experience; 2) pedagogical summative and formative assessment (using sports pedagogical and psychodiagnostic methods of anxiety level testing on the basis of Hanin and Spielberger's criteria; 3) mathematical statistics methods.

Results of the researches

While conducting this research, there has been made an analysis of young dancers' trait and state anxiety level assessment.

According to Spielberger, the level of trait anxiety in an examined population was 40.2±0.8 scores. Among the tested athletes there were dancers who showed both high and low rates of trait anxiety that initially determined their response to competition. Hence, the following anxiety levels results have been obtained, with five tested athletes (16 %) having a low rate of trait anxiety (45 and more scores), eighteen dancers (56 %) having a moderate level (from 31 to 44 scores) and nine (28 %) having a high rate (45 and more scores). (See Chart 1)

When in a quiescent state, the dancers showed a moderate level of state anxiety of 38.8 ± 0.7 scores measured by Spielberger's questionnaire. Before the tournament this indicator increased solidly, reaching in average 54.5±0.8 scores which speaks of a considerably high level of athletes' state anxiety before the tournament. Two dancers (6%) showed a mild anxiety level (30 scores and less), with twenty athletes (62 %) reporting a moderate level (ranging from 31 to 45 scores) and ten dancers (32 %) showing a high level of state anxiety (45 scores and more). (See Chart 2)

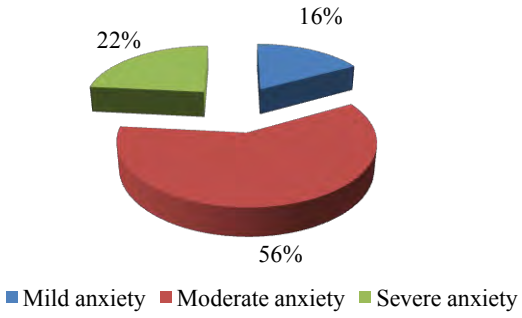

Fig.1. Dancers' trait anxiety

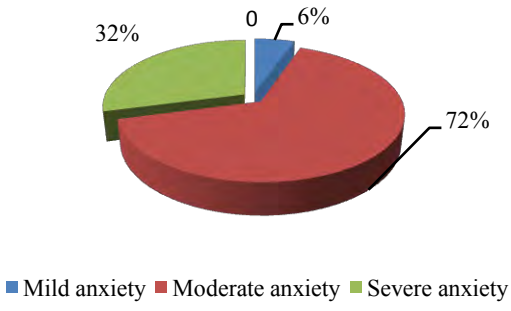

Fig. 2. Dancers' state anxiety

The obtained results show that one should pay attention not only to the dancers with a high anxiety rate but also to those notably showing excessive calmness or, in other words, those having a low anxiety level. As a rule, such insensitivity to troubles is usually of protective nature and impedes robust personality formation, as well as sports results achievement (as Kiseliov Y. A. states in his works) [3].

Thus, high scores on the scale may speak of a specific call for help and, on the contrary, behind an excessive calmness there may hide increased anxiety which may trigger emotional shifts and influence emotional resilience of a dance couple [3].

Conclusions

1. The level of dancers' trait and state anxiety is one of the criteria of competitive activity efficiency.

2. In dancers who have a high level of anxiety there should be built confidence in success, their own abilities and a partner. Low alarm athletes need boosting their activity, triggering their interest and developing a sense of responsibility in solving various problems of training activity.

A further study should be conducted to substantiate and develop special psychological training programs in order to optimize training of dance couples for further competition.

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PHYSIOTHERAPY IN THE PHYSICAL REHABILITATION OF PATIENTS WITH SEQUELAE OF INJURIES OF THE LOWER EXTREMITIES IN ZHITOMIR OF REHABILITATION FACILITIES

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Annotation. *Purpose*: to study the physical properties and therapeutic effect of mechanical factors in the pathogenetic treatment in traumatology. *Material*: 622 patients were studied with the consequences of injuries of the lower extremities (age 18-64 years). Observations carried out since 2005 in hospitals and medical health institutions of Zhitomir. Selected physiotherapy factors that are mainly used for the physical rehabilitation of patients in trauma. *Results*: identified the factors that were intended to eliminate the consequences of injuries of the lower extremities. Analyzed their effect in the author's method of complex rehabilitation of patients. Performed systematization selected physiotherapy factors in a table to read and understand forms. In the medical health institutions in the city of Zhytomyr investigated and established the effectiveness of the recommendations. *Conclusions*: physical factors cause the body general, non-specific and specific response to each type of impact. This allows you to selectively influence the pathogenic elements of the disease. Should strictly adhere to the indications and contraindications to the use of physiotherapy factor. It is necessary to take into account age, sex, and comorbidity.
Keywords: physical rehabilitation, physical therapy, mechanical factors, traumatology, trauma, lower limbs.

Introduction

Statistical data about traumatism in Ukraine for recent years have been witnessing about constant increase of traumas of supporting motor system (SMS) among workable population [2, 9, 21]. The problem, which has been regarded by the authors, is rather urgent because of permanent increase of patients, who require rehabilitation of damaged organs' functions, activation of joints mobility, coordination of SMS functions, increasing of muscular strength and recreation of workability [11, 15, 18]. As per statistical report in Zhytomyr region there are 6.8 cases of bone-muscular pathology per 10 thousand of population; disability is 8.1% per 10 thousand of adult people and 71% of them are traumas of SMS. Though in Zhytomyr region these data exceed indicators of Ukraine (8.1% – in Zhytomyr region and 4.6% – in Ukraine) they witness about great number of disable people in Ukraine owing to unfavorable traffic and street conditions as well as conditions of everyday life. These people require physical rehabilitation (PR) for recreation of workability. The present article is a continuation of previous works of the authors [2, 21], which are fulfilled in compliance with SRW plan of Zhytomyr state technological university.

According to researches, conducted in Zhytomyr region, there is no appropriate programs and methodic of PR for patients of workable age, who have SMS disorders, who, after hospital did not pass recreation procedures in rehabilitation centers and sanatoriums, but immediately returned home (especially in countryside) and immediately started to work, providing health permitted it. However they had no proper health related means at home and did not practice self-rehabilitation regularly or at all [3, 4]. From all quantity of the tested people only 7.8% of traumatized have idea about traumas' after effects (in case of lower limbs' traumas), about content and sense of PR. Other patients understand PR as a quick process. There are no visual aids devoted to complex PR; there is no knowledge about its components, such as physical therapy and influence of physical factors. Modern physical therapy contains in its arsenal about 80 therapeutic methods, in which different physical factors are used [4, 6, 10]. They differ by physical properties and therapeutic effect. Physical therapy as method of patho-genetic therapy, is widely used in treatment of traumas [11, 15 , 17].

Purpose, tasks of the work, material and methods

- With the help of PR specialists select from 10 groups of physical therapy factors those, which are used most frequently in traumatic treatment [5,10,12,14] ;
- Systemize the selected factors in tables of visual and informative character for further their usage in certain cases of physical rehabilitation (PR) of patients, who have lower limbs' traumas [1, 8, 21] ;
- Prove efficiency of authors' methods by results of PR of 622 patients in Zhytomyr rehabilitation centers [6, 16 ,19].

For this purpose we solved the following tasks:

- Analysis of literature sources' data about mechanical factors of physical therapy, about their classifications;
- Analysis of indications and counter-indications for using of these factors in PR of patients with lower limbs' traumas;
- Provisioning of descriptive form of recommendations;
- Researching of compliance of table data with practical application of PR in therapeutic-rehabilitation centers of Zhytomyr. Results of the researches have been recommended for wide usage in medical-rehabilitation institutions.

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Results of the researches

The authors tested patients, who were rehabilitated in medical and rehabilitation-sanatorium institutions of Zhytomyr, in particular, in regional rehabilitation vertebrologic center and sanatorium-rehabilitation center "Denyshi". Contingent included: sportsmen of different age categories - 6.7% and other patients.

The conducted research showed that in Zhytomyr region patients with SMS disorders make 19.1% of disabled and heavy forms of disablement (1^{st} and 2^{nd} groups) are observed exactly with SMS traumas (up to 50%). Often disablement is caused by traumas of SMS and periphery nervous system because for them long period of disease is characteristic as well as functional disorders of locomotion and nervous system [2, 11, 20].

Demand of patients with SMS traumatic after effects in poly-clinical rehabilitation treatment in Zhytomyr (city) is 4.1 times higher than possibility to actually satisfy it. In Zhytomyr poly clinical institutions there are no such researches; in statistic reports on health protection in Zhytomyr there are no data about it.

Increasing of patients to be rehabilitated is conditioned also by increasing of PR possibilities [1, 2, 4, 6]. For example, in Zhytomyr there is a lot of massage centers, though other methods of physical therapy are used more seldom. Analysis of patients' medical histories showed that PT (in complex of PR in after treatment period was prescribed to 483 patients or 66%, while it was practically used by only 20.3%. With physical therapy apparatuses being available at center, patients did not receive required treatment owing to absence of PR complex methodic for after effects of lower limbs' traumas.

The worked out by the authors PR methodic, in general, ensured achieving of positive results at the account of complex usage of different PR variants and their combinations with other physical therapeutic procedure, including non-traditional, for patients with after effects of lower limbs' traumas [6, 7, 13].

In hospitals, rehabilitation sanatorium centers the authors tested 622 patients (417 city-residents and 205 from countryside) who had after effects of lower limbs' traumas: fractures of different character – 368 cases, joint traumas – 96 cases, heavy open fractures – 41 cases, wounds – 52 cases, dislocations – 21, damage of Achilles tendon – 23. In hospital (immobilizing period) we tested 223 patients (53 – city residents and 170 – from countryside); in post immobilizing period - 196 and 34 accordingly; in recreational period we tested 119 patients..

It was nearly impossible to examine recreational period of countryside patients, because there is no rehabilitation specialists in countryside. The authors could to examine only 38 patients, who were rehabilitated in sanatorium "Denyshi" and 19 patients in regional rehabilitation vertebrologic center.

Patients were prescribed to be treated with physical therapeutic methods in first days of immobilizing period. Only 9 patients violated regiment of treatment in hospital period that is why they were excluded from further researches. All other followed strictly doctor's recommendations. Owing to different circumstances, subjective or objective, in average there were fulfilled 86% of procedures from the required quantity.

It was more difficult to test fulfillment of rehabilitation prescriptions in other period: city residents followed strictly all terms, countryside pa6tients – only when it was possible.

And it was really a problem to test fulfillment of rehabilitation requirements in third period, because of absence of rehabilitation specialists in villages of Zhytomyr region (3 rehabilitation specialists per 93 villages); because of absence of required rehabilitation equipment in village medical centers, because of absence of PR complex methodic for all rehabilitation periods. That is why for such patients physical therapeutic prescriptions were restricted by usage of UNF or non traditional factors 9^{th} – 10^{th} groups (see tables).

In tables we present examples from Zhytomyr medical-rehabilitation centers. The authors checked carefulness of fulfillment of rehabilitation prescriptions by patients in all periods as well as results of patients' rehabilitation.

Summarizing results of the researches we can conclude that patients, who regularly and carefully followed all doctors' prescriptions in process of complex PR shortened rehabilitation period by 1-3 weeks and turned to training – competition process and full-fledged social life.

Conclusions:

- Combination of rehabilitation methods is specific for every disease, for every patient with after effects of lower limbs' traumas;
- Effective result is possible only after rehabilitation by complex methodic. With it, very important is patients' knowledge about trauma, traumatic disease, terms, methods and factors of rehabilitation. It shall be assisted by visual aids and information, including information about physical therapeutic factors;
- The authors' experience and results of the researches permit to recommend effective schema of rehabilitation course, which was tested in practice of rehabilitation institutions, where its effectiveness and efficiency were tested in combinations: TPC with MT (medical therapy) + PT + TM (therapeutic massage). Such rehabilitation methodic ensures required level of joint mobility and improvement of number of organism's functions.

Further works shall be devoted to studying of other components of complex PR of patients with after effects of lower limbs' traumas as well as creation of descriptive informational materials.

Table

Physical therapeutic factors for physical rehabilitation of patients with after effects of lower limbs' traumas

Group	Description		Action				Prescription			
	Factor	Device	Character	Specificities	Indications	Counter-indications	Rehabilitation period			Trauma
							I	II	III	
I Electric current of low	Electrophoresis	"Stimul " "Ampl-impulse 5 " "Tonus 2 ", "M 717 " "Potok 1"	Accelerate metabolism and re-generation of nervous and skin	Concentration of action on limited areas of skin and at certain depth of tissues. Pharmacological effect: injection of medical substances with the help of electric current	Initial atrophy of long muscles, secondary atrophy of smooth muscles, caused by durable immobilization of limb.	Acute purulent processes, bent to bleeding, thrombophlebitis, joint ankylosis, spasms	+	+	+	Any
	DC impulses		Pain-killing electric-stimulation			Acute purulent processes, bent to bleeding, thrombophlebitis, joint ankylosis, spasms	+	+	+	Contusion, stretching of tendons, fractures, arthritis
	AC impulses		Pain-killing electric-stimulation	Anti-spastic effect	Initial atrophy of long muscles, secondary atrophy of smooth muscles, electric stimulation of muscles		+	+	+	

II High voltage electric current	Darsonvalle	"ІКV 4 "Ultra-tone TLF– 1''Iskra 1"	Reduction of tonus arterioles, anti-itching effect	Deep penetration in body on limited area, intensive feeding and acceleration of regeneration		Acute processes, purulent wounds, osteo-arthrosis, arthritis, bursitis, danger of bleeding		+	+	Periphery nervous
	Ultra-tone-therapy		Influence through skin's receptors and mucous on vegetative nervous system.	Inter-tissue generation of heat, deep penetration in body on limited area,	Resorption of infiltrates in post operation period, reduction of	Acute processes, purulent	+	+	+	Periphery nervous, stretching
	Inductor-thermal therapy		Pain-killing effect, caused by injection of medicals	heating of skin and fat layer	increased muscular tonus, recreation. Recovery of trophic ulcers of bone tissue	wounds, osteo-arthrosis, arthritis, bursitis, danger of bleeding Not to be prescribed for children younger than 10 years old		+	+	Joints, tendons and muscles
			Resorption, kortiko-steroid pain killing, anti-inflammation effect	Inter-tissue generation of heat, deep penetration in body on limited area, heating of skin and fat layer						
III Електричні і магнітні поля	UHF	UHF30 , УВЧ66 , UHF– 80 3 (Undaterm)	Pain killing, anti inflammation very intensive localizing effect	Quick creation of bone spur, regeneration of all kinds of tissue	To be used in acute period, with inflammation and purulent processes, arthrosis,, arthritis, bursitis and osteomyelitis	With systemic diseases of blood, new creations in spine cord and brains, with active bone tuberculosis	+	+		Fractures, joints, tendons, muscles, Achilles tendon's rupture

III Electric and magnetic fields	DC and impulse magnetic fields	"Polus 1 " "Polus 101 " "AVIMP "	Pain killing anti spastic, anti inflammation effect	Regeneration of all kinds of muscles, periphery nervous, skin	In acute period with non purulent inflammation processes, contusion, bruises	With systemic diseases of blood, new creations in spine cord and brains, with active bone tuberculosis	+	+	+	Fractures, joints, tendons, muscles, Achilles tendon' s rupture
IV Light	Infra-red, visible	"OPC", "Infra-rouge "	Resorption and anti spastic effect	Acceleration of metabolism and physical thermal regulation, intensification of blood circulation	Thermal rehabilitation methods at stage of resorption of infiltrates	With systemic diseases of blood, new creations in spine cord and brains, with active bone tuberculosis, photo-dermatosis		+	+	Stretching, contusion, fractures, arthritis

IV Light	Ultra-violet, group A (long wave) Ultra-violet, group B (middle wave) Ultra-violet, group C (short wave)	"Tubusquarts " "ORS"	De-generation of inflammation processes, indirect bactericidal, anti-rickets effect Anti-rickets, immune-increasing, hardening effect De-generation of inflammation processes, direct bactericidal, anti-viruses effect	Increasing of biological substances' content in tissues, generation of vitamin D in organism, assimilation of bone and tissue phosphorus and calcium Quick creation of bone spur, regeneration of all kinds of tissue Increasing of biological substances' content in tissues, generation of vitamin D in organism, assimilation of bone and tissue phosphorus and calcium	Thermal rehabilitation methods at stage of resorption of infiltrates	With systemic diseases of blood, new creations in spine cord and brains, with active bone tuberculosis, photo-dermatosis	+ + +	+ + +	+ + +	Stretching, contusion, fractures, arthritis Any fractures, arthritis Acute arthritis, pain, swallowing, wounds
V Mechanical oscillations	Super-sonic	UZT101 UTP1 UZT5	Pain killing anti spastic, anti inflammation effect	Regenerative processes at level of tissues, increase of blood leukocytes' activity	Thermal therapeutic methods, sub acute and chronic inflammation, dystrophic processes, post traumatic condition of SMS, scars	With systemic diseases of blood, new creations in spine cord and brains, with active bone tuberculosis		+	+	Fractures, arthritis, bursitis, tendonitis

VIII Radio active factors	Radon water, applicators	Baths	Anti-inflammation and de-sensing, resorption effect	Reduction of CNS sensitivity, increase of immune biological activity of organism	In period of rehabilitation between acute periods and in period of stable remission with arthritis, arthrosis and other SMS diseases	In purulent acute periods, in period of pregnancy, with active tuberculosis of bone tissue and any new formations			+	Fractures, arthritis, bursitis, tendonitis
IX Water therapy factors	Fresh water. Artificial mineral water	Baths	Mechanical, chemical irritations, showers, rubbing and so on	Reduction of CNS sensitivity, increase of immune biological activity of organism	In period of rehabilitation between acute periods and in period of stable remission with arthritis, arthrosis and other SMS diseases	In purulent acute periods, in period of pregnancy, with active tuberculosis of bone tissue and any new formations			+	General-strengthening
X Thermal therapy factors	Peat, paraffin, Mineral wax, glue, naphthalene, sand, mud	Steam baths	Anti-allergy, anti-inflammation, resorption effect; pain killing anti spastic effect	Widening of periphery blood vessels, acceleration of trophic function	Thermal therapeutic methods with continued in time effect in period of infiltrates' resorption. Mud baths – only in period of stable remission	In purulent acute periods, in period of pregnancy, with active tuberculosis of bone tissue and any new formations, epilepsy		+	+	Fractures, arthritis, bursitis, tendonitis
Notes: «+» means that the mentioned method of physical therapy is to be used in the given period of rehabilitation										

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SALUTOGENETIC APPROACH TO PROFESSIONAL TRAINING OF FUTURE TEACHERS

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Annotation. *Purpose:* disclosure of a nature and characteristics of the Movement for the renewal of adult education (New Adult Learning Movement – NALM) as salutogenetic approach to the training of future teachers. *Results:* to analyze the nature and characteristics of salutogenetic approach to training of future teachers, which is based on anthroposophical methodological foundations and practically realized in the world as Movement for the renewal of adult education. Described the theoretical basis and direction of training (academic training, learning experiences, inner spiritual development), that allow to activate the internal intention of the person, arouse will of students to learn throughout life and contributes to the healthy development of the whole structure of the individual. *Conclusions:* were reported health saving forms and methods of education of future teachers: the organization of health-improving educational space, development of integrated programs (integration of educational elements – lectures, discussions, group work, project work, art classes, social exercises, etc.), the rhythmic organization of educational process taking into account the human biorhythms, work with the biography of a man, pedagogical diagnostics and etc.
Keywords: salutogenetic approach, future teachers, professional training, health saving, direction of education, forms and methods.

Introduction

Problems of health protection, formation of healthy life style in modern society are most actual and requiring special attitude.

Problems of students' health protection have been becoming still more acute, because students endure all changes that happen in social economic environment and ecology, in cultural development of country

In its turn it sets the task for higher education to provide rational organization of academic process, oriented on strengthening and preservation of future specialists' health, on stimulation of their healthy life style.

These problems are especially important for students of pedagogic universities, because they shall give their knowledge to their future disciples.

It requires implementation of adequate approaches to professional training of future pedagogues.

Considering the above said the approach, based on conception of salus genesis is rather interesting. (From Latin "sales" – health and "genesis" – creation, origin), that means "creation of health". It is a new scientific direction, which deals with origin of health. This branch comes from pathological genetic problems, i.e. from problems of sources of diseases and comes closer to salus-genetic thinking, which pays attention to how health appears, how person can improve health so that negative influences would push for own perfection.

The already fulfilled researches witness that seeking of health's sources is not new. 200-300 years ago all medical doctors based in their work on salus genetic thinking. That is, they wanted to answer question what makes a person to be healthy. Only for modern (natural-scientific) medicine with its infection theories the most important question is how to remove a disease.

Since 60-70-s years of 20th century, owing to works of outstanding representatives of humanistic psychology, psycho-therapy, psycho-somatic (A. Maslow, K, Rogers, B. Frank, E. Fromm) the problems how to find approaches to healthy potentials of soul, how to strengthen them, to remove mental and body diseases, - have been becoming actual.

Since the middle of 90-s of the last century western scientists and politicians have showed interest to salus-genesis. Economists also opened for themselves conception of salus-genesis: to day it is economically profitable to work for human mental and physical health.

Term "salus-genesis" was introduced in 1979 by American medical sociologist A. Antonovskiy, who is considered to be "father of salus-genesis".

A. Antonovskiy determined three kinds of reasons of appearing and preservation of health, which in combination facilitate successful overcoming of difficulties on body, mental and spiritual levels of a person, videlicet A [1]:

- overcoming of "heterotis" or imbalance in metabolism, which appears as a result of wrong eating, movements, rest, change of climate and other disorders in homeostasis. Every organism, every organ, every cell is in the so-called continuum of health/disease, i.e. transition from health to disease is gradual but not sharp. At every moment of time, as a result of harmful factors' overcoming new state of health appears;
- cultivation of "involvement" at childhood and adolescent age. With it we mean recognition of the fact that all met in human life has certain sense and can be included in feeling of life and understanding of surrounding world. The more different feelings are understood and results of experience arranged in holistic world vision the more healthy person can be, the more strong and inspired is human world vision;
- ability to successfully cope with stresses and life difficulties owing to the so-called resources of resistance. These resources are interconnection of compensatory potentials and strategies of coping. With the help of such potentials person is protected against failures, resulted from stresses, fears, isolation, extreme situations.

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Decisive factors, which support ability to resist are: presence even only one person, loving a child; religiousness, belief in future ability to understand own destiny (i.e. to regard problems and conflicts as a part of life); external protection and high life standard; reliable social environment.

As analysis of scientific sources witnesses bright examples of realization of salus-genesis realization are practical branches of activity, foundation of which is spiritually oriented anthroposophy of R. Steiner: anthroposophy medicine, pharmacology and pedagogic – Waldorf school [2-8].

For example, in modern researches of Waldorf pedagogic conception "salus-genesis" is widely used and is a synonym of "healthy development", i.e. therapeutic-educational approach with child's health and its improvement instead of disease being a center of pedagogic process [8].

In higher education and in education of adults in general especially interesting is the so-called New Adult Learning Movement (NALM). This movement appeared at the end of 90-s of the last century in a number of European countries (Great Britain, Germany, Netherlands and etc.) by initiative of Conrad Van Goyten – Dutch scientist, sociologist, pedagogue, recognized in Europe specialist in optimization of organization of adult learning. He wrote published in German and translated in Great Britain two monographs – result of 20 years work with adult people; he delivered a lot of lectures, and conducted many courses in many countries of the world [14, 15].

Approaches, worked out by C. Van Goyten, to adult education are based on anthroposophy and, thus, have salus-genetic orientation.

Analysis of psychological-pedagogic literature permits to come to conclusion that salus-genetic approach to training of future specialists is studied insufficiently in domestic pedagogy.

The work has been fulfilled as per SRW plans of Kharkiv national pedagogic university, named after G.S. Skovoroda.

Purpose, tasks of the work, material and methods

The purpose of the article is determination of sense and peculiarities of New Adult Learning Movement – (NALM) as salus genetic approach to training of future pedagogues.

Results of the research

Methodological bases of New Adult Learning Movement (NALM) are anthroposophy of R, Steiner, which presents idea of human being as trinity of body, mental and spiritual being and his (her) individuality – human "Self", which manifests in three functions of human soul – thinking, feelings and will. These spheres of human being are in permanent motion. And the task of pedagogic is to seek for methods and forms of their harmonizing. Imbalance between them, in particular between thinking and feeling, between rational and emotional, results in tragic after effects both for a person and for society [9-13].

Basing on above described idea of a human being and his (her) development C. Van Goyten [14, 15] builds NALM on the following interconnected ***principles:*** teaching of adult person as development of holistic personality (in trinity of thinking, emotional sphere and will); training of will awakening and formation of independent thinking; training to overcome barriers (barriers in thinking, feelings, will); training of adults as integration of three main educational directions – academic, life experience, inner mental progress; Individualization of adult learning (creation of individual program, including duration of training as far as many people can achieve progress much quicker than other); teaching of adult as synthesis of science, art and moral that make a person to be a carrier of general human culture; training to harmonizing of relations in social system of university.

Here we present the sense of some the most substantial principles and opportunities for their realization in future pedagogues' training.

Awakening of will and formation of independent thinking. Adult learning bases, first of all, on the fact that teaching process shall awaken will of a student. Awakening of will is awakening of motivation to studying, deficit of which is so sharp at present time. Learning, changes, progress are three aspects of one process, which lasts for all life. This process must not be spontaneous, it requires reasonable development. Studying means always efforts, overcoming obstacles. In adult learning there shall act independent will of a person and teacher shall be "creator of human will".

In his time I. Kant, dividing culture of simple skill and culture of discipline of will, paid attention to the fact that the first is able to make way for evil if the second would not be a reliable counterweight.

Awakening of independent human will to study is rather important as far as will is connected with nature of human "Self". Connection between "self" and will is noticed in element of heat. Any action, fulfilled physically, is followed by irradiation of heat; we feel soul warmth is we are interested in something beautiful, kind, true. Our "self" produces heat as a product of enthusiasm. Not without reason they say "to be burnt with action", "flame of enthusiasm". Activity before enthusiasm is awakening of will.

In educational process a person is supported by three stimuli, which awaken logically oriented will: knowledge, development and perfection.

Stimulus of knowledge is the most understandable; it helps to overcome isolation from the world, to understand the world and oneself. Stimulus of development is the main force of soul that transforms it. Person lives his (her) progress and transformations through phases of own biography. Stimulus of perfection is connected with feeling of discontent with the achieved and desire to realize own potential.

Modern education is now facing a problem: how to awaken these three stimuli. In NALM system there are detail methods and forms of teaching, which awaken students' will to study, will, fed by these three stimuli. They are connected also with other component of purpose of adult learning – formation of independent thinking.

Characteristic of adult person is his (her) independence, internal autonomy, individual manner of actions. All these shall be based on own independent ideas.

Do teachers develop students' abilities to this or, on the contrary, embed already known conceptions, models, skills, which in future will result in professional deformation? Modern situation in higher education is conditioned by the latter. Exactly formation of ability for independent thinking shall be the basis of education, which would meet the requirements of our time.

Overcoming of barriers in educational process. In any education there exist three barriers, which are felt in human thinking, feelings and will activity. They can be endured as feeling of irresistibility, as fear, as antipathy or helplessness. In this case consciousness and courage are required to recognize own barriers as far as actual changes take place only in the process of their overcoming. The world of feelings is enriched and ennobled. A person acquires abilities, which he (she) did not have earlier.

In adult learning all three barriers shall be worked with. The work with only one barrier results in imbalance and is dangerous owing to one-sidedness: intellectualizing without practical actions and without connection with qualitative personal element of feelings; increasing of workmanship without actual understanding of purpose and sense. Balance of barriers renders healing effect, though resistance, connected with professional disease of pedagogues, who are sure that they know everything, is always very strong.

Personality's understanding of own problems is the first step to self-cognitio0n and self-realization.

For example between our understanding of the world and our "self" there is a barrier of thinking. It is a veil, which hides reality of the world. Overcoming of mind barriers stipulates the following: a person shall have desire to ask, to research reality instead of passively take knowledge and ready answers; the person, who studies, shall refuse any models of reality, but the reality itself shall reveal to this person; the person shall be able to observe surrounding world and realize what he (she) knows and understands.

Barriers in sphere of emotions and feelings are also a serious problem. Barrier of feelings is between human "self" and his (her) understanding of own self. Sympathies, antipathy and other feelings often part a person from surrounding world, prevent him (her) from cognitive process, manifest as obstacles on way to reality. It is necessary to find creative way to cope own feelings, to control oneself. Inner calmness, control of emotions can be the windows to reality.

Will barrier appears in relations between "self" and the world. "Self" wants to make something in the world, wants to form, to organize, to achieve something and faces resistance in will sphere.

The most important human problem, to day, is will passivity. Very often we can see that will of modern students is rather weak; they stop the started work, try to avoid difficulties, remain to be passive spectators; they want to do only pleasant things. But only awakened will can be the support, owing to which a person can study and develop during all life.

The main for overcoming of will barriers is overcoming of fear, which manifests in anxiety in intellectual life. So, it is necessary to cultivate courage to study and make progress. Awakened will can be the support, owing to which a person can study and develop during all life.

Thus, the fist task of higher education is recognition of all three barriers in learning; balancing of them and rendering assistance to students for their overcoming. Here it is important to provide didactic aspects of work with barriers and blocks. The most effective ways of formation of human will activity is practicing of different arts as well as work in groups.

Synthesis of science, art and morality. Adult learning in NALM program is the highest synthesis of art creativity and scientific researches. Involvement of student in academic art activity introduce serious changes in functioning of feelings, life processes and mental forces, developing new thinking, new feelings, new will, oriented on creativity. Practice witnesses that in learning process, with involvement in practicing arts, there can be happen wonderful discoveries in mastering of material, understanding of own tasks, obstacle and so on [14, 15].

Besides, from experience it is known that artists can not understand their works up to the end, until they start to research it scientifically. Art without knowledge and understanding degenerates in arbitrariness; science without art loses connection with life. When artists expand the world of their feelings, scientists train their feelings to recognize and evaluate in intellectual sphere. The person, who strives for discovering of new ideas shall pass threshold between the world of phenomena and spiritual world. Actual creators want to bring idea in the world of sense perception. They make invisible visible. In sound professional training it is necessary to realize a union of science and art through primary integration.

In order for pedagogue to understand why he wants to teach he shall be a scientist but to make it visible for other people he shall be an artist. Just because of it K Ushinskiy called pedagogy "art of education". R. Steiner has the same opinion.

For the union of science and art to be realized the third element is required – this union shall be blessed. It means presence of moral element, connected with strive of pedagogue to serve to his disciples and colleagues. Thus, three elements: art, science, morality – form creative source for humanization of educational process.

Harmonization of relations in social system of university. Relations in social system of university between administration, teachers and students in process of constant mutual activity shall be oriented on servicing to creative individual. Owing to effective interaction of people in social system of university this system becomes vital, ready for self education, self-reflection, self-organization. Laws of evolution and management of social systems, discovered

owing to works of R. Steiner, condition demand in psychological unity of personality's and social environment, demand in unity of individual understanding of purposes and values with university's purposes and values. With it it is necessary to regularly review global purposes of education as far as there is always exists a danger to become a traditional institution and observe only "tested" forms of education. University shall not only meet modern requirements but be ready for the future.

Other principles of NALM we shall regard in context of structure of academic seminars, forms and methods of work with students (adult persons).

Structure of academic seminars. The program of seminar includes three main directions, which, conventionally, can be determined as academic learning, learning with life experience, spiritual (internal) development.

The first of these directions is the so-called academic learning or organized academic work at universities; it is the most known and traditional way of learning, which is realized by teachers and has always clear purposes and tasks. The main sense of academic learning is solution of task "how to learn to study".

Direction "how to learn to study" is the starting point of adult learning and its base. In the process of education seven processes (steps) of learning in interconnection with seven human life processes are regarded (see table 1).

Table 1

Interconnection of seven life principles and three ways of learning

Seven life processes	***Seven processes of learning***	***Analysis of destiny***	***Spiritual researches***
Breathing	Observation	Observation for life events	Meeting with inner (spiritual) question
Heating-cooling	Determination of attitude to object of observation	Reading of own biography's events	Burning of own self's heat (appearing of interest, enthusiasm to spiritual development).
Feeding	Mastering	Seeking for reasons of events	Seeking for ways of development
Excretory	Individualization	Seeing and accepting of destiny, which is not realized	Passing threshold between material and spiritual worlds
Savings	Exercises	Practice in everyday life	Opening of life way (spiritually enlightened everyday activity)
Growing	Development of new abilities and skills	Accepting of own karma (sense of own destiny)	Appearing of answer to spiritual question
Recreation	Creativity	Arranging of own karma	Understanding of result of research

Appeal to personality's internal potentials is based on R. Steiner's anthropological approach, according to which gradual transformation of life processes occurs in human life. At the end of third seven years' period human life forces are rather free from formation of body. They became accessible to "self" and can be realized in two directions: revival of senses and transformation of mental forces. Both aspects are rather important for holistic process of creation, which integrates everything that comes from external world through functioning of sense organs into inner world, where human "self" transforms it and creates something new. This "new" then is directed from inner world to external world as a basis of activity. Thus, owing to functioning of "self" natural aspect of life processes is partially transformed in cultural aspect of certain learning processes.

Other way is the learning, which is passed by a person in his (her) life, out of class rooms, practically in not planned manner. This learning is without teacher; life is instructor. It is known that life is the best instructor; destiny tests us an overcoming of obstacles helps us to develop potentials, skills, maturity, form new ideas.

In direction "teaching by destiny" principles of biography's analysis are regarded, practical work with own biography is realized, seeking for regularities in biography. The next step is understanding of own destiny, attempt to see own life task (this direction stipulates works with R. Steiner's lectures devoted to historical, social-political, spiritual-cultural interconnections of person's and mankind's development).

The third way of learning is the way of spiritual research. In ancient human cultures it was the most important way; at present, after period of durable oblivion, its significance again increases.

Direction "spiritual development" gives idea about work with own spiritual question, with seeking of it. It is necessary to work out special state of concentration of thinking, inner calmness and positive mood, completely separated from external influences and devoted to internal life. Learning is composed of development of mental forces, required for achieving of this state. Own soul becomes a class room, a teaching situation, which leads to existential questions: Who am I? What is the sense of my existence? What is the way for me? These questions can be answered on the way of spiritual search, which would meet modern stage of human development.

Human "self" as central component, being involved in all three processes of learning, connects them and on this way person becomes more adult and independent. With such learning independent thinking is formed as precious gift, which gives life to a person.

Academic seminar envisages great number of art, social and individual exercises, which permit for a person to feel himself at every stage of cognition, to understand own barriers and overcome them. All these result in the fact that a person is trained to be conscious in learning process, attentively observing stage, at which he (she) is and own mind processes. In this direction also principles of seminar's construction are regarded, which are based on correct alternation of rhythm and different kinds of learning activity.

One of the most important aspects of such approach to adult learning shall be comprehensive tracing of interconnection of human seven life processes with three ways of learning (see table 1), interpenetration of three learning ways so that they would enrich one another, and owing to this fact university can become a microcosm of culture.

In connection with the fact that direction "how to learn to study" is not only a beginning but also a pre-condition of following process of adult learning we regard more specifically seven steps on way how to learn to study.

Learning processes, in compliance with which all educational process is structuralized, include: observation (perception); working out of attitude to object of perception; mastering; individualization (creation of something new for a disciple); exercises (practice); development of new abilities; creativity (creation of something new).

Observation (perception). Learning process starts from conscious observation of surrounding world with the help of perception organs. Observation can be a learning process only if it is attentive. The necessary pre-condition of full fledged observation is activation of perception organs with the help of art exercises. The process of observation resembles breathing: it is a rhythmic process which is conscious only up to some level. Correctly organized rhythm (breathing) in learning process is the foundation of sound and effective mastering of material.

Working out of attitude to object of observation. If the first step is open and impartial then at other step attitude to object of observation is formed. For this purpose, it is necessary to raise internal activity. Every attitude is subjectively colored by appraisal or condemnation. This process shall be controlled consciously for increasing of ability to learning. With the help of pedagogue structure "heat-cold" is determined through appearing of interest, understanding or not understanding. Just here pedagogue's ability "to burn fire" shall manifest, as far as warm interest, enthusiasm are "fuel" for next steps. If such heat is absent, then there was no observation and learning process did not start. In this case it is necessary to come back to the first step.

Mastering. At this step it is important that person should understand the sense of the problem, which he (she) accepted and heated so that it could be a spiritual fuel. In order that something, taken from external world would make contribution in spiritual sphere, "self" shall participate at spiritual level in the process, similar to physiological, life processes of assimilation of food. It is sphere of analysis. In processing and assimilation thinking, feelings and will participate. This step is accompanied by heavy internal struggle with habits to passive perception, which rotted earlier.

Individualization. The purpose of first three steps was creation of pre-conditions for making the object of learning to be "property" of individual, to condition opportunity of "burning something new". It does not mean that this "new" has not existed earlier at all; it means that something was born in the soul of learning person: new for him (ner) feelings, will impulse, force of motivation, solution and etc. These new feelings exactly mean "individualization". For them to be realized activation of human "self" is required. Adult learning, as awakening of will, which is the core of this approach, is actualized just at this step. The first three steps – from outside in the center – are the basis for individualization. It is a foundation for realization of the next steps, which ensure real progress of personality.

Exercises (practice). Practice is regarded as process of support. Everything that shall be preserved shall be repeated, as far as new views, impulses, impulses can be quickly forgotten. Through rhythmically repeated learning functioning new seed grows in a human being. Care of it requires favorable environment, love for practical activity, without which sprout will not survive. Practice shall be supported by force of motivation-individualization as well as target – development of new abilities.

Development of new abilities. In contrast to assimilation, in which aspect of analysis acts, in growing aspect of synthesis manifests. Abilities develop in practical situations, when a person is active and will is resisted. Growth can be regarded as result of "resistance of reality", which transforms actions in abilities. Tension of will unconsciously transforms in new abilities to do something on mental or emotional levels or manually that could not be done earlier.

With it, it is important to understand the difference between ability and skill. Skill can be trained rather quickly and can be used automatically only in standard situations. Abilities, as a rule, are not used absolutely automatically and can be applied differently in different sudden situations.

Creativity (creation of something new). From previous six steps it depends if result will be something new or it will be simple copying. It is not a secret that many answers at exam is only repetition of mastered material. If human "self" was creative at all previous steps then at seventh step the person would receive result, more significant than the sum of separate steps, and creative will would be able to manifest both in mental and emotional spheres as well as in actions and behavior.

It should be underlined that seven steps in learning, like seven life processes pass both in group way and turn by turn. But if one step was missed, for example individualization,, learning process would be broken. In future it can reflect in such troubles as maniac behavior, obsessions. For example nervousness, especially noticeable among modern people, is often caused by huge, partially "not digested" learning material, which "stuck" inside a person.

We also note that process of learning to study, like other directions of adult learning (learning by life experience, spiritual development) is accompanied by serious practical activity and practicing of arts. Seminar is rather of practical character than theoretical.

Let us regard some forms of work with adult disciples.

Forms of work with learning adults. The above described principles and methods of NALM program are realized with the following forms of learning:

▪ *organization of health related educational space* – arranging of dialogue relations of cooperation, creative subject-subject interaction, positive psycho-emotional atmosphere, which would facilitate development of adequate self-evaluation of learning adults, formation of their communicative features.

The most significant moment of seminar is setting of certain relations between instructor and adult disciple, which can be built only on the base of trust and responsibility of both sides, warm friendly relations and professional cooperation. Teacher, who facilitates awakening of disciple's will, is an ideal image of teacher for adults as on to day. Disciple, able to take responsibility for his own process of learning is an ideal image of adult disciple.

The role of teacher for adults (facilitator) is rather to determine a direction of learning, rendering the most important points of view. That is he is not only and translator of knowledge, lecturer, who brings fixed knowledge. Understanding ways of problems' solution is to be fulfilled in cooperation, in consequent (in seven steps) passing of educational process, through attentive observation of phenomena, their comprehensive description, through development of independent thinking and ability to fruitful creativity.

It requires from teacher for adults certain pedagogic skillfulness, which is a part of pedagogic technology's structure and condition of its realization.

Analysis of problems of pedagogues' professional training witnesses that most of them have not been ready for changes of own attitude to a disciple; they have not been ready to pass from command forms to cooperation, from reproductive educational process to productive creative activity.

Traditional system of education (like school system) does not facilitate mobility, puts most of pedagogues in such conditions, in which it is difficult for them to pass to other type of teaching. It is not a secret that the reason of it is the fact that most of scientists become teachers without proper training for this profession. In its turn "school" type of teaching, which prevails in higher education, does not prepare necessary changes of students at their age of 18-21 years and it conditions difficulties in their self realization for all their life.

So, teacher for adults shall be skillful in specific psychological-pedagogic methodic of activation of own cognitive potentials and be able to switch on forces of his disciples;

▪ *working out of integrated programs,* which would envisage integration of learning elements (lectures, talks, group work, project work, art classes, social exercises and so on) that permit to make learning denser, to free additional time and facilitates holistic development of personality, his (her) social, emotional-will and creative components.

Special place in adult learning is taken by different art classes (work with word, sound, music, color, form, fine plastic and etc.) Just such lessons permit to deepen and develop mental potentials, awaken will, form forces of spiritual understanding and creation.

Not less important is project work, which, as on to day, is one of commonly accepted forms of learning and permits to fulfill certain task, in which a person can practically apply his knowledge. Successful fulfillment of project work depends on ability to overcome certain own barriers, first of all of will character. One of effective means of this problem's solution is producing results of own work in artistic form. It can be done both individually and in group with other participants of educational process;

▪ *rhythmic organization of educational process* considering biological rhythms, which permits to evenly, and in economic and concentrated way to distribute academic load and, thus, avoid tiredness, save and develop mental and physical forces; include conscious and sub-conscious spheres of perception in learning process, correctly alternate rhythm of remembering and forgetting. Rhythmic learning process ensures also to the largest extent individual approach to a person: a person percepts everything, connected with rhythm in the same way as he (she) breathes individually;

▪ *work with biography.* Since the beginning of 20th century psychologists have started targeted searching of life regularities, which manifest in rhythms of human development, in life events, tasks, opportunities and so on. R. Steiner introduced new impulses for work with biography and in theory and practice of anthroposophy (social, medical, psychological, educational and etc.) work with curriculum vitae is very important. Thinking about own curriculum vitae

(realized orally or in written from) lonely or with consultant or in group a person can determine certain regularities of own life, understand him (her) self, receive new bench marks, acquire inner self confidence, which facilitates autonomy, self-determination and self realization of personality;

▪ review, evaluation. They are important forms of learning activity. Review at the end of a lecture or working day, week is required not only for a teacher but for students as well. It needs significant activation of "self" and facilitates better mastering of material. In evaluation, based on review, a step forward is made and relative importance of phenomena and processes is determined. Here internal and external is combined. Disciple can see by himself his barriers. Evaluation must be transformed in emotional judging and requires skillfulness of a pedagogue to provide arguments, to use objective criteria. Review is a mean of preparation for future; it is a view in the past and planning of the future. It concerns questions: what will be the next step? What can be improved? It can be conducted together with disciples.

Conclusions:

Thus the conducted research permits to make the following conclusions.

Salus genetic approach to training of future pedagogues, based on anthroposophy methodological principles and practically realized in the world as NALM system, facilitates sound, holistic development of students.

Main directions of students' learning, offered by NALM (academic learning, analysis of life experience, internal spiritual development) are oriented on activation of human inner intentions, on awakening of human will to studying during all life, on stimulation of independent work, devoted to self-perfection in professional and personal spheres.

Forms and methods of NALM have health related character, permitting:

- to organize the space of learning at the account of dialogue relations, cooperation, creative interaction in gradual, step-by-step passing of learning process through attentive observation of phenomena, their comprehensive description, through development of independent thinking and ability to fruitful creativity;

- to strengthen and deepen professional fitness through activation of creative potentials as well as to free additional time at the account of rhythmic organization and structuralizing of educational process, composing of integrated programs (integration of different learning elements – lectures, talks, group work, project activity, social exercises and etc.).

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INDEXES OF HEMODYNAMICS IN A DOSAGE OF PHYSICAL ACTIVITY IN GIRLS AGAINST THE BACKGROUND OF LOW SYSTOLIC BLOOD PRESSURE

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Annotation. *Purpose:* to examine the state of hemodynamics, blood oxygenation levels in girls with hypotensive type neurodystonia in a dosed physical load. *Material*: The study involved 59 women with hypotensive type neurodystonia aged 18-19 years and 14 healthy women the same age. *Results*: It was found that the girls on the background of low systolic blood pressure observed early hemodynamic response from the very first steps (25-50 W) bicycle stress test in the form of increased heart rate, stroke volume, pulse pressure. At the height of the stress test in 76.27 % of girls showed a reduction in blood oxygenation indices and lengthening of the period of recovery. *Conclusions*: The dose of girls in physical activity with hypotension, place high demands on the cardiovascular system, the restructuring of which is accompanied by inadequate oxygen supply systems in operation, adjustment disorder, low capacity for work that requires a non-drug methods of rehabilitation in the form of regular dose of physical activity, breathing exercises .
Keywords: hypotension, bicycle ergometry, hemodynamics, pulse oximetry.

Introduction

Arterial hypotension is viewed as multifactor state revealing blood pressure lowering in the arterial system at different physiological and pathological states. The reason of primary arterial hypotension in 80% cases is the neurocirculatory asthenia (NCA), while the girls have it 4-6 times oftener [2, 5]. Hypotension type of NCA is characterized by polymorphous clinical symptoms and is accompanied by physical and mental efficiency decrease at pre adult age resulting in lack of adaptational syndrome and worsening of life quality [4]. If this type of hypotension happens uncontrolled in the young age it may result in arterial hypertension development, cerebral blood flow disorders, complications during pregnancy and birth, early atherosclerosis etc. [6, 8]. Regarding this learning more about hemodynamic stress-tests of hypotension NCA, the peculiarities of its course and health improvement measures at preadult age by means of measured physical activities is gaining special importance.

Blood circulation system is a sensible indicator of the state of adaptive mechanisms of the whole organism while circulatory dynamics data precisely reflect the regulatory systems tension level especially caused by stress impact of physical exercise [5, 10], accompanied by high oxygen use by working muscles, higher CO2 emission (carbon dioxide) and metabolites [11]. The factor limiting physical stress is the blood circulation system, its ability to transfer oxygen to working organs and tissues. That is why it is rather interesting to investigate circulatory dynamics and oxygen supply of the stress-test of girls with hypotension NCA type.

Purpose, tasks of the work, material and methods

The aim of work. To study the state of circulatory dynamics data, blood oxygenation level of girls with hypotension type of neurocirculatory asthenia in conditions of limited physical exercise.

Materials and methods of investigation.

59 students aged 17–19 years with hypotension NCA type comprising the main group have been studied. At Physical Education lessons they trained in special medical groups. Control set was made up of 14 practically healthy girls of the same age. The girls belonging to both groups did not do physical exercises on a regular basis. Adaptation reserve state was defined by means of the level of physical exercise evaluation, circulatory dynamics reaction, and oxygen supply during veloergometry test. The latter was conducted at the bicycle ergometer Siemens according to Cornell protocol – phased test, constantly increased every 2 min by 25 W [3]. The girls' general state has been continuously tested during the investigation by electrocardiogram, heart rate (HR) dynamics has also been evaluated by standard methods, arterial blood pressure (ABP), correlation of heart rate to Watts (HR/W), blood stroke volume (BSV), blood minute volume (BMV), pulse pressure (PP) at workload performed [1, 12]. The blood oxygenation level has also been defined by pulse oximeter (UTASOXY-201) at the peak of stress-test and at recovery time.

The results' probability level was evaluated by variation statistics analysis method of the results obtained alongside with statistical programs set Statistica v. 6.1 (USA) and recommendations of O. Y. Rebrova (2002).

Results of the research

The results of investigation showed that 72.88% of girls with hypotension NCA type in the rest state showed signs of constant tachycardia and 20.34% of girls had excessive heartbeat rate only during slight psychoemotional or physical loads, only 6.78% of people had constant heartbeat rate within normal limits.

During the examination systolic and diastolic AT comprised (95,43±1,33) mm column of mercury and (66,82±0,56) mm. The investigations conducted in stress-test conditions for girls of primary group showed the decrease of veloergometry test tension data to (95,45±1,94) W versus (142,86±6,24) W obtained in the group of healthy girls ($p<0.001$).

The analysis of the blood circulation system on the first levels of veloergometry test discovered among the girls of the main group early hemodynamic reaction in the form of heart rate speeding up, CRM increasing and correlation between heart rate and watt. Getting results predominated similar ones in the control group. So, under the

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load of 25 W increase in heart rate was almost the same as in the main group as among girls from the control group, correspondingly, (19,92±1,44) % and (18,73±1,28)%. When loading 50, 75, 100 W in the main group of girls increase in heart rate was, respectively, (38,83±2,52)%, (52,6±1,8)%, (63,1±3,82)% and significantly surpassed the growth rates obtained in the control group, respectively, (32,4±1,64)%, (46,17±1,3)% and (56,88±1,6)% ($p<0.05$). For a load of 125 W in a main group of girls who have reached it, the increase in heart rate (70,25±4,35)% predominated over the figures obtained among healthy women (81,48±2,68)% ($p <0.05$). Among healthy individuals only after 100W load was recorded significant growth advantage in heart rate among girls in the control group – (81,48±2,68)%, (90,54±3,14)%, (108,12±4,06) %, (112,42 ± 4,34)%, respectively, 125, 150, 175 and 200 W VEM-test. It is appropriate in the outpatient setting to determine the ratio of HR/W, which in hypotensive type of dystonia is (1,65±0,08) standard units, against (1,06 ± 0,03) standard units ($p<0.001$) the index of control groups. This index reflects the average myocardial ensure one watt load at which hypotensive type of asthenia is excessive [9].

Index BSV at rest in hypotensive type of dystonia was at 7.64% ($p<0.05$) lower than the figure obtained in women of the control group (66,72±1,15) ml. The analysis of BSV at different steps of the bicycle ergometer showed that achieving load capacity of 75, 100 and 125 W main group of girls increase this figure amounted, respectively, (10,06±1,32)% ($p<0.01$) (15,08±1,60)% ($p<0.05$) and (24,60±1,95)% ($p<0.05$) as compared with growth in the control group – (5,23±0,74)%, (11,48±1,22)% and (19,59±1,88)%, the growth rate will continue to BSV in healthy girls slightly surpassed metrics with asthenia. This demonstrates the use of accelerated and metabolic deficiency reserve in patients with NCA in terms of the stress test, which limits the power load. Thus, the heart works not only with varying frequency, but with a variable amount of emissions under stress [7].

The resulting dynamics of HR and BSV and their value, indicating that the increase BMV among main group of girls was due to the increasing in both heart rate and BSV; in healthy girls BMV grew mainly due to heart rate during the whole load. Exactly increase in heart rate under conditions of stress test indicates the degree of sympathico adrenal system's activity, increasing metabolic needs and oxygen uptake in the body, especially in skeletal muscle, myocardium and central nervous system [10, 15].

It is known that ABP has two components – a constant, which refers to the average blood pressure and throbbing, which turns the largest pulse pressure. Pulse pressure – reflects the interaction between the contractile function of the left ventricle and the stretch ability of great arteries (direct component), and the magnitude of wave reflection (indirect component) [9, 12]. Changes in heart rate in the main group of girls were accompanied by significant growth in all steps of the PP veloergometry tests – between 25 and 125 W, respectively (20,11±2,13)%, (37,28±1,66)%, (63,80±1,72)%, (64,50±1,45)%, (95,34)%. In the control group, the growth rates of PP at 50, 75, 100 and 125 W load were significantly lower than those obtained in the study group, and were, respectively (11,36±3,1)%, (20,99±2,34)%, (33,85±1,42)%, (69,48±2,12)%. However, the girls in the control group PP loaded 25 W was not significantly changed. A significant increase in PP of main group of girls in terms of the stress test can serve as a predictor of the formation of disadaptation syndrome, the development of more complex cardiovascular disease in the future. It is possible that the rate of PP is more informative, regardless of systolic blood pressure, an indicator of possible risks. The evolution of the PP may be regarded as an indirect marker of arterial tone condition [12].

Indicators of pulsesymetry (PSM) in the main and control groups at rest did not differ significantly among themselves, according, (97,64±0,33)% and (98,18±0,54)% ($P>0.5$). At the same time, the rate of PSM at the height of a bicycle ergometer 76.27% of the girls fell to the main group (94,35±0,46)% ($p <0.001$) in the control group – to (95,23±0,38) 21.43% of girls. Thus, reducing oxygenation in terms of physical activity indicates worsening energy production, metabolic disorders in cells and thus reduce efficiency. [13].

In regenerative period hemodynamic control group returned to baseline performance at the 3rd minute. 35.71% of girls at 5th minutes. 50% and 7th minutes. in – 14.29% of individuals. In the study group recovery in most of the girls come later - after 5th minutes. 13.56% of girls after 7th minutes. – In 35.59% of those 10th and – in 44.07% cases, 6.78% – heart rate, blood pressure returned to baseline figures after 15 minutes of recovery period. Indicators of PSM to 10 minutes recovery period in the intervention group increased to (97,58±1,13)% in 71.19% of patients that returned to its original state, the rest (28.81%) of the girls, it happened later – within 12-15 minutes .

Neurohormonal and metabolic disorders of the cardiovascular system's software in NCA manifested inadequate response, first infarction, the ordinary and the more significant stress stimuli nature. In women with signs of NCA, it is expressed early and excessive hemodynamic response to physical stress.

The analysis of heart rate in terms of the stress test reflects not only the functional state of the cardiovascular system, but also the level of regulatory mechanisms – the activity of stress-realizing and stress-limiting systems [15]. Intense or prolonged exercise in autonomic dysfunction impairs oxygen supply working organs and systems - aerobic short period adequate to ensure the future proceeds with a decrease in oxygen tension in the tissues, causing the body energy is mainly due to anaerobic mechanisms, thereby reducing tolerance to physical load [1, 14]. Physical stress in NCA reveals hidden "defects" neurocirculatory mechanisms that are primarily early, excessive and short-term reaction parameters of central and peripheral hemodynamics, aimed at leveling homeostasis [6].

The disintegration of neurohormonal, metabolic regulation at the level of the cerebral cortex, hypothalamus and reticular system leads to dysfunction of the autonomic nervous system, functional disorders of the visceral systems including cardiorespiratory system, especially in terms of physical stress, which in turn launches compensation mechanisms of the patient, which quickly exhausted in this category of people without proper correction.

The extent and dynamics of physiological changes during different intensity and duration of exercise, as well

as the speed and completeness of recovery after physical stress, especially given the low systolic blood pressure, make it possible not only to determine the status of reserve capacity rights, but also to describe its "physiological portrait", give a detailed description of predictive adaptive reserves.

Conclusions.

1. Dosage physical activity among girls with hypotensive type NCA, makes high demands on the cardiovascular system, the restructuring of which is accompanied by inadequate oxygen supply operating systems, adjustment disorder.
2. For rapid assessment of functional reserves of the organism, the effectiveness of health programs carried out at a young age with NCA recommended reduced exercise tolerance in hypotonic type of asthtnia manifested early hemodynamic response in the form of an increase in the ratio of HR/W, pulse pressure levels under conditions of stress test decrease pulsesymetry and extend the recovery period.
3. For rapid assessment of functional reserves of the organism, the effectiveness of health programs carried out at a young age with NCA is recommended bicycle ergometry, determination of the ratio of HR/W, pulse pressure, pulsesymetry.
4. In the presence of hypertensive type NCA advisable except drugs, it is mandatory appointment of non-drug methods of rehabilitation, which must include the mode of the day and sleep therapy, dosage systematic exercise, breathing exercises and more.

The prospect of further research. Studies of indices of central and peripheral hemodynamics in terms of the stress test will create the best approach in the physical rehabilitation of young people with signs of NCA.

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EFFECTIVENESS OF COMPETITIVE ACTIVITY OF HIGH CLASS HOCKEY PLAYERS ACCOUNTING A LEVEL OF THEIR SELF-ESTEEM

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Annotation. *Purpose*: study the effect of increasing the level of self-esteem on the efficiency of competitive activity of high class players. *Material*: the study involved sixteen athletes (Atlanta, Moscow region. - Continental Hockey League). *Results*: it was found that the application of special training self-esteem increases the level of implementation of technical and tactical action games. Number of goals increased by 8.92%, assists - 21.5%, the total number of shots on goal - to 20.02%. *Conclusions*: it is recommended specialized program correction level of self-esteem from 10 separate studies. Classes have different target setting: habit forming positive attitudes towards themselves, develop skills of active life position, securing high self-esteem. The program is used for two weeks in the preparatory period of training.
Keywords: self-esteem, psychological, training, competition, operations, technical, tactical.

Introduction

Problem of sportsmen's psychological fitness is one of the most urgent among other questions of sportsmen's training [2, 4, 6, 12-14, 19]. Especially significant sportsmen's psychological training is on the stage of maximal realization of individual potentials and maintaining of highest sportsmanship (stages, which compose second stage of many years' training – realization and development of highest sportsmanship) [1, 7, 13, 17, 20].

In specialists' opinion the reason of it is the fact that at final stages of many years perfection special sport fitness gradually looses its priority that is connected with achieving of optimal form by sportsmen and exhaustion of organism's functional reserves. The higher is qualification of sportsman, the more difficult to find methods and means of his perfection [3, 11, 15, 16, 18].

At level of highest sportsmanship players' individual specificities manifest more distinctly that at earlier stages that, in its turn, is proved by researches of many specialists [5, 7-10].

As on to day, we can observe constant increasing or competitiveness at international sport arena in competitions on hockey with puck. This trend results in constant increasing of both physical and mental loads on hockey players that set special requirements to seeking of new technologies of hokey players' training for competitions.

In this connection researches, oriented on reserves of sportsmen's psychological fitness are rather urgent. Correction of mental state and personality's characteristics in training process and competition functioning plays important role in all system of sport training.

The work has been fulfilled in frames of scientific research topic 2.4. "Theoretical-methodic principles and individualization of training process in game kinds of sports", in compliance with combined plan of SRW in sphere of physical culture and sports for 2011-2015.

Purpose, tasks of the work, material and methods

The purpose of the work is to analyze influence of increasing of sportsmen's self-estimation on effectiveness of highly qualified hockey players' competition functioning.

The tasks of the research: determination of effectiveness of introduced program, which was oriented on increasing of sportsmen's self-estimation, and analysis of influence of increasing of sportsmen's self-estimation on effectiveness of highly qualified hockey players' competition functioning.

The methods of the research: pedagogic observations and analysis of competition functioning, analysis of special scientific-methodic literature, Internet data; methods of mathematical statistic.

Results of the research

For increasing of hockey players self estimation we worked out specialized program, which included ten separate trainings, oriented on correction of self estimation. The trainings had different purposes: from formation positive attitude towards own self to training of skills of active life-position and fixing of high self-estimation. The program was used during two weeks in preparatory period of training. Organization of researches included three relatively independent stages: 1) stating experiment (primary testing of self-estimation and determination of competition functioning's efficiency; 2) Experiment with introducing of author's program on self-estimation optimizing (formation of control and experimental groups); 3) Repeated testing (determination of the offered program's influence on self-estimation and competition functioning).

So, in fig.1 we give data of effectiveness of hokey players' competition functioning (control and experimental groups) after experiment. It should be noted that experimental group's hockey players had higher self estimation than in control group after experiment.

By results of regular championship 2013-2014 experimental group hockey players had higher quantity of thrown pucks in comparison with previous season (2012-2013), and with control group players.

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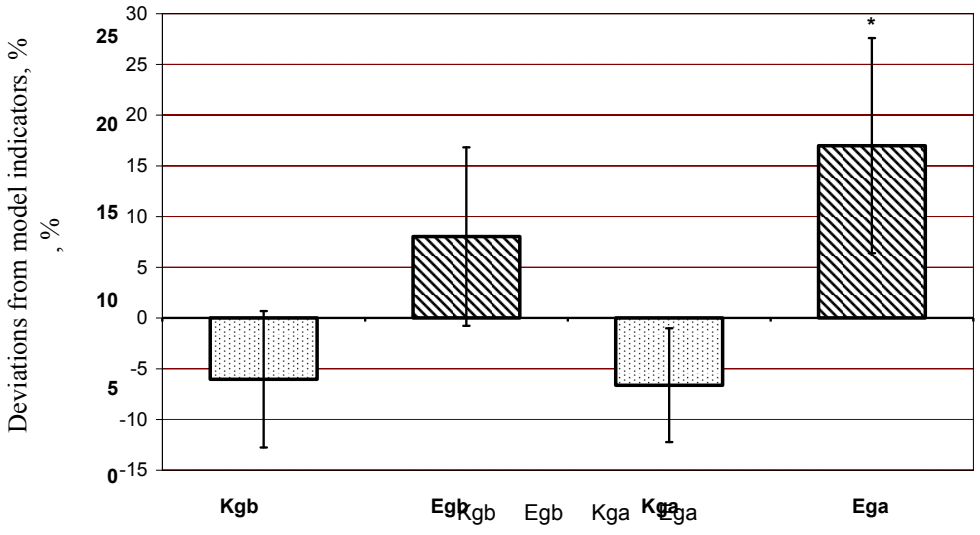

Fig.1. Pucks, thrown by hockey players of control and experimental groups by results of previous (2012-2013) season and season of 2013-2014 in percents from model indicators – * - differences are statistically confident, p<0.05; Kgb – control group before experiment; Kga – control group after experiment; Egb – experimental group before experiment; Ega – experimental group after experiment.

In fig. 1 we can see that by results of previous season experimental group hockey players had level of thrown pucks, which exceeded mean model indicator for highly qualified sportsman by 8.02 %. Analysis of this technical-tactic action by results of 2013-2014 season showed confident (p<0.05) increment in experimental group - 16.98 %., i.e. actually two times higher. Results of control group hockey players by this indicator practically did not change.

Also we can speak about increasing of indicator of efficient passes in experimental group (see fig.2.).

Before introduction of specialized program indicator of efficient passes in experimental group was negative and by 19.74 % lower than mean model indicator for highly qualified hockey player.

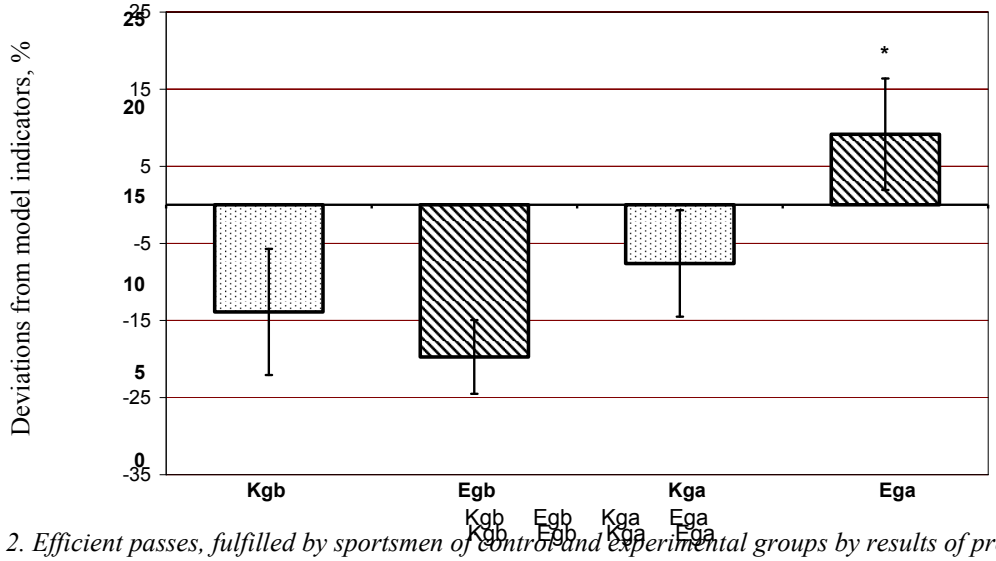

Fig. 2. Efficient passes, fulfilled by sportsmen of control and experimental groups by results of previous (2012-2013) season and seasonu 2013-2014, in percents from model indicators – * - differences are statistically confident, p<0.05; Kgb – control group before experiment; Kga – control group after experiment; Egb – experimental group before experiment; Ega – experimental group after experiment.

Analysis of this indicator in season 2013-2014 showed significant increment of this indicator in experimental group – by 9.14 %. The changes were statistically confident (p<0.05).

In fig. 2 we can see that in control group there is positive change of efficient passes' indicator (-13.9 % in previous and 7.61 % in the following season) but, in contrast to experimental group these differences were not statistically confident.. We found confident (p<0.05) positive changes in experimental group also by indicator of gained scores in match.

So, quantity of scores, gained by experimental group sportsmen, by result of season, preceding experiment, was 27.67 %, i.e. below middle. But be results of season, which was after experiment, showed significant increment of gained scores - 13.06 %.

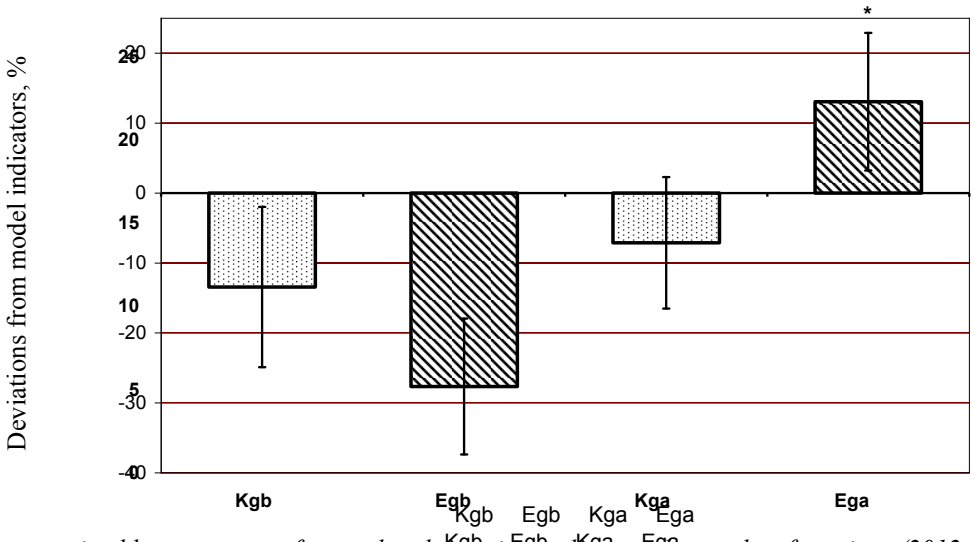

Fig.3. Scores, gained by sportsmen of control and experimental groups by results of previous (2012-2013) season and seasonu 2013-2014, in percents from model indicators – * - differences are statistically confident, p<0.05; Kgb – control group before experiment; Kga – control group after experiment; Egb – experimental group before experiment; Ega – experimental group after experiment.

Thrown pucks, efficient passes and gained scores are most significant technical tactic actions of hockey player in match. Just on the base of analysis of thes indicators sportsmen's effectiveness in attack is evaluated.

The data, received by us, permit to speak about positive influence of the offered program on correction of self-estimation on elvel of attacking actions in match.

The higher was hockey player's self-estimation, the more throws he made. As a rule, with low self-estimation, sportsmen rarely are initiative; they are more cautious. Of course, throw of puck shall be realized only in cases when this throw results in goal or sharpening of situation, but now we mean other. Hockey players without self confidence often can miss convenient for throw moment, trying to choose other variant for continuation of attack.

Analyzing data, given in fig. 4, we can affirm that increased self-estimation in experimental group positively influenced on quantity of puck throws.

If before specialized program quantity of throws in experimental group was lower by 4.81 % from mean standard, then, after its application total quantity of throw exceeded mean standard by 14.94 %. These changes are statistically confident (p<0.05). Sportsmen became to throw pucks oftener and it resulted in improvement of efficiency. Thus, quantitative indicator transformed in qualitative.

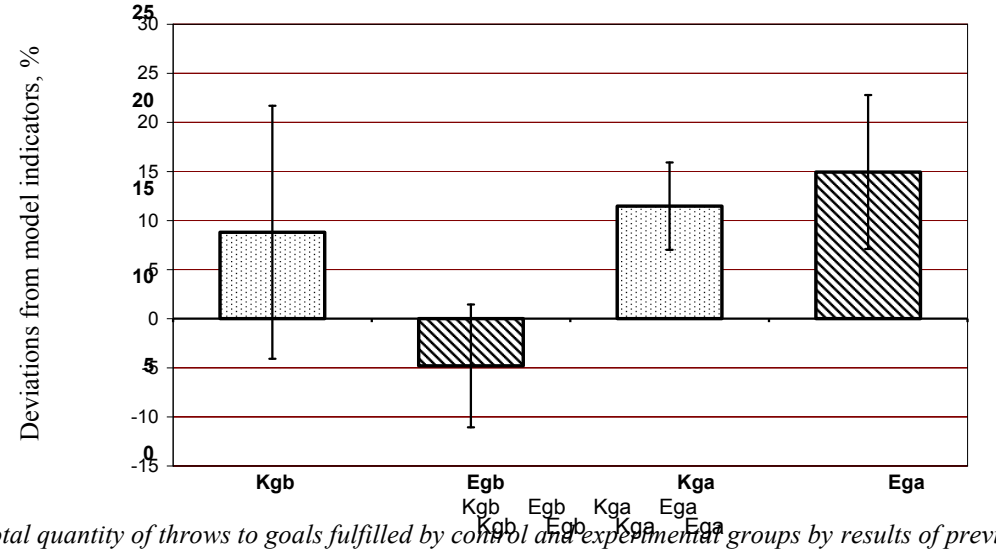

Fig.4. Total quantity of throws to goals fulfilled by control and experimental groups by results of previous (2012-2013) season and seasonu 2013-2014, in percents from model indicators – * - differences are statistically confident, p<0.05; Kgb – control group before experiment; Kga – control group after experiment; Egb – experimental group before experiment; Ega – experimental group after experiment.

In fig. 5 we present summarizing indicator of model deviation, which characterized in general effectiveness of hockey players' competition functioning. For example, in fig. 5 we can see that summarizing indicator of model deviation in experimental group was confidently ($p<0.05$) higher than in control group.

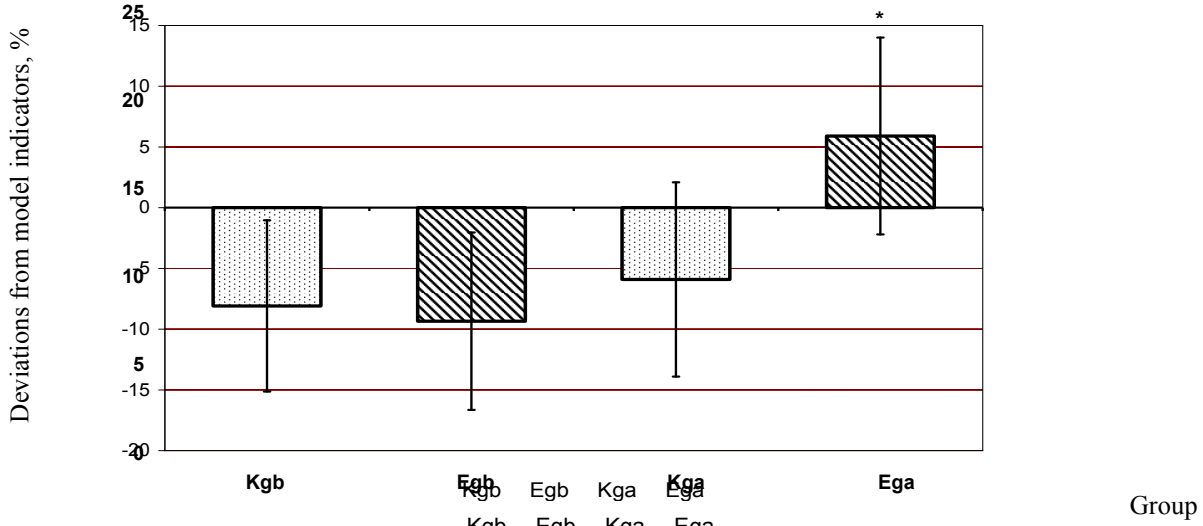

Fig.5. Summarizing indicator of model deviation in control and experimental groups by results of previous (2012-2013) season and seasonu 2013-2014, in percents from model indicators – * - differences are statistically confident, $p<0.05$; Kgb – control group before experiment; Kga – control group after experiment; Egb – experimental group before experiment; Ega – experimental group after experiment.

Having negative balance of percent deviation from model indicators before application of program (- 9.35 %), sportsmen of experimental group in after-experiment season exceeded mean level for highly qualified sportsmen by 5.9 %.

Conclusions:

1. Analysis of highly qualified hockey players' competition functioning permitted to determine positive influence of increased self-estimation of highly qualified hockey players on effectiveness of their competition functioning in match.
2. Analysis of hockey players' performances in two seasons of Continental hockey league, one of which preceded experiment and the other followed after it, we determined that sportsmen had confidently higher level of technical tactic actions' realization than sportsmen of control group.
3. Quantity of thrown pucks increased by 8.96 % in experimental group, efficient passes – by 28.88 %, gained scores – by 40.73 %, throws in goals of adversary – by 19.75 %, realization of throws in goal – by – 19.29 %.

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COPING STRATEGIES AND PSYCHOLOGICAL READINESS OF STUDENTS FOR PROFESSIONAL WORK

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Annotation. *Purpose:* to find out the current trends regarding the use of students coping strategies. Objectives of the study were to identify the coping strategies that are used by students in the cognitive, emotional and behavioral areas, as well as the identification of adaptive, non-adaptive and adaptive choices regarding their coping behavior. *Material:* the study involved 600 students (300 – boys, 300 – girls). Age of study participants was 17 – 19 years. *Results:* the level of students using a number of cognitive, emotional and behavioral strategies has been identified according to the method of E.Heim. The tendencies for the use of students of adaptive, maladaptive and adaptive coping relatively fundamental idea lies behind. *Conclusions:* the most common coping strategy for students in the cognitive sphere is "self-preservation" in the emotional sphere is "optimism" in the behavioral field is "a distraction." The use of adaptive strategies of students quantify exceedes the use of maladaptive and relatively adaptive (except for behavioral adaptive strategies of boys and girls).
Key words: coping strategies, adaptive, non-adaptive, adaptive with respect, students.

Introduction

High requirements to professional level of modern specialists, complexity of his training and high cost of it; in number of cases extreme character of working conditions, require appropriate psychological and psycho-physical fitness. In its structure the so-called “coping-strategies” take important place. It is connected with the fact that efficiency of professional functioning in difficult (and more over in extreme) conditions to large extent depend on formation of specialists’ strategies of coping-behavior. Coping strategies are especially important for specialists, who, in their professional functioning, endure stresses or increased emotional loads.

In psychology coping strategy is understood as rational, reasonable, adaptive behavior, oriented on removal or psychological overcoming of critical situation. It is considered that copying depends on human personality, actual situation, conditions of social support. It manifests in behavior, in emotional and cognitive spheres of personality. It is noted that psychological significance of coping implies effective adaptation of a person to situational requirements, permitting to cope with situation, to avoid it or to adapt to it and, thus, to damp its negative, stress influence.

Such academic discipline as physical education can also make a contribution into students’ training for effective coping-behavior. One of tasks, which, in the author’s opinion, can be effectively solved within the frames of psychological and psycho-physical training at physical culture lessons 8, 9], is preparation of students for effective usage of coping strategies in future professional activity. Significance of this task is also witnessed by the fact that psychologists (for example D.O. Leontyev) include coping strategies in structure of personality’s potentials. The latter is regarded as integral systemic characteristic of personality’s individual-psychological features, which permit for personality to base on steady inner criteria and bench-marks in his (her) life activity and to preserve stability of orientations and effective functioning in conditions of pressure and variable environment [7]. In our opinion this component is rather important exactly for professional functioning and, that is why, shall purposefully be formed in higher educational establishments.

When planning formation of students’ skills to effective usage of coping strategies it is necessary to clear understand existing trends, connected with these components of psychological readiness for future professional activity. Solution of this task will permit to work out criteria and requirements to students in process of their psychological and psycho-physical training, to work out effective methodic of psychological fitness’s formation in process of physical education.

At present, problems of coping behavior of people are researched in the base of material of different kinds of activity as well as on the base of material of different age and social strata’s representatives. We can note the works of L.A. Alexandrova [1], K.I.Kornieva [5], A.I. Prikhidko [10], Ye. I. Rasskazova and T.O. Gordyeyeva [11], O.I.Sklen [12], S.A. Khazova [14], I.V. Shagarova [15], G.Bouchard [17], B.Compas [19], R.Lasarus [21]. Such works as [3, 4, 6, 13, 16, 18, 20] as well as many other are also of significant interest. There were studied such questions as: mechanism of coping-strategy’s influence, its interconnection with human personality’s resources and other psychological characteristic, age and sex distinctions and etc. It was determined that for coping with stress a person uses own coping strategies. Their choice depends on personal experience and psychological reserves.

In physical education there also exists interest to studying of students’ psychological components. In this context the work by S.I. Bielov [2] shall be mentioned.

In psychology basic coping-strategies are considered to be: strategy of “solution of problem”, strategy of “seeking of social support” and strategy of “avoiding”. The first is classified as active behavioral structure, in using of which a person apply own resources for seeking of possible solutions of a problem. The second is also regarded as active behavioral strategy: person appeal to surrounding people for assistance (family, friends and so on). The third strategy is considered also to be a behavioral strategy, with using of which person tries to avoid contact with

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surrounding people, wants to "press out" solution of problem. It is considered that situational application of all three strategies is the most effective.

Methodic of coping strategy's studying was developed by E.Heim. He marked out cognitive, emotional and behavioral coping strategies. These strategies were, in their turn, divided in three groups: adaptive variants of coping behavior; not adaptive and relatively adaptive variants of coping behavior. In our opinion it is purposeful to use methodic of E.Heim for studying of students' coping strategies. It permits to analyze 26 situational-specific variants of coping. With it diagnostic procedure does not take much time. Processing of received data is also rather simple.

The research has been fulfilled in compliance with topical plans of scientific-research works of physical education department of Rail way transport Dniepropietrovsk national university, named after V. A. Lazariev and is a part of topic "Theoretical-methodological and pedagogic principles of psychological and psycho-physical training of students in process of physical education" (state registration number 0113U006237).

Purpose, tasks of the work, material and methods

The purpose of the work is to determine existing trends, related to usage of coping strategies in students' life activity.

The tasks of the research:

1. To determine coping strategies, applied by students in cognitive, emotional and behavioral spheres.
2. To find out adaptive, not adaptive and relatively adaptive coping strategies, used by students.

Material of the research: in the research 600 students of Dniepropietrovsk national university of railway transport, named after V.A. Lazariev, participated. 300 were boys and 300 were girls. Age of participants was 17-19 years.

The methods of the research:

Diagnostic of coping strategies, used by students in their life activity was carried out by methodic of E.Heim, adapted by L.I. Vasserman.

From statistical methods we used grouping and graph plotting of experimental data.

Results of the research

Cognitive coping strategies, used by boys, are presented in table 1.

Table 1.

Cognitive coping strategies, used by boys, (*N=300)*

Cognitive coping strategies	Quantity	%
Ignoring	8	3
Humility	4	1.5
Dissimulation	31	10
Self-control	78	26
Analysis of problem	55	18
Relativity	31	10
Religiousness	5	2
Confusion	4	1.5
Seeking of sense	61	20
Determination of own value	23	8

As we can see in the table such strategy as "ignoring" is used by 8 students, 3 %. "Humility" as strategy of cognitive copying was characteristic for 4 students (1.5 %). Strategy of "dissimulation" was applied by 31 students (10 %). "Self control" was practiced by 78 students - 26 %. "Analysis of problem" was cognitive strategy for 55 students (18 %). "Relativity" was used in life activity by 31 students (10 %). "Religiousness" as strategy was intrinsic to 5 students - 2 %. «Seeking of sense" as strategy was used by 61 students (20 %). Strategy "determination of own value" was characteristic for 23 students (8 %). "Confusion" as a strategy was declared by 4 students (1.5 %).

Emotional coping strategies of boys are given in table 2.

Table 2.

Emotional coping strategies of boys (*N=300)*

Emotional coping strategies	Quantity	%
Protest	16	5.33
Emotional release	0	0
Suppression of emotions	43	14.33
Optimism	210	70
Passive cooperation	4	1.33
Obedience	0	0
Self-accusation	27	9
Aggressiveness	0	0

In the table we can see that "protest" as strategy is used by 16 students (5.33 %). Strategy of "suppression of emotions" was used by 43 students (14.33 %). The most wide spread strategy of emotional copying was "optimism" it

was mentioned by 210 students, i.e. 70 %. Strategy "passive cooperation" was called by 4 students (1.33 %). "Self-accusation" was intrinsic to 27 students (9 %). We did not registered application by students of such strategies as "obedience", "aggressiveness" and "emotional release".

The boys' behavioral coping strategies are given in table 3.

Table 3.

Boys' behavioral coping strategies (N=300)

Behavioral coping strategies	Quantity	%
Distraction	97	32.33
Altruism	12	4
Active avoiding	27	9
Compensation	12	4
Constructive activity	16	5.33
Retarding	27	9
Cooperation	74	24.66
Appealing	35	11.66

Strategy of "distraction" was used by 97 students- 32.33 %. "Altruism" as a strategy was declared by 12 students (4 %). "Active avoiding" is used by 27 students (9 %). "Compensation" was characteristic for 12 students (4 %)."Constructive activity" as own strategy was applied by 16 students that was 5.33 %. "Retarding" as strategy was used by 27 students (9 %). Strategy "cooperation" was used by 74 students (24,66 %). "Appealing" as strategy turned out to be characteristic for 35 students – 11.66 %.

Cognitive coping strategies, used by girls are given in table 4. "Ignoring" was characteristic for 4 girl students (1.33 %). "Dissimulation" as cognitive coping strategy was practiced by 52 girls (17.33 %). Such strategy as self-control" was applied by 66 girl students, or 22 %. "Analysis of problem" was characteristic for 30 girl students (10 %). Strategy "relativity" was registered in 39 girl students (13 %). "Religiousness" was intrinsic to 13 girls (4.33 %). Strategy "confusion" was noted by 9 girls ((3 %). " Seeking of sense " as strategy was diagnosed at 44 girl students (14.66 %). "Determination of own value " as strategy was determined in 43 girls (14.33 %). Such strategy as "humility" was not registered among girls.

Table 4.

Cognitive coping strategies, used by girls (N=3000)

Cognitive coping strategies	Quantity	%
Ignoring	4	1.33
Humility	0	0
Dissimulation	52	17.33
Self-control	66	22
Analysis of problem	30	10
Relativity	39	13
Religiousness	13	4.33
Confusion	9	3
Seeking of sense	44	14.66
Determination of own value	43	14.33

Emotional coping strategies of girl students are presented in table 5. Such strategy as «protest" was diagnosed at 13 girl students (4.33 %). "Emotional release" as strategy was used by 9 girls (3 %). Strategy "suppression of emotions" was characteristic for 61 girl students, i.e. 20.33%. Like in sample of boys the most widespread emotional coping strategy of girls was "optimism". It was diagnosed at 174 girl students that was 58 %. "Passive cooperation" as own strategy was called by 13 girl students (4.33 %). "Self-accusation" was mentioned by 4 girls (1.33 %). Such strategy as "aggressiveness" was found at 13 girl students that was 4.33 %.

Table 5.

Emotional coping strategies of girls (*N=300)*

Emotional coping strategies	Quantity	%
Protest	13	4.33
Emotional release	9	3
Suppression of emotions	61	20.33
Optimism	174	58
Passive cooperation	13	4.33
Obedience	13	4.33
Self-accusation	4	1.33
Aggressiveness	13	4.33

The girls' behavioral coping strategies are given in table 6.

Table 6.

Girls' behavioral coping strategies (N=300)

Behavioral coping strategies	Кількість	%
Distraction	87	29
Altruism	30	10
Active avoiding	65	21.66
Compensation	13	4.33
Constructive activity	22	7.33
Retarding	48	16
Cooperation	26	8.66
Appealing	9	3

Strategy "distraction" was registered at 87 girl students that made 29 %. "Altruism" as strategy was registered at 30 girl students (10 %). Strategy "active avoiding" was practiced by 65 girls (21.66 %). Strategy "compensation" was used by 13 girls (4.33 %). "Constructive activity" was characteristic for 22 girl students (7.33 %). Application of strategy "retarding" was declared by 48 girl students (16 %). "Cooperation" as own strategy was called by 26 girl students (8.66 %). Strategy "appeal" was registered at 9 girl students (3 %).

E.Heim included in adapting cognitive coping strategies the following: "analysis of problem", "determination of own value" and "self control". They are forms of behavior, oriented on analysis of difficulties and possible ways out of them; increasing of self evaluation and self control; more profound understanding of own personality as a value; belief in own resources in overcoming of difficult situations. In adapting emotional copying strategies he relates: "protest", "optimism". These strategies are characterized by emotional state with active indignation and protest towards difficulties and by belief in way out from any, even the most difficult, situation. Behavioral adapting copying strategies include: "cooperation", "appeal", "altruism". They are strategies, which imply personality's cooperation with more significant (more experienced) people, seeking of support in close social environment or offering it to close people for overcoming of difficulties.

Not adapting cognitive strategies include: "humility", "dissimulation", "confusion" and "ignoring". They are passive forms of behavior, characterized by refuse to overcome difficulties, caused by absence of belief in own forces and intellectual resources, by conscious underestimation of troubles. Not adapting emotional copying strategies include: "suppressing of emotions", "obedience", "self- accusation", "aggressiveness". These variants of behavior are characterized by suppressed, hopeless emotional state, obedience, feeling of anger and accusation of oneself and other. Not adapting behavioral strategies are: "active avoiding", "retarding". For such variants of behavior it is characteristic to avoid thoughts about troubles, passivity, loneliness, calmness, isolation, wish to avoid active contacts, refusal to solve problems.

Relatively adapting cognitive coping strategies, in opinion of E.Heim, are: "relativity", "seeking of sense", and "religiousness". With such forms of behavior activity of personality is oriented on evaluation of difficulties in comparison with other people, on giving special sense to their overcoming, on belief in God and stability of belief when meeting problems. Relatively adapting emotional strategies are: "emotional release" and "passive cooperation". They are characterized by behavior, oriented either on release of tension, which are connected with problems or on transferring of responsibility for solution of problems to other people. Concerning adapting behavior strategies, they include: "compensation", "distraction", "constructive activity". When using such strategies, person's behavior is characterized by strive for temporary distraction from problem's solution with the help of alcohol, medicine, penetration in favorite business, travels, fulfillment of own cherished wishes.

Processing of data, obtained in our research by method of Heim, showed the following. In sample of boys it was found that usage of cognitive adapting strategies is characteristic for 52 % of students. Cognitive not adapting strategies were registered at 16 % of students. Application of cognitive relatively adapting strategies is characteristic for 32 % of students.

Emotional adapting coping strategies are characteristic for behavior of 75.33 % of students. Using of emotional not adapting strategies is intrinsic to 23.33 % of students. Application of emotional, relatively adapting strategies was diagnosed in 1.33 % of students.

Application of behavioral adapting coping strategies was determined at 40.32 % of students. Behavioral not adapting strategies were intrinsic to 18 % of students. Using of relatively adapting behavioral strategies was diagnosed at 41.66 % of students. The mentioned data are given in table 7.

Table 7.

Adapting, not adapting and relatively adapting coping strategies of boys (%)N=300

Variants of coping behavior	Cognitive coping strategies	Emotional coping strategies	Behavioral coping strategies
Adapting	52 %	75.33 %	40.32 %
Not adapting	16 %	23.33 %	18 %
Relatively adapting	32 %	1.33 %	41.66 %

In girls' sample we found that application of cognitive adapting coping strategies was characteristic for 46.33 % of girls. Cognitive not adapting strategies are used by 21.66 % of girls. Usage of cognitive, relatively adapting strategies was intrinsic to 31.99 % of girl students.

62.33% of girls use emotional adapting strategies. Emotional not adapting strategies are characteristic for 30.32 % of girl students. Emotional, relatively adapting strategies were declared by 7.33 % of girl students.

21.66% of girls use behavioral adapting coping strategies. Not adapting behavioral strategies are used by 37.66 % of girls. студенток. Behavioral, relatively adapting strategies were used by 40.66 % of girl students. These data are given in table 8.

Table 8.

Adapting, not adapting and relatively adapting coping strategies of girls (%,) N=300

Variants of coping behavior	Cognitive coping strategies	Emotional coping strategies	Behavioral coping strategies
Adapting	46.33 %	62.33 %	21.66 %
Not adapting	21.66 %	30.32 %	37.66 %
Relatively adapting	31.99 %	7.33 %	40.66 %

Analyzing the received data we can note the following. In cognitive sphere the most widespread coping strategy is "self control". It was 26% for boys and 22% for girls. In emotional sphere the most widespread strategy was "optimism" – 70% for boys and 58% for girls. In behavioral sphere we registered "distraction" as the most often used.32.33% of boys use this strategy and 29% of girls.

There is certain prevalence in students' using of adaptive strategies in comparison with not adaptive and relatively adaptive. With it, it concerns both cognitive and emotional strategies as well as behavioral ones (excluding girls' and boys behavioral strategies).

Among adapting coping strategies students' using of adaptive emotional strategies in comparison with adapting cognitive and behavioral ones is much oftener. For girls it is at level of 62.33 %, for boys – 75.33 %. For comparison: adapting cognitive strategies were at level of 46.33 % for girls and 52 % for boys. Adapting behavioral strategies were registered at levels of 21.66 % for girls and 40.32 % for boys. In our opinion, for explanation of this fact it is necessary to fulfill special psychological researches.

It should also be noted that among not adapting coping strategies the least are used: cognitive not adapting strategies of girls (21.66 %), cognitive not adapting strategies of boys (16 %), behavioral not adapting strategies of boys 18 %). It is interesting that these figures are rather big and require appropriate pedagogic work. Usage of the following not adapting strategies is also significant: emotional not adapting strategies of girls (30.32 %), behavioral not adapting strategies of girls (37.66 %), emotional not adapting strategies of boys (23.33 %). In this case pedagogic work is also demanded.

Among relatively adapting coping strategies the most seldom are used the following strategies: emotional relatively adapting strategies (7.33 % - girls) and the same by boys - (1.33 %). At the same time rather significant is usage of the following relatively adapting strategies: cognitive (31.99% - girls), behavioral (40.66 %- girls), behavioral, relatively adapting strategies 41.66% - boys.

In our opinion pedagogic work, orienting students on effective usage of coping strategies, shall be conducted in process of physical education, is in its structure psychological and psycho-physical training are realized [8]. With it the main task will be, on the one hand formation of students' knowledge about usage of coping strategies and, on the other hand, formation of professionally important structural components of personality.

Conclusions:

1. The most widespread coping strategies of students are: a) in cognitive sphere – "self control"; b) in emotional sphere – "optimism"; c) in behavioral sphere – "distraction".
2. In comparison with not adapting and relatively adapting strategies students use much oftener adapting strategies (except behavioral adapting strategies both among girls and boys).
3. Among adapting coping strategies the most wide spread are adapting emotional strategies (for girls and boys).
4. Among not adapting copying strategies the most widespread is using of the following: emotional and behavioral not adapting strategies of girls and emotional not adapting strategies of boys.
5. Among relatively adapting coping strategies the most widespread are: cognitive and behavioral relatively adapting strategies of girls, cognitive, relatively adapting strategies of boys.

6. Students require special training in sphere of coping.

Further researches will be oriented on analysis of physical education's opportunities for formation of students' skills to effectively use coping strategies.

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EDUCATIONAL COMPETENCES AND EMOTIONAL INTELLIGENCE LEVEL OF TEACHERS

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Annotation. *Purpose*: Determination of the relationship between the level of emotional intelligence and educational competences of teachers. *Material and methods:* The study was conducted among 120 primary school teachers. Assessment of the competence of teachers were analysed by means of a questionnaire constructed by the author of the elaboration, and the study of emotional predispositions used Two-dimensional Emotional Intelligence Inventory DINEMO. *Results:* It was found that teachers have a much lower level of educational competences in comparison to the substantive and methodical competences. Sphere of educational competences is the area in the work of teachers, which causes the most problems, and to which they feel the least prepared. The results of research on emotional intelligence showed variation in the levels of teachers predispositions Most of them - 54% is characterized by the average level of the selected features, 30% achieved high results, and 16% have low level of understanding and recognition of emotions. *Conclusions:* It was found that there is a correlation between the level of emotional intelligence and ability to cope in the educational situations. Understanding one's own and other people's emotions favors achieving high educational competences.
Keywords: teachers, educational competences, professional skills, emotional intelligence.

Introduction

The issue of pedagogical competences of teachers is a lively discussed matter in pedagogical environments, both in academic and legislative circles, as well as by teachers themselves, who perform in this difficult profession on everyday basis.

There are numerous sources and analysis which are concerned with teaching competences, in which authors conduct meticulous classifications and analysis, showing the aspects which are most important in their interpretation [1, 2].

The competences which are required from teachers are very complex and refer to many aspects of his or her personality and skills. Moreover, they have to be continuously improved and developed due to rapid cultural transformations, and changing social expectations and needs [3]. Teachers have to be thoroughly prepared during studies to be able to meet the demands and goals set for them. Unfortunately, contemporary universities which educate teachers can be accused by many errors. In pedagogical universities, more attention is paid to conveying substantive and methodical knowledge, whereas educational skills – which are necessary for effective cooperation with students - are neglected [4].

Consequently, lack of these competences causes educational difficulties, which make teachers feel helpless, or taking incorrect actions. The effect of such actions is creation of incorrect or sometimes even disastrous relations, which are unfavourable both for pupil and the teacher [5].

Furthermore, teachers who are unable cope in difficult school situations are vulnerable for high levels of stress, which has a direct impact on health, psychosocial functionality and early symptoms of professional burnout [6].

The profession of teacher without a doubt requires specific personal predispositions, which make these profession easier, but also specific social skills, which should be practiced during the course of studies. According to Tucholska [7] personal traits and social skills of teachers determine in particular way the proper fit to profession, and additionally protect from the job burnout. On the other hand, their lack increases a risk of exhaustion, disappointment, discouragement, or excessive professional distance.

Among teaching competences, social and educational skills deserve to be looked at greater detail, as they are necessary for the effective functioning in relations with pupils. The ability to cope with one's and other's emotions is an important factor which influences these competences [8, 9]. This ability is called emotional intelligence, which can be defined as set of dispositions which allows monitoring feelings and emotions and using the information conveyed by them for influencing one's own or other's behaviour [10].

According to Salovey, Mayer and Caruso, emotional intelligence is a four-part construct. First part is perception and expression of emotions – the ability to perceive and recognise one's own and other's emotions. Second part is the ability to assimilate emotions for improving cognitive processes. Part three – understanding emotions – covers the knowledge concerning experiences connected with emotional sphere. The fourth part – managing emotions – is concerned with the ability to consciously regulate emotions and moods of one self and other persons [11].

Emotional intelligence largely depends on genetic factors but is also formed in the course of so called social training, or in other words developing during everyday interpersonal relations, and moreover, it can and should be improved by stimulations relating to social behaviours of any kind [12].

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Purpose, tasks of the work, material and methods

The aim of the study was finding out teachers evaluation of their competences, with particular focus on sphere of educational skills, evaluating levels of their emotional intelligence and concluding whether there is correlation between emotional predispositions and coping in educational situations.

Material and method

The study was conducted among 120 teachers of elementary schools. Research group consisted of woman only, due to small percentage of men in these establishments.

The method of diagnostic poll was used. The evaluation of teachers' competences was analysed with the use of questionnaire constructed by the author of the study, while Two Dimensional Inventory of Emotional Intelligence DINEMO was used for determining emotional predispositions [13].

Results of the research

The evaluation of teachers on their competence

In determining the level of competence of teachers the focus was set on their subjective feelings and evaluation of professional skills in three areas: substantive, methodological and educational, using the classification of W. Strykowski [3]. According to this concept, substantive competencies are related to contents of taught course, methodological are focused on the teacher's workshop, especially his teaching skills, educational relate to the relationship and influence on the student.

When assessing substantive competences, the majority of teachers (88%) said that they felt competent in high degree, whereas 1/10 subjects has a sense of competence at the medium level. None of the teachers rated their merit as low, which indicates good preparation tangible in terms of the subject taught.

Methodological competence assessment looks a bit different. 76% of the teachers feel highly competent in this respect, and the 1/4 rate their level of competence as average. None of the teachers interviewed rated their methodological competence as low. Given the professional seniority variables it can be seen that the teachers with the shortest period of employment feel the least competent methodically.

Teachers assess their educational competences very differently . Most people (60%) feel this range of pedagogical activities moderately competent, one in five teachers (22%) found in each other a low level of educational competence, and it is by far the least numerous group of teachers who feel high competence in interpersonal relationships with students. Only 18% of respondents identified as highly competent in educational aspect. The highest scores were expressed by teachers with of seniority of 9 - 16 years. Teachers who have lesser seniority feel much less confident; albeit, some of the more experienced teachers expressed their lower level of educational competences.

Another examined issue was the opinion of teachers regarding the suitability of didactic classes during university studies in the formation of three types of competence. Teachers estimated that study courses prepared them best in terms of content, a little worse in terms of methodology, and the least in terms of educational relations.

Specific deficiencies regarding the broad practice of teaching were expressed by teachers, both held in the schools, but also concerning the number of practical courses at the university, which are implemented in negligible rate compared to the number of hours devoted to theoretical subjects. Teachers lacked workshop forms of activity, during which they could develop the ability to deal with conflict situations and various other difficulties arising in relations with students, as well as prepare for work in the role of the class teacher. Another complaint relating to the area of education while studying theoretical content is the mismatch between the actual needs of the future teacher. Critical remarks on teachers refer to both the content and forms of education during their studies and related mainly to activities in the field of educational activities and social skills.

Educational sphere of competence is the area in work of teachers, which causes the most problems, and to which they feel the least prepared. Similar results were also obtained in the previously conducted studies [14], which means that this problem is still valid, important and not resolved.

Educational competences and the level of emotional intelligence of teachers

During the study of the emotional predispositions teachers the test focused on the measurement of the fundamental components of emotional intelligence, such as the ability to access their own and others' emotions and to respect and understand their functions. These skills are assessed on the basis of how a person interprets the different situations studied emotive and how willing one is to respond. DINEMO Inventory used in the study consists of 33 items, including descriptions of the various situations which are the source of emotions. For each situation, there are four different ways of reacting. The subject each time chooses this reaction, which is the most typical for him or her. Inventory allows the interpretation of the results for the two factor scales and obtaining a general result. The scales included in the DINEMO, is "OTHERS" - measures the ability to recognize, understand and respect other people's emotions, and "I", which measures the ability to become aware of, understand, respect and express their own emotional states.

The raw results were turned into standard tens using standard ten norms for women [13]. Used the following interpretation: the results of low adopted results in the range of 1 to 3 sten, the results of average (standard) from 4 to 7 sten, the results in the range of 8 to 10 sten were considered as high scores.

Using the interpretation described above, the level of emotional intelligence of teachers surveyed was determined. Most of them (more than half) is characterized by the average level of the selected features, about 1/3 scored high results, and 1/5 of them showed low level of understanding of their own and others' emotions, which is

indicated by the overall result. With regard to the scales I and OTHERS obtained results are similar. Teachers at a similar level to understand their emotions and the emotions of others (table 1).

Table 1.

The level of emotional intelligence of teachers surveyed

Level of EI / Scale DINEMO	HIGH		AVERAGE		LOW	
	n	%	n	%	n	%
„I”	37	31	70	58	13	11
„OTHERS”	35	29	60	50	25	21
General Result	36	30	65	54	19	16

The results obtained by the teachers in the sphere of emotional intelligence were compared with their stated levels of educational competences (table 2). It turns out that the persons who evaluated themselves as highly competent educational and also characterized by a high level of emotional intelligence. The average level of emotional intelligence was characterized mainly teachers who have identified educational level of their competence as average. Teachers Low evaluating their parenting skills also presented a low level of emotional predispositions.

Table 2.

Educational level of competence and emotional intelligence

Educational level of competence / Level of EI (general result)		HIGH n = 22	AVERAGE n = 72	LOW n = 26
HIGH	n = 36	20	14	2
AVERAGE	n = 65	2	56	7
LOW	n = 19	-	2	17

Conclusions

The research found that teachers have a much lower level of educational competence compared with the substantive and methodological competences. This were their subjective assessments, but personal feelings of managing (or not) in professional situations are equally valuable, and their weight is similar to the objective results.

The results of research on emotional intelligence showed differences in the levels of these predispositions. At the same time it was noted that a high level of educational competence goes hand in hand with high skill of understanding emotions. Furthermore, the lower the teachers rated their educational skills, the lower level of emotional intelligence they have presented.

As mentioned in the introduction, emotional intelligence can be shaped by various types of stimuli, focused on developing empathy and social behavior. This possibility is very valuable and should be used in teacher education as an important element to develop their interpersonal skills and educational competences.

In addition, understanding one's own emotions, the ability to express them, reign over them, and constructive emotional discharge is necessary to cope with stress [15]. Persons, who understand better the emotional states of their own, take more favorable measures that protect them from experiencing the negative consequences of stress, which is essential in the profession of teachers.

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FEATURES OF INFLUENCE OF DIFFERENT MODES OF TRAINING ON THE DYNAMICS OF POWER PERFORMANCE BODYBUILDERS ON STAGE-SPECIALIZED BASIC TRAINING

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Annotation. *Purpose*: study the effect of various features on the structure and orientation of exercise routines on the level of development of force capabilities bodybuilders on stage specialized basic training. *Material*: studies participated 60 athletes (age 18-19 years, the experience of training - 5 years). The study used a method of determining the index of the training load for the power sports. Level security features athletes determined by control testing. Control of the studied parameters was carried out for 4 months training at intervals of 1 month. *Results*: it was found that under conditions similar level of fitness athletes and structure your workout performance power load and the nature of their changes depend on the particular mode of training (in this study - from the application of the basic sequence variative and isolation exercises). *Conclusions*: the use of pilot training in integrated mode with alternating motor activity using the basic priority and isolation exercises for no more than 2 microcycles have the most significant positive impact on the increase in power performance parameters of athletes (on average by 26.5% $p < 0.05$)) .
Keywords: training, process, specialized, basic, training, fatigue, bodybuilding, strength, fitness.

Introduction

Despite a broad popularization of bodybuilding in the world, thousands of various training programs, the problem of training loads optimization is still a top priority in this kind of sport [6, 10]. The necessity of solving this problem, compels trainers, scientists, and also professional athletes to conduct constantly the search of absolutely new, the safest but also effective training techniques which will allow not only to achieve good results for a short period of time, but also to keep the reached fitness level during a long period of competitive activity [12, 13]. However, most experts in bodybuilding try to adhere to standard training techniques using standard schemes of principles, methods and means combination, motivating with that efficiency of their application is proved by many researchers [1, 3, 6, 15].

At the same time, in modern scientific literature [11, 12, 13] experimental techniques of training in bodybuilding are rather extensively presented. However, the analysis of a specialized literature [10, 14] testifies that in the theory and practice of strength sports the problem of a training process optimization on account of optimization of loads for athletes at the stage of a specialized basic training isn't rather deeply considered.

In this regard, there is a need of deeper studying of various training regimes peculiarities, and also efficiency of their influence on increase of athletes fitness level at this stage of training. Also, insufficiently examined is a problem of necessity and efficiency of experimental complex and specific training regimes usage during power training which differ on the structure and indicators of external load from universally recognized in bodybuilding.

Work is performed within the research work scope of the Olympic and professional sport department at the Petro Mohyla Black Sea State university "Variability of training work indicators in bodybuilding and their influence on dynamics of athletes' organism functional condition", number of the state registration 0109U004555.

Purpose, problems of work, material and methods.

The purpose of research is studying the influence of various training regimes on a level of bodybuilders' power potential development at the stage of a specialized basic training

Methods, organization of researches.

60 athletes aged 18-19 years (experience in bodybuilding - 5 years) took part in the survey. To achieve the goal this contingent was divided into three research groups:

– the first group of athletes (control) used the standard training regime during 4 months of training (primarily a series of general exercises, and then a series of isolating exercises were carried out on each "working" muscle group);

– the second group of athletes (first experimental) used the experimental combined training regime during 4 months of training. So, during every month of training in the period of first 2 micro cycles, primarily a series of general exercises, and then a series of isolating exercises were carried out on each "working" muscle group. Herewith, during next 2 weeks of every month of training, the priority of basic and isolating exercises use changed to the opposite side (the principle of "preliminary exhaustion" was used [1, 6]);

– the third group of athletes (second experimental) used non-standard training regime for the stage of a specialized basic training which is based on the principle of "preliminary exhaustion" (primarily a series of isolating exercises, and then a series of basic exercises were carried out on each "working" muscle group).

The parameters of maximum participants' power potential in test exercises were registered (a general exercise – "a bench press", an isolating exercise – "crossovers").

The research of training load indicators used by the representatives of all three groups during training, was conducted by the method of evaluation of a training load index size in strength sports [7]. The calculation of a load was made on such indicators: external resistance coefficient (Ra), relative weight burden (Wa), size of power load (Wn). The control of the studied indicators was made five times in one month interval during four months of trainings.

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The materials of researches were exposed to statistical processing with the use of software "SPSS Statistics". Methods of parametrical statistics defining indicators of an arithmetic average, a statistical uncertainty and confidence level were used

Results of the research.

Values of power load parameters which was used by participants during four months training while performing a series of general exercises ("a bench press") and isolating exercises ("crossovers") are presented in tab. 1.

Table 1

Value of participants' power load parameters in terms of the use of various basic and isolating exercises combination during 4 months training in bodybuilding, (M±m, n=60)

Indicators	Research groups	The stages of control			
		During one month of training	During two months of training	During three months of training	During four months of training
While performing a general exercises "a bench press" during one training					
Wa, kg	control	68,4±6,49	75,78±8,41*	79,84±7,88*	83,48±6,32*
	first experimental	73,04±6,58	79,82±9,43*	85,24±7,68*	89,83±6,43*
		65,73±7,44	*71,84±8,53**	*76,72±8,71**	*80,84±6,49**
	second experimental	67,35±6,91	69,88±8,33*	71,69±7,83*	73,44±6,78*
Wn, kg/min	control	1032,45±26,42	1143,84±27,12*	1205,13±25,82*	1260,00±26,39*
	first experimental	1102,49±29,43	1204,83±28,73*	1286,64±26,43*	1355,92±28,63*
		992,15±24,55	*1084,37±26,81**	*1158,00±28,95**	*1220,22±26,73**
	second experimental	1016,60±25,65	1054,79±26,99*	1082,11±27,44*	1108,52±26,43*
While performing an isolating exercises "crossovers" during one training					
Wa, kg	control	43,97±6,42*	47,04±7,71*	49,68±6,49*	51,52±8,72*
	first experimental	45,64±6,98	49,32±6,41*	52,48±7,89*	55,40±7,63*
		50,72±6,33	*54,80±7,48**	*58,33±6,67**	*61,56±6,09**
	second experimental	51,49±6,87	57,25±8,33*	62,69±6,88*	68,00±7,49*
Wn, kg/min	control	663,69±26,42	710,00±26,42*	749,88±26,42*	777,66±26,42*
	first experimental	688,90±24,83	744,45±26,48*	792,15±25,43*	836,22±26,53*
		765,58±23,73	*827,16±26,46**	*880,45±26,53**	*929,20±26,43**
	second experimental	777,20±25,77	864,15±27,56*	946,26±26,43*	1026,56±26,91*

*Note: 0,00 – parameters used during the first half of a month; 0,00 – parameters used during the second half of a month; *-p<0,05, по сравнению с предыдущими показателями.*

The analysis of primary results testifies an essential difference between values of relative weight burden (Wa) and size of power load (Wn) indicators while performing isolating exercises at the beginning of the experiment. However, the data concerning power load parameters being used while performing a general exercise, show almost identical results of all athletes that testifies about their identical fitness level and an organism power potential in general.

The change of parameters of relative weight burden (Wa) indicator, which displays the most appropriate apparatus weight for an organism functionality in specified characteristics of power load (training regime), show reliable positive dynamics among participants of all three groups during four months of the research. However, the level of change of a controlled load indicator shows a reliable dependence on a training regime peculiarities. So, the most essential increase of Wa indicator while performing a general exercise during the entire period of the research, is recorded at the representatives of first experimental group (+22,9%) who used an experimental combined training regime. At the same time, the minimum dynamics (+9,0%) of the studied indicator parameters is recorded at the representatives of second experimental group who used the training regime based on"preliminary exhaustion" .

At the same time, analyzing the results of dynamics of relative weight burden indicators while performing isolating exercise it was established that the level of their changes in research groups differs from those were recorded using general exercises. So, the most essential increase of controlled load indicators while performing isolating exercise during the entire period of the research is recorded at the representatives of second experimental group (+32,0%) who performed primarily isolating, and then general exercise on "working" muscular group. At the same time, the minimum dynamics (+17,2%) of the studied indicators parameters, is revealed at the representatives of control group who used

standard training regime during 4 months of training (performed primarily general exercise, and then isolating exercise on each "working" muscular group).

Thus, results of the research testify that the size of parameters of power load indicators and nature of their change, in terms of identity of athletes fitness level and training structure, depends on training regime peculiarities (in this research on variable sequence of basic and isolating exercises performance) at the stage of a specialized basic training.

Studying the character and extent of change of an organism power potential during four months of training, the results which depended on training regime peculiarities were received.

In fig. 1 quantitative indices of power potential of all 3 groups representatives while performing a general exercise "a bench press" during four months of training are graphically presented. It is determined that the most positive dynamics of the studied indicator (increase by 27,4% compared with basic data) is observed among representatives of the first experimental group. In turn, similar increase of level of an organism power potential, but with less expressed dynamics is observed among representatives of the control (+22,9% ($p<0,05$)) and the second experimental (+11,4% ($p<0,05$)) groups.

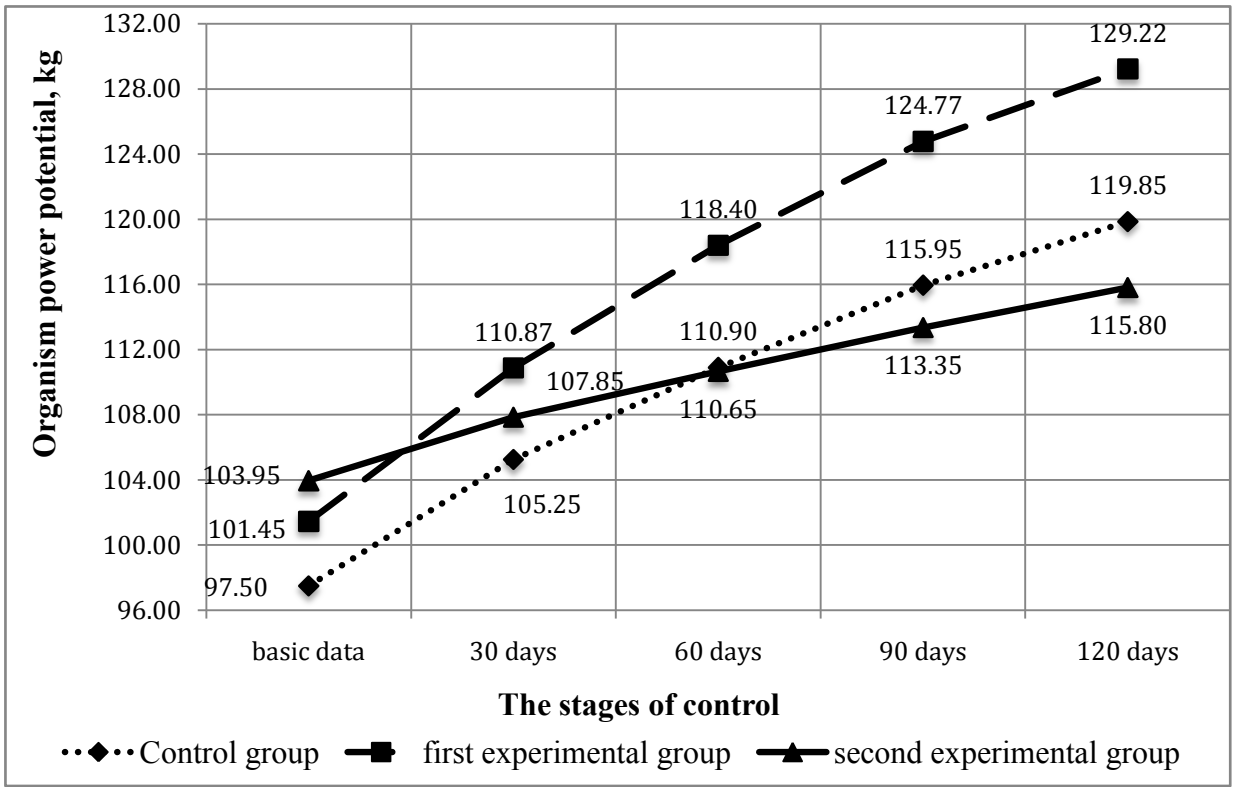

Fig. 1. The dynamics of athletes' power potential while performing a general exercise " a bench press " in terms of the use of various load regimes, n=60

Thus, the received results testify that the use of experimental complex training regime based on alternate use of basic and isolating exercises at the stage of a specialized basic training allows athletes to achieve more essential results in comparison with standard (the most often used and universally recognized) regime of physical activity in bodybuilding.

Studying the peculiarities of change of power potential parameters while performing an isolating exercise "crossovers" in terms of various training regimes during four months of training occupations the results which show positive dynamics of a controlled indicator among groups of athletes (fig. 2) were received.

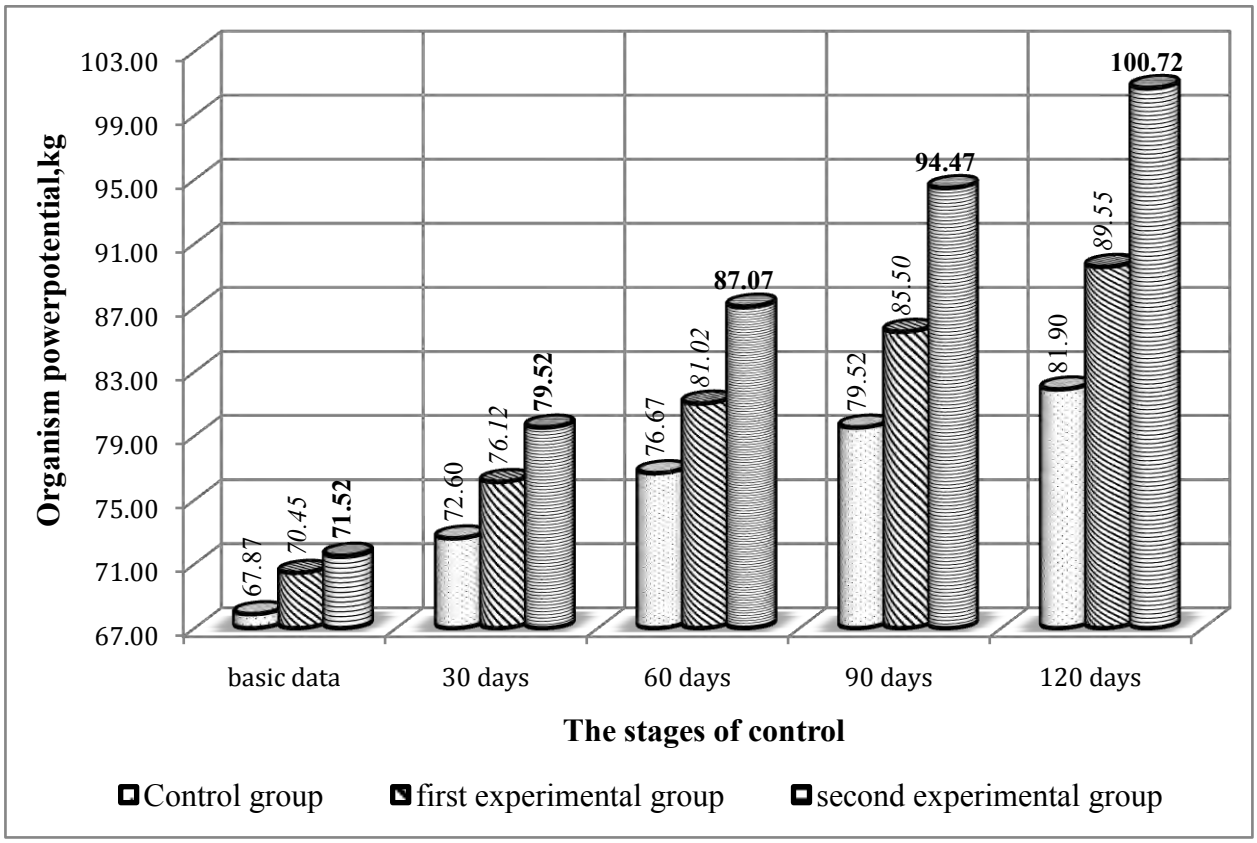

Fig. 2. Dynamics of athletes' power potential performing isolating exercise "crossovers" in in terms of various load regimes, n=60

According to the received results, at the beginning of researches the representatives of all 3 groups showed almost identical level of a controlled indicator. It was established that most essential increase of power potential performing isolating exercise for pectoral muscles (+40,8% in comparison with basic data) was recorded among representatives of the second experimental group. Thus, the lowest growth of a controlled indicator (+20,6% in comparison with basic data) was shown by representatives of control group. This circumstance testifies that priority use of "preliminary exhaustion" principle allows athletes to double the level of power potential of the working muscular groups performing isolating exercises in comparison with results which were received among representatives of other groups using other training regimes.

Conclusions:

1. It was determined that the size of parameters of power load indicators and nature of their change at the stage of a specialized basic training, in terms of identity of athletes fitness level and training structure, depends on training regime peculiarities (in this research on variable sequence of basic and isolating exercises performance*)*.

2. It was revealed that the use of an experimental complex regime of physical activity with alternate use of basic and isolating exercises throughout no more than 2 micro cycles, makes the most essential positive impact on increase of parameters of bodybuilders' power indicators at this stage of training.

Prospects of further researches. The lack of information in scientific and methodical literature concerning efficiency and expediency of use of various training regimes based on alternate use of basic and isolating exercises at the stage of a specialized basic training, doesn't allow to determine accurately the level of dynamics of athletes' muscle bulk growth in the conditions of burdening reduction in general exercises on account of preliminary training of working muscle group using isolating exercise. At the same time, considering that fact that the main task in bodybuilding at this stage of training is the "rough" growth of muscle bulk, and work with big weight burden only increases the risk of traumatism and developments of pathological processes in terms of muscle tension. Correspondingly, the search of more optimal methods which reduce the parameters of training load, but keep positive dynamics of results growth – is one of the task not only for trainers, but also researchers in this area. The solution of these problems will allow to substantiate the processes of planning and control, and the most important the management of a long-term training process in bodybuilding.

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DETERMINING THE LEVEL OF A HIGH SCHOOL STUDENT QUALITIES OF COORDINATION IN THE PROCESS BY BIATHLON TRAINING STABILOGRAPHY

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Annotation. *Purpose*: conduct biomechanical analysis of coordination qualities of girls in the course of employment biathlon. *Material*: ehe study involved a group of biathlon at the age of 15-16 years. Total surveyed 30 people. To measure the biomechanical parameters of stability of the body biathletes used system based on computer stabilography. *Results*: the method stabilographic control function of body balance allows to evaluate the static-dynamic stability of the body and the work of the vestibular system biathletes. Developed training programs with exercises for improving specific qualities and technical skill athletes. Presents the evaluation of the quality of coordination of the vertical position of the body when standing in a difficult position. *Conclusions*: in the training process newbies need to pay attention to the study of functional stability of the vestibular sensory system.
Keywords: biathlete, senior pupils, stabilography, biathlon, coordinating quality.

Introduction

Children's and youth's physical education takes very important place in society as one of branches of children's preparation for adult life. It should be oriented on improvement of their physical and mental health, perfection of their fitness for active life and creative professional functioning (G.M. Arziutov, Ye.S. Vilchkovskiy, V.M. Vovk, S.S. Yermakov, L.V. Volkov, A.N. Laputin, N.O. Nosko, L.P. Suschenko, V.M. Platonov, V.I. Plisko, O.V. Timoshenko, B.M. Shyan et al.).

Coordination of body's vertical position is an indicator of functional state of human organism and health [9; 10; 11].

Biathlon is a kind of sports, specific characteristic of which is complex correlation of two different kinds of sport – skiing and shooting – in one competition. In this connection there appears a question, which of these two kinds contributes greater in final sport-technical result in this kind of sports [2; 16; 19].

On the basis of his researches, A.M. Sergoyan thinks that for achievement of high results in biathlon effective shooting is of the first importance. N.I. Bezmelnitsyn also gives prevalence to shooting [1; 15].

Analysis of function of balance is traditional branch of scientific researches [13] in shooting sports (T. D. Poliakova, 1992).

For improving of health and increasing of organism's functional system of a child it is especially important to develop coordination [17].

Coordination is very important for training of sportsman. It is a significant condition of motion skills' formation as well as technical-tactic and physical training of a sportsman [12; 13; 14]. Studying of coordination is one of effective ways to perfection of sportsmanship in kinds of sports with complex coordination, to which biathlon belongs [2]. However, peculiarities of development of coordination of biathlon sportswomen have not been yet a subject of scientific research.

Coordination plays main role in shooting. Every shooter knows that weapon is constantly in motion. These motions determine stability, which can be divided in two parts. The first – are movements caused by not coordinated muscles and their tremor, the second part – movements, caused by heart beatings. If the first part is easy to be trained than the second is practically impossible to be trained. Rather often high class shooter and fresher have equal pulsation component. When analyzing trajectory of pointing oif high class shooter, it is easy to see these two components [4; 7; 8].

Shooting from standing position is more difficult than from lying. In mechanics such position of body is called instable as far as general center of mass of system shooter-weapon is much higher than area of support and area of support is much less than in lying position; it is restricted by feet and space between them [7; 8].

Analysis of recent researches showed that in biathlon studying of functional stability of vestibular sensor system was paid insufficient attention to. Though, it would be necessary for improvement of effectiveness of technical actions and at shooting range; for using of biathlon sportswomen's data for diagnosis. However, till now development of coordination of biathlon sportswomen with the help of bio-mechanical control means has been insufficiently worked out.

Purpose, tasks of the work, material and methods

The purpose of the research is to conduct bio-mechanical analysis of girls' coordination in process of their biathlon trainings in comparison with new-comers.

The tasks of the research:

1. To analyze elucidation of this problem in literature;
2. To determine coordination of biathlon sportswomen with methods of stabilography.

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The methods of the research: for testing of bio-mechanical parameters of body stability of biathlon sportswomen we applied complex "Stabilan-01 2" on the base of computer stabilography.

At present, for evaluation of body balance method of stabilography is widely used. Recent time this method, except analyzing of bio-mechanical principles of balance, has been using also for studying functional state of human organism, endurance to static loads, evaluation of coordination for future professions. With all complexity of electronic apparatuses a person is not loaded by sensors: he (she) has only to stand on platform of stabilography and fulfill appropriate test [5; 6; 18; 20].

The research was fulfilled at base of Chernigov national pedagogic university, named after T.G. Shevchenko, in bio-mechanical laboratory. Group of biathlon sportswomen of 15-16 years old age participated in the research. In total we tested 30 persons: 10 sportswomen of model group – masters of sports of Ukraine and candidate masters of sports and 20 persons of common group – biathlon sportswomen – newcomers.

Results of the research

Stabilography researches were conducted in order to study body balance in tests "Stance on right leg" and "Stance on left leg".

Tests' results permit to evaluate coordination of vertical body position with standing in difficult posture.

As a result we determined that in test "Stance on left leg" sportswomen showed the following difference: indicator of shifting in frontal plane (MOx) showed that common group was worse than model one by 61.13 % and in shifting in sagittal plane (MOy) - by 60.25 %; dispersion in sagittal plane (Qy) of CG was worse by 58.15 % than MG. Increasing of these indicators says about reducing of balance in certain plane. Indicator "Mean dispersion of GMC fluctuations (R) in CG was worse by 57.19% than in MG. This indicator determines average total dispersion of mass center fluctuations. Increase of this indicator witnesses about reduction of sportswomen's stability in both planes. Mean velocity of MC travelling (V) in CG is worse by 55.88% than in MG. This indicator determines mean amplitude value of MC travelling velocity during time of test. Higher velocity is an evidence of active keeping of vertical posture, connected with disordering of one or more functions of organism's systems (for example vestibular function). Low velocity witnesses about timely compensation of appearing deviations of body – normal operation of systems, keeping vertical posture. Indicator of velocity of changing of static kinesio gram' plane (SV) in CG was worse by 59.28% than in MG; area of ellipse (static kinesiogram) (EllS) in CG was worse by 57.62% than in MG; index of velocity (IV) in CG was worse by 55.96% than in MG; evaluation of motion (EM) in MG was by 37.41% better than in CG. Relatuion of length of static kinesio-gram to mean dispersion was related to time of testing. Its increasing says about worsening of balance and its reduction – about improvement of stability. Mean coefficient of curvature (Kriv) in CG was worse by 55.49% than in MG.

Mean value is reverse to radius at a moment in every point of curve of static kinesiogram. The more sharp turns are made by trajectory of center of movement (there are tremor like oscillations) the higher is this indicator. Indicator of trajectory's length of stabilography signal in frontal plane (LX) is in MG better by 59.48% than in CG; the same in sagittal plane (LY), is in CG worse by 58.37% than in MG; the length depending on plane (LFS) is in CG worse by 57.89% than in MG. This is a complex coefficient – length of way per unit of area, which was offered by French posturological school on the base of length of static kinesiogram and its area. The quality of balance function (KFR) in CG is worse 62.34% than in MG. Indicator KFR evaluates to what extent velocity of center of movement is minimal. The higher KFR is the better is the balance of biathlon sportswoman (see fig.1)

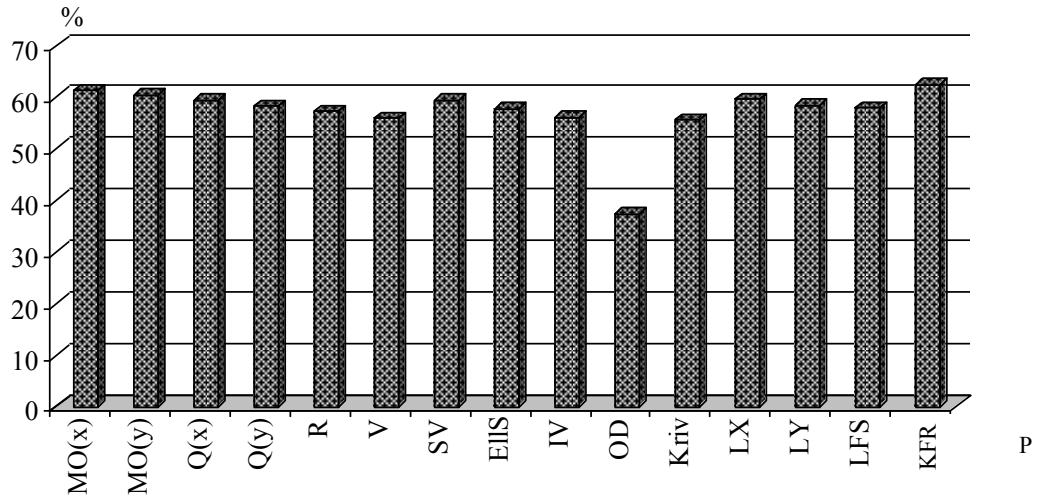

Fig.1. Difference between results (MG) and (CG) in test "Stance on left leg": P-indicators

As a result of the research, in test "Stance on right leg" we determined that biathlon sportswomen showed the following differences: indicator of shifting in frontal plane (MOx) was worse by 57.70% in CG than in MG, and in sagittal plane (MOy)- by 58.30%; dispersion by frontal plane (Qx) was in CG worse by 59.60 % than in MG and in saggittal plane (Qy) – by 59.75%. Increasing of indicators Qx and Qy shows reduction of stability of biathlon

sportswomen in certain plane. Indicator "Mean dispersion of GMC" (R) in CG is worse by 57.51% than in MG. This indicator determines mean total dispersion of center of movements' fluctuations. Increase of indicator R witnesses about reducing of stability of biathlon sportswomen in both planes. Mean velocity of MC travelling (V) in CG is worse by 57.92% than in MG. This indicator determines mean amplitude value of velocity of center of movements' travelling during the time of testing. High velocity says about active processes of keeping vertical posture, connected with disordering of function of one or several organism's system (for example vestibular function). Low velocity witnesses about timely compensation of appearing deviations of body – normal operation of systems, keeping vertical posture. Indicator of velocity of changing of static kinesio gram' plane (SV) in CG was worse by 55.63% than in MG; area of ellipse (static kinesiogram) (EllS) in CG was worse by 54.92% than in MG; index of velocity (IV) in CG was worse by 53.93% than in MG; evaluation of motion (EM) in MG was by 37.09% better than in CG. Relation of length of static kinesio-gram to mean dispersion was related to time of testing. Its increasing says about worsening of balance and its reduction – about improvement of stability. Mean coefficient of curvature (Kriv) in CG was worse by 56.16% than in MG. Mean value is reverse to radius at a moment in every point of curve of static kinesiogram. The more sharp turns are made by trajectory of center of movement (there are tremor like oscillations) the higher is this indicator. Indicator of trajectory's length of stabilography signal in frontal plane (LX) is in MG better by 57.09% than in CG; the same in sagittal plane (LY), is in CG worse by 54.06% than in MG; the length depending on plane (LFS) is in CG worse by 58.67% than in MG. This is a complex coefficient – length of way per unit of area, which was offered by French posturological school on the base of length of static kinesiogram and its area. The quality of balance function (KFR) in CG is worse 51.95% than in MG. Indicator KFR evaluates to what extent velocity of center of movement is minimal. The higher KFR is the better is the balance of biathlon sportswoman (see fig.2)

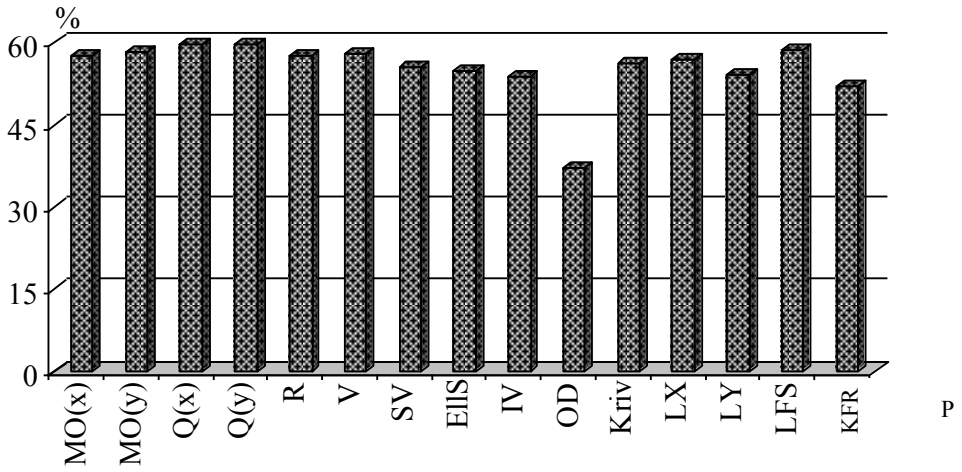

Fig.1. Difference between results (MG) and (CG) in test "Stance on right leg": P-indicators

Conclusions:

Analysis of literature sources showed that insufficient attention was paid to studying of coordination of biathlon sportswomen with the help of bio-mechanical control for improving of technical-tactic effectiveness at racing distance and on shooting range.

The method of stabilography control of body balance function permits to timely evaluate static-dynamic stability of body and functioning of vestibular system as well as to work out training programs with using of exercises for improvement of specific skills in general and sportsmanship in particular.

The prospects of further researches imply detail analysis of objects of research, videlicet training process of biathlon sportswomen in out-of school educational institutions.

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ORGANIZATIONAL STRUCTURE OF TECHNICAL AND TACTICAL TRAINING OF SKILLED GOALKEEPERS IN FOOTBALL

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Annotation. *Purpose:* to study the structure of technical and tactical training of skilled goalkeepers in football. *Material*: the study involved 40 goalkeepers in age from 21 to 39 years (team Premier League Championship of Ukraine). According to teacher's observations were under direct competition activity of skilled goalkeepers. *Results*: It is shown that the technical and tactical activities goalkeeper characterized by two phases of the game: action to protect and attack. In turn, they include eight typical situations. It was found that in accordance with these typical situations goalkeeper applying a technical and tactical actions. *Conclusions*: It is recommended to increase the efficiency of the game keeper in protective and offensive actions to use specific and non-specific exercises in a variety of standard situations arising during the match.
Key words: soccer, goalkeeper, technical, tactical, training, defense, attack.

Introduction

At present stage of football's development intensity of game is increasing and it requires from football players, including goalkeeper, first of all skill to quickly and effectively use tactic techniques in suddenly changing conditions in limit of time and space. Team, which strives for success, shall act promptly, i.e. it shall consist of players, who are technically skillful and combine technique with quickness of movements.

One of important components of football competition functioning is technical tactic functioning, which is understood as fulfillment of ball techniques, directed to solution of individual, group and team tactic tasks [3; 14; 15]..

Construction of training process for goalkeepers was always rather specific in football. Indeed goalkeepers have to use wide specific arsenal of technical-tactic actions, usage of which requires special fitness [2; 4; 12;13].

Though in practice goalkeepers' technical tactic and physical training is realized without creation special conditions for complex development of functions of motor and sensor systems [1; 8; 19].

Goalkeeper shall have special vision of field and this vision shall be trained with the help of special methodic of technical-tactic training, which is based on means, oriented on perfection of periphery eyesight and balance. Widening of vision sector permits for goalkeeper to better orient in game situation, especially when goal is attacked [1; 2; 5; 4; 8;11].

In the process of studying of goalkeeper's technical-tactic functioning great role is played by anticipation. Anticipation is an important factor in controlling of responses and sportsmen's actions. Skills, formed in process of training, are used by sportsman for solution of sport situations. For example, having seen the beginning of ball's flight, sportsman shall as quickly as possible determine trajectory of its movement and moment of its appearing in certain point of space. On the base of this information and experience (memory) sportsman forms plan (program) of future action. Presence of ready programs of movements in memory substantially increases quickness of sportsman's response. Completeness and accuracy of foreseeing increases, if sportsman knows objective regularities, which characterize moving objects, including supporting motor system of own body [7; 8; 11;18; 20].

Skillful perception and responsive action are rather important aspect of match functioning's effectiveness in international football. Concerning goalkeeper's functioning at moment of penalty it is purposeful ti use information about movements of legs of player, who fulfills penalty. Confrontation goalkeeper- attacker during penalty is to large extent built on weighting for previous actions of opponent and as a result on using own actions in response. That is why fro goalkeeper the process of studying of attacking player's peculiarities is very important factor of his own actions' effectiveness [18; 20].

Competition functioning, as complex manifestation of different sides of football players' fitness, to large extent reflect its problems [10; 15; 17]. In course of pedagogic observations over technical tactic actions of goalkeeper, there were registered the following actions: kicks in goal, interception of ball, taking ball away, taking ball by hands, taking ball by legs, kick from goal, penalty or free kick, ball's pass by leg from hands, ball's pass by kick from ground, ball's pass by hand. Analysis of goalkeepers' technical tactic actions shows that quantity and quality of technical-tactic actions, realized by goalkeeper in different match situations, is different [6; 16; 9] .

It was determined that most often goalkeepers make kick from goal, ball passes by kick from hand, interception of ball, taking of ball by hand. With it the greatest quantity of inaccurate actions is made when kicking from hands, kicking from ground, kicking from goal [9; 13; 14].

Thus, analysis of researches and publications witnesses that this problem has been sufficiently studied, though there is insufficiency of works, devoted to structure of technical tactic fitness of qualified goalkeepers.

The work has been fulfilled in compliance with topic of scientific research work of football department of Lviv state university of physical culture for 2011-2015 "Scientific-methodic principles of improvement of sportsman's training system in football, considering peculiarities of competition functioning".

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Purpose, tasks of the work, material and methods

The purpose of the work is to study structure of technical tactic fitness of qualified goalkeepers in football.

The tasks of the research:

- On the base of analysis of scientific-methodic literature to study modern ideas about structure of technical tactic fitness of qualified goalkeepers in football;
- To determine structure and content of technical tactic fitness of qualified goalkeepers in football.

The methods of the research:

We fulfilled theoretical analysis of scientific methodic literature, in the course of which we processed 20 literature sources, devoted to problems of different kinds of goalkeepers' training and general approaches in theory of sportsmen's training.

Pedagogic observations over technical-tactic fitness of qualified goalkeepers were fulfilled with the help of analysis of video records of 20 matches of Ukrainian prime league, in which 40 goalkeepers participated. Processing of video-information was fulfilled with the help of program Pinnacle Studio™Plus version 15.1. The received indicatorsa of competition functioning were inserted in special records.

The data, inserted in records, were generalized, processed with methods of mathematical statistic and were formed as summarizing table.

Organization of the research: pedagogic observations over qualified goalkeepers' functioning were realized at matches of Ukrainian football championship in Prime-league. In total we analyzed 20 matches, in which 40 goalkeepers participated.

Results of the research and their discussion

The structure of goalkeepers' technical-tactic fitness in football substantially differs from the same of other players. That is why training of goalkeepers acquires special importance in team's training. Significant role in this process is played by analysis of data of goalkeepers' functioning.

The structure of main sides of qualified goalkeepers' technical-tactic functioning is given in table 1.

In spite of main goalkeeper's functions' being connected with defense of own goal, results of pedagogic observations witness that much more active goalkeepers have to be, participating in organization of attacks of own team. So, participation of goalkeeper in defensive actions is in average 13.20 of technical-tactic actions (TTA) that is approximately 30.6% from all TTA` and participation of goalkeeper in attacks is, in average, 29.95 of TTA or 69.4%. The received indicators of qualified goalkeepers' competition functioning in general are in accordance with data of other researchers [9], but in practice we can state that training of goalkeepers for participation in attacks is not sufficient.

Let us regard technical-tactic functioning of qualified goalkeepers more specifically from the point of view, how they fulfill certain tasks in different typical situations. For this purpose, basing on common actions, made by goalkeepers, we classified their actions by different tasks:

- Direct defense of goal;
- Indirect defense of goal;
- Control over operative space on his half of field;
- Participation in attacks;

The first three tasks are connected with defensive actions and the forth belongs to attacks of own team. Such distribution by tasks conditions also determination of different zones of goalkeeper's responsibility in some typical situation.

These zones are different not only by dimensions and configuration but they require certain skills and skillfulness from goalkeeper in order for him to adequately and effectively solve the tasks, which appear in certain match episode.

Direct defense of goal. According to our researches specific weight of such situations is, in average, 3.25 of TTA during a match or 7.5% from total quantity. Here we relate directly actions at goal, in situation 1x1, actions at penalty. In spite of the fact that zone of responsibility itself is relatively not large by dimension in these situations, in this zone the most dangerous actions take place and the least mistake or inaccuracy in goalkeeper's actions can result in failure for all team.

Realizing direct defense, goalkeeper shall be able to instantly respond to threatening kicks, manifest anticipation in short periods of time. Appearing situations require from goalkeeper significant explosive power, high quickness and speed-power qualities, dexterity and flexibility. In such situations goalkeeper has to act from different initial positions, often far from being optimal.

Table 1

Structure of technical-tactic functioning of qualified goalkeepers (X±m)

Phases of match	Typical situations	Technical-tactic actions	Quantity
Goalkeeper's participation in defense	Actions directly at goal	Catching in supported position	1.4 ± 4.6
		Pushing off in supported position	0.25 ± 1.75
		Catching of ball in falling	0.65 ± 2.35
		Pushing off in falling	0.5 ± 1.5
	Actions at outcomes from above	Interception of high passes – catching	2.1 ± 2.9
		Interception of high passes – pushing off	0.65 ± 2.35
	Actions at outcomes from below	Interception of low passes – catching	0.55 ± 4.45
		Interception of low passes –pushing off	0.1 ± 0.9
	Situation 1x1	Liquidation of threat	0.4 ± 2.6
	At penalty	Liquidation of threat	0.05 ± 0.95
	Support of partner during defense	Catching	4.55 ± 7.45
		Pushing off with hands	0.05 ± 0.95
		Handling of ball	0.85 ± 2.15
		Pass without handling	0.65 ± 2.35
		Ruining action	0.45 ± 1.55
Goalkeeper's participation in attacks	Interaction with partners during attacks	Catching	1.35 ± 1.65
		Catching	0.1 ± 0.9
		Pushing off with hands	1.3 ± 4.7
		Handling of ball	2.4 ± 3.6
		Pass without handling	2.3 ± 5.7
	Inserting of ball in game	Throw	4.5 ± 11.5
		Kicking from ground	13.85 ± 11.15
		Kicking from hands	4.15 ± 12.85
		Total	43.15 ± 2.,85

Indirect defense of goal. Specific weight of such situation is, in average, 3.4 of TTA, or 7.9% from total quantity of actions. Responsibility zone is a little bit large than in previous case and expands to space of nearly all penalty Playground. Main purpose of goalkeeper in these situations is prevention from sharp high or low passes for finalizing kick.

Indirect defense requires from goalkeeper good understanding of game situations' peculiarities. In such situation goalkeeper in short time have to analyze different variants of attack's development in finalizing phase and, not forgetting about direct defense, if it is possible, instantly intercept ball. In such situations it is important to foresee development of game situation, to be able to adequately evaluate own potentials when choosing "intercept ball or not". In such situations goalkeeper often has to act in conditions of opponent's pressure, that is why goalkeeper's explosive power, speed-power abilities, quickness are very important. In conditions of struggle it is also important to choose reliable method of interaction with ball and fulfill it technically correctly. Movements during outcomes often are accompanied by jumps or fallings down that is why it is important for goalkeeper to be able to re-switch himself from one direction of movement to other, i.e. to have good coordination.

Control over operative space at own half of field. In such situations goalkeeper realizes function of partners' support during defensive actions. As results of our research witness goalkeeper gets in such situations the oftenest, in average 6.55 of TTA 15.8% from total quantity.

In such situations goalkeeper controls rather wide space at his half of field and, is necessary, he shall quickly respond to situation. In such situations goalkeeper often has to quickly cover segments up to 15-20 meters and sometimes more. Goalkeeper has to act behind penalty Playground, so it is important for him to act with legs, head; it is important for him to take correct decision "to keep ball" or "to ruin opponent's pass". Goalkeepers self confidence and mental balance, his technical arsenal are very important factors for all team.

Participation in organization of attacks. In modern football this aspect of goalkeeper's fitness is very significant. The data of our research witness that specific weight of such actions is, in average, 29.95 of TTA or 69.4% from total quantity. Observation over competition functioning of advanced Ukrainian goalkeepers proves the fact that goalkeepers actively participate in attacks of their teams. Mainly, goalkeeper's actions in such situations are connected with start of attack, with kicking ball from ground, kicking from hands, throwing of ball – such actions are 22.5 of TTA or 52.1% from total quantity. But ability of goalkeeper to "open" for partner for "keeping ball", to quickly pass the ball to partners without breaking the rhythm of attack is of great importance. Important aspect of goalkeeper's functioning is

introduction of ball in game. If situation on field dictates need in quick attack – goalkeeper, after taking ball, shall timely and reliably introduce ball in game with the most effective technique.

Conclusions:

1. Research of structure of qualified goalkeepers' technical-tactic fitness in football showed presence of rather clear structural features of game both in defensive and attacking actions, depending on typical situation.

2. Results of our research witness that goalkeeper to large extent participates in attacks much oftener than in defensive actions, but in practice of trainings this aspect is paid insufficient attention.

3. Correction of training process for goalkeepers shall be realized so that means of technical-tactic fitness would accord by structure and scope with indicators of goalkeepers' competition functioning.

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MODEL CHARACTERISTICS OF COMPETITIVE ACTIVITY OF DIFFERENT SKILLED FEMALE VOLLEYBALL PLAYERS

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Annotation. *Purpose:* to determine and compare the model characteristics of competitive activity and an integrated assessment of highly qualified and skilled volleyball players. *Material*: the study involved 49 highly qualified and 53 qualified volleyball players. *Results*: identified indicators of competitive activity (intensity factors, mobility, aggressiveness, efficiency and effectiveness ratio of attack-block) and the integral evaluation of volleyball players of various skill levels. Developed a scale evaluation. Built model. Also, a comparison of model characteristics of competitive activity volleyball. *Conclusions*: the significant differences are fixed model characteristics of competitive activity in athletes of high qualification of different roles. Qualified volleyball, these differences are not so pronounced. This demonstrates the universality of minor league players.
Keywords: volleyball, model, competition, integral, appraisal.

Introduction

Analysis and evaluation of competition functioning in sports are important criteria of training process's effectiveness, because they create pre-conditions for perfection of sportsmen's training system [3; 5; 10 et al.]. However, result of competition in sport games, in volleyball in particular, does not reflect complete information about strong and weak sides both of separate players and team in general. That is why there appears demand in determination of objective model indicators of competition functioning, which could contain both qualitative and quantitative characteristics of players' functioning on site.

Application of simulation in management of training process and competition functioning, including working out of sportsmen's model characteristics, is an urgent problem, which causes interest of specialists in many kinds of sports [5; 10; 13; 17; 22et al.], and in sport games in particular [3; 6; 8; 15; 18 et al.]. Analysis of available literature showed that different parameters of competition functioning were dealt with by V.M. Kostiukevych [3], V. Tsyganok [7], O. Shynkaruk, M. Bezmylova [9], C.-M. I. Belčic, G. Sporiš [12], Porfireanu et al [19], N. Rogulj et al [20], G. Stănculescu et al [21]. Thus, different authors researched different tactic models of game, quantitative and qualitative indicators of competition functioning and etc.

Concerning volleyball it was determined that there was great number of approaches to analysis of competition functioning. In particular, V. Gamaliy, O. Shlionska [1] offer technology of evaluation of attacking technical-tactic actions' effectiveness as a determining factor for achievement of high competition results, without consideration of defensive actions of players. Y e.V.Kudriashov, A.A. Mischenko [4], A.T. Bozhkova [14], T.J. Gabbett, B. Georgieff [16] study effectiveness of volleyball players' technical tactic actions, without paying any attention to quantitative indicators. Absence of single evaluation system as well as contradictions in approaches to analysis of competition functioning in volleyball create pre-conditions for working out and theoretical foundation of methodic of analysis of competition functioning on the base of integral evaluation. Comparison of model characteristics of competition functioning of sportswomen-volleyball players (different qualification) will permit to raise effectiveness of training and competition processes' management.

The research was fulfilled in compliance with "Combined plan of scientific-research work in sphere of physical culture and sports for 2011-2015" by topic 2.4. "Theoretical-methodic principles of individualization of training process in game kinds of sports" (state registration number 0112U002001).

Purpose, tasks of the work, materials and methods

The purpose of the research is to determine and compare model characteristics of competition functioning and integral evaluation of highly qualified and qualified sportswomen – volleyball players.

During season of 2013-2014 we carried out video recording of competitions (with camera SONY DCR SX 65 E), analysis and evaluation of competition functioning of highly qualified (participants of Ukrainian championship, women teams of super league – Kriazh medical university, Vinnitsa; Galytchanka -THEU- Ukrinbank, Ternopil; Chimik, Yuzny town; Regina - -MESU-OShVSM, Rivne; Orbita – ZTMC, Zaporozhye – 49 sportswomen in total) and qualified women – volleyball players (53 sportswomen of Vinnitsa national pedagogic university, Vinnitsa national agrarian university, Vinnitsa national medical university, Vinnitsa medical college, Vinnitsa technical college, Vinnitsa college of national university of food technologies, Vinnitsa cooperative institute).

For analysis and evaluation of competition functioning of qualified sportswomen we worked out five specific indicators – quantitative (coefficients of intensity, mobility, aggressiveness) and qualitative (coefficient of effectiveness and coefficient of attack-block effectiveness). Integral evaluation was worked out on the base of methodic approach of V.M. Kostiukevych [2] and supplemented according to specificities of volleyball [11].

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Results of the research

The structure of every model includes model characteristics and indicators [3; 5; 6 et al.]. Competition model is the most significant because optimal performance of team at competitions shall be the result of training process. According to purpose of our research we determined indicators of competition functioning and integral evaluation of highly qualified and qualified volleyball players (see table 1). Comparing data of table 1 we can note that mean results of practically all indicators of qualified sportswomen's competition functioning are lower than the same results of highly qualified sportswomen. Alongside with it, lower variation coefficients of qualified sportswomen witness about universal character of their level.

Table 1

Model characteristics of competition functioning of highly qualified (n=49) and qualified (n=53) women – volleyball players

Indicators of competition functioning	Qualification	Statistical indicators					
		$\bar{x}$	*max*	*min*	*S*	*V*	*t (p)*
Coefficient of intensity (CI)	HQ*	0.94	1.72	0.28	0.314	33.40	2.40
	Q**	0.82	1.22	0.51	0.171	20.85	(<0.05)
Coefficient of mobility (CM)	HQ	2.11	5.09	0.50	1.000	47.39	4.13
	Q	1.49	2.44	0.87	0.379	25.44	(<0.05)
Coefficient of aggressiveness (CA)	HQ	1.57	3.60	0.17	0,747	47.58	5.45
	Q	0.97	1.80	0.46	0.324	33.40	(<0.05)
Coefficient of effectiveness (CE)	HQ	0.64	1.00	0.25	0.163	25.47	0.77
	Q	0.62	0.80	0.39	0.099	15.97	(>0.05)
Coefficient of attack-block effectiveness ($CE_{attack\text{-}block}$)	HQ	0.49	1.00	0.13	0.189	38.57	0.33
	Q	0.50	0.88	0.20	0.164	32.80	(>0.05)
Integral evaluation (IE)	HQ	5.51	8.85	3.03	1.128	20.47	5.50
	Q	4.41	6.18	2.72	0.836	18.96	(<0.05)

*Notes: *highly qualified sportswomen-volleyball players; ** qualified sportswomen-volleyball players*

For correct comparison of the received results it was important to evaluate every indicator. That is why the following step was to determine ten-point scale of evaluation of competition functioning indicators on the base of V.M. Kostiukevych's methodic approach [3]. According to "rule of three Sigma" we determined area from $\bar{x}$ + 3S to $\bar{x}$ – 3S, which was divided into 9 equal intervals. Value $\bar{x}$ – 3S corresponded to 1 point, $\bar{x}$ + 3S – 10 points. Value $\bar{x}$ – 3S plus value of one interval corresponds to 2 points and etc. Thus, we worked out evaluation scale of competition function for highly qualified and qualified sportswomen – volleyball players.

In compliance with the worked out scale we evaluated indicators of competition functioning of all sportswomen in every group. As a result we obtained models of competition functioning of highly qualified (n=13) and qualified (n=14) center forward (see fig.1 a), highly qualified (n=16) and qualified wing players (n=21) (see fig.1b), highly qualified (n=6) and qualified (n=8) diagonal forwards (see fig. 1 c), highly qualified (n=8) and qualified (n=10) binders (see fig. 1 d), highly qualified (n=6) libero players (see fig.2).

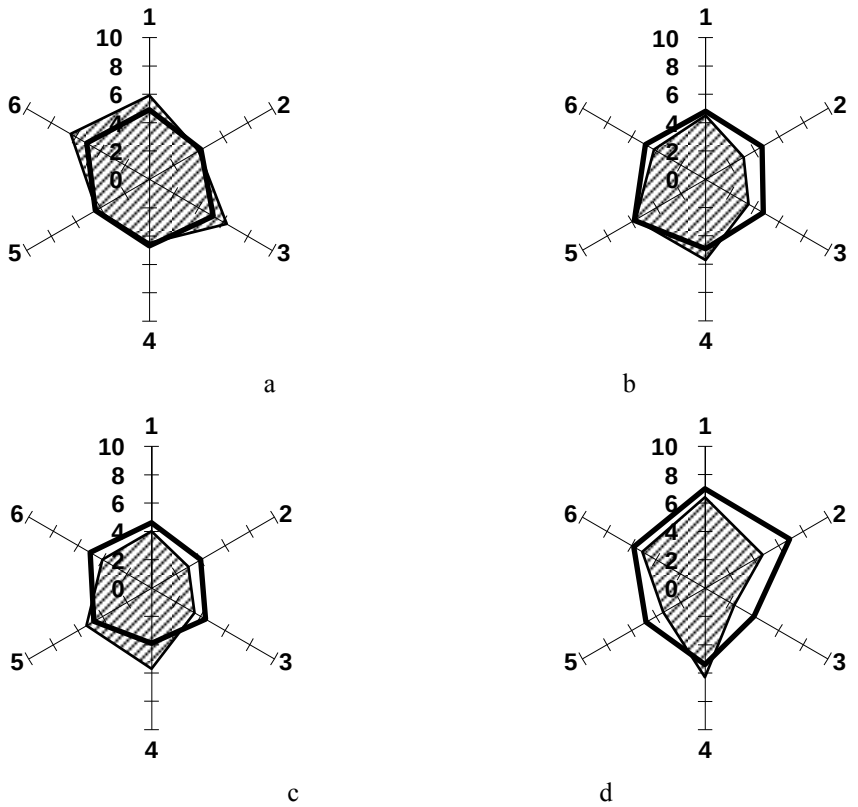

Fig.1. Models of competition functioning of different qualification sportswomen-volleyball players:
a –center forwards, b – wing players, c – diagonal forward, d – binder, 1 – coefficient of intensity; 2 – coefficient of mobility; 3 – coefficient of aggressiveness; 4 – coefficient of effectiveness; 5 – coefficient of attack-block effectiveness; 6 – integral evaluation.

▨ volleyball players of high qualification
□ qualified volleyball players

Analysis of the received results permits to say that the highest coefficient of effectiveness belonged to binders (6.4 points of highly qualified and 7.0 points of qualified volleyball players), because coefficient of intensity reflects quantity of technical-tactic actions, fulfilled by volleyball player in one game; binders participate practically in every combination, creating favorable position for attack. High CI of center forwards (5.9 points of highly qualified and 4.9 – of qualified volleyball players) is connected with active behavior of these sportswomen on front line: constant attacks, blocks, imitations of attacks and so on. Insignificant difference of coefficient of intensity was between values of diagonal forwards and wing players (4.0 and 4.4 points of highly qualified and 4.6, 4.8 points of qualified sportswomen accordingly). The least CI was registered for libero players (2.9 points) and it was connected with the fact that they participated only in team's defensive actions.

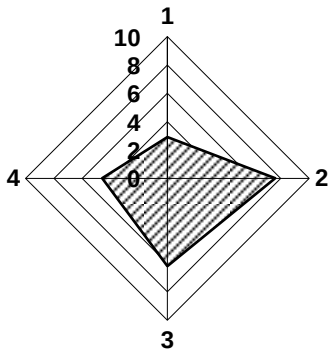

Fig.2. Model of competition functioning of highly qualified sportswomen – volleyball players (libero):
1 – coefficient of intensity; 2 – coefficient of mobility; 3 – coefficient of effectiveness; 4 – integral evaluation

Coefficient of mobility characterizes quantity of technical-tactic actions, fulfilled by a player in one game in second and third regimes of coordination complexity. The highest CM was registered in highly qualified libero (7.6 points) that is connected with specificity of coefficient's determination for players of this role [11]. High CM was registered in binders (4.7 points for highly qualified and 6.9 points for qualified players) because it is a quantitative indicator of competition functioning. Concerning forwards of first and second temps, CM does not differ significantly: in highly qualified sportswomen it changes from 3.0 points (diagonal forwards) to 4.0 points (center forwards); in qualified sportswomen – from 4.0 (diagonal forwards) to 4.6 (wing players).

Coefficient of aggressiveness reflects intensity of competition duel directly near net (attacks, block and so on). There are clear distinctions in mean value of CA of highly qualified volleyball players. In particular, the highest CA was registered in center forwards (6.3 points) and the lowest belonged to binders (2.4 points) and it was connected with specificities of game roles. Mean CA value of highly qualified wing players and diagonal forwards was 3.5 points. Concerning qualified sportswomen-volleyball players of different roles CA distinctions were insignificant: for center forwards it was 5.2 points, for wing players – 4.7 points, for diagonal forwards – 4.4 points, for binders – 4.0 points. It was connected with universal character of players' technical level; indeed, owing to unsuccessful defensive actions players have to re-adjust (forwards – realize pass, binders – fulfill attacks)..

Coefficient of effectiveness characterizes player's significance in team and is determined as relation of successful technical tactic actions (TTA) to total sum of TTA. It was determined that in general team aspect coefficient of effectiveness of qualified volleyball players is, in average, lower than the same of highly qualified volleyball players; it is connected with higher level of highly qualified volleyball players and, accordingly, with greater number of mistakes and less experience of qualified volleyball players. Alongside with it, we registered that the highest coefficient of effectiveness belongs to both qualified (5.4 points) and highly qualified (6.3 points) binders, whose competition functioning is connected to large extent with partners' actions, who, realizing defensive actions, try to create the best conditions for binders' passes.

Libero – is rather narrow specialization of defense with task to receive ball and pass it to binder, whose perfection is facilitated by players of this role. That is why it is logic that CE of highly qualified libero is 6.2 points.

Forwards, in average, have less coefficient of effectiveness than other players and it is connected with the fact that they more then other are in constant duel with opponents. In particular, there is insignificant difference of forwards' coefficient of effectiveness: diagonal forwards – 3.9 points, center forwards– 4.7 points, wing players – 4.9 points. Concerning highly qualified players, wing players and diagonal forwards have 5.7 points and center forwards – 4.5 points. Lower CE of highly qualified forwards of first temp is connected with great quantity of not realized blocks. This also the reason of low coefficient of attack-block effectiveness of center forwards (4.3 points). The lowest of CE (attack-block) among highly qualified players was registered in binders (3,4 points). Wing players and diagonal forwards have insignificant difference in CE (attack-block) – 5.7 and 5.3 points accordingly. Qualified wing players have CE (attack-block) 5.8 points and corresponds to highly qualified players' (of the same role) level. Qualified center and diagonal forwards, binders have mean CE (attack-block) in frames from 4.4 points to 4.8 points.

Integral evaluation, which includes both quantitative and qualitative indicators, is an objective criterion of evaluation of volleyball competition functioning. Qualified sportswomen-volleyball players have insignificant difference in integral evaluation. It changes from 4.9 - 5.1 points for forwards to 5.8 points for binders. Highly qualified volleyball players have more expressed difference in integral evaluations. In particular the lest results belong to diagonal forwards (4.0 points) and wing players (4.2 points) Integral evaluation at level of 4.6 and 5.1 points belonged to libero and binders accordingly. The highest integral evaluation had center forwards; it was 6.4 points. вона становить 6,4 бали.

Conclusions:

1. Analysis of scientific literature showed demand in determination of model characteristics of competition functioning of sportswomen-volleyball players of different qualification, which would permit to increase effectiveness of training and competition processes' management and serve as bench marks for future researches.

2. We have determined that mean indicators of competition functioning of qualified sportswomen-volleyball players statistically differ ($p<0.05$) from results of more experienced, highly qualified sportswomen.

3. We have registered substantial distinctions of model characteristics of competition functioning of highly qualified sportswomen (of different game roles), while, at the same time, in qualified volleyball players these distinctions are not so expressed that witness about universal character of technical level of less experienced volleyball players.

The prospects of further researches imply studying of interconnections between indicators of physical, functional and technical-tactic fitness as well as competition functioning of sportswomen-volleyball players.

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CHARACTERISTIC OF PROFESSIONAL PREPARATION CONTENT OF THE USA MOST COMMON MAJORS OF PARKS, RECREATION, LEISURE, AND FITNESS STUDIES DIVISION

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Annotation. *Purpose:* The given article deals with the phenomena of relative similarity of content components of the USA physical education field academic plans. *Material:* Undergraduate curriculum as the learning experiences of students in pursuit of a college degree is analyzed for the Parks, recreation, leisure, and fitness studies division. Data of the comparative analysis of curriculum content of the general education component, division field disciplines and the disciplines of major specialization are presented. *Results:* It is shown that the structure of curriculum at the USA universities has common and quite unified character and consists of three key components: general education, field disciplines and major courses. It was found that for the Parks, recreation, leisure, and fitness studies division these components are quite similar and display slight divergences not as much in the content of curricula as in the titles of the disciplines studied. *Conclusions*: It is recommended to examine in more detail the content of syllabi of the disciplines.
Keywords: bachelor, curriculum, major discipline, parks, recreation, leisure, fitness, USA.

Introduction

The acknowledged leadership of the United States of America in the world's economy, its indisputable achievements in sport and social life, as well as highly developed sphere of higher education present the need of investigation of these phenomena by scientists. The general structure of the higher and business education of the USA was studied by Romanvskyi O.O., multicultural aspect of the USA education was investigated by Balytska I.V., civil education of students in the USA was explored by Toporkova Yu.O., modern concepts of social work in the USA were examined by Lifintsev D.V., the tendencies of content development and organizational forms of the USA adult education were studied by Bidiuk N.M. [15, 17, 16, 2, 20, 8, 3].

In the circumstances of space and time limitations we elaborated a comparative algorithm, capable of the fastest and most complete analysis of the issues under examination.

In the course of a close scrutiny of the USA physical education field the division "Parks, recreation, leisure, and fitness studies" was discovered. The conclusion was made due to the data of the USA educational information sites "Campus Explorer", "The College Board", "College Majors 101". This whole area may be roughly subdivided into eleven relatively separate majors: "Athletic Training", "Fitness Specialist", "Pre-Physical Therapy", "Foods and Nutrition", "K-12 Physical Education Teacher Education", "Adapted Physical Education Teacher Education", "Exercise Science", "Sport Psychology and Leadership", "Sport Administration", "Health Promotion and Recreation Administration" [10, 11].

Having investigated all of them we came to the conclusion that the particular importance have "Athletic Training", "Exercise Science", "Fitness Specialist" and "Physical Education Teacher Education". The latter shall not be an object of study in the present article as it is concerned mostly with the education component which exceeds the goals of the article. It should be noted that the issue of physical education teacher education at the USA universities was investigated by Osadcha T.Yu. [12].

Thus, we shall concentrate on the first three majors. The academic specialization (major) is considered the key element of the bachelor's degree in the USA. Students view it as a principle factor in the choice of educational establishment.

Some of the above listed specializations are further subdivided into smaller and more specialized divisions but on the whole the concept of eleven-component field causes little argument and looks quite logical and reasonable. Not all of them, however, maintain the equal level of popularity and student enrollment. [7, 4]. Some majors may be considered as quite self-sufficient and profitable event at the level of Bachelor's Degree (e.g. Athletic Training, Exercise Science, etc.) while the others may require further study and Master's Degree (e.g. Pre-Physical Therapy).

The statutory title of "athletic trainer" is a misnomer. Athletic trainers provide medical services to all types of people - not just athletes participating in sports - and do not train people as personal or fitness trainers do. However, the profession continues to embrace its proud culture and history by retaining the title. In other countries, athletic therapist and physiotherapist are similar titles. The AT profession was founded on providing medical services to athletes [13]. Commencing with Athletic Training it should be noted that Athletic Trainers (ATs) are health care professionals who collaborate with physicians to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions.

Athletic training is often confused with personal training. There is, however, a large difference in the education, skill set, job duties and patients of an athletic trainer and a personal trainer. Athletic trainers provide physical medicine, rehabilitative and preventative services. Athletic trainers treat a breadth of patients, including but not limited to: professional, college, secondary school and youth athletes, dancers, musicians and military personnel. Athletic trainers work can work in a variety of locations including schools, physician clinics, hospitals and manufacturing plants.

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Athletic trainers work in a variety of different professional settings, including: Professional & Collegiate sports; secondary & intermediate schools; sports medicine clinics; hospital ER & rehab clinics; occupational settings; performing Arts; law Enforcement and Military; physicians' offices.

To become certified athletic trainer, a student must graduate with bachelors or masters degree from an accredited professional athletic training education program and pass a comprehensive test administered by the Board of Certification (the organization that provides a certification program for entry-level Athletic Trainers, establishes and regularly reviews both the standards for the practice of athletic training and the continuing education requirements for BOC Certified ATs) [19]. Once certified, they must meet ongoing continuing education requirements in order to remain certified. Athletic trainers must also work under the direction of a physician and within their state practice act.

Athletic Training as an academic major or graduate equivalent major program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The minimum entry point into the profession of Athletic Training is a the baccalaureate level; by 2014-2015, all accredited education programs in Athletic Training will lead to a degree in Athletic Training. Upon completion of a CAATE-accredited Athletic Training education program, students become eligible for national certification by successfully completing the National Athletic Trainers' Association (NATA) Board of Certification examination.

NATA represents more than 34,000 members in the U.S. and internationally, and there are about 40,000 ATs practicing nationally. NATA represents students in 325 accredited collegiate academic programs. The athletic training profession began early in the 20th century, and was established in 1950.

A program that prepares individuals to work in consultation with, and under the supervision of physicians to prevent and treat sports injuries and associated conditions. Includes instruction in the identification, evaluation, and treatment of athletic injuries and illnesses; first aid and emergency care; therapeutic exercise; anatomy and physiology; exercise physiology; kinesiology and biomechanics; nutrition; sports psychology; personal and community health; knowledge of various sports and their biomechanical and physiological demands; and applicable professional standards and regulations. An integral part of AT curricula is the clinical component. Students are required to participate in a minimum of two years of academic clinical education. Through these experiences, students must gain clinical experiences with a variety of patient populations who vary by age and types of activities, and who are at risk for both musculoskeletal and general medical conditions. Clinical experiences provide students with opportunities for real patient care while under the direct supervision of qualified preceptors (i.e., Athletic Trainer or other credentialed health care professionals).

As part of a complete healthcare team, the certified athletic trainer works under the direction of a physician and in cooperation with other healthcare professionals, athletics administrators, coaches and parents. The certified athletic trainer gets to know each patient/client individually and can treat injuries more effectively.

A bachelor of science in Exercise Science provides an excellent academic foundation for students choosing to pursue graduate and professional degrees in a wide array of health careers, such as exercise physiology, occupational therapy, physical therapy, medicine and athletic training [6]. Because these fields require post-baccalaureate degrees, students will need to take additional pre-requisites as appropriate for their field of interest. Students who choose to not pursue a post-baccalaureate degree can pursue a career as a personal trainer, wellness coordinator, strength and conditioning coach, or in corporate wellness.

The exercise science program provides students with a solid academic foundation in anatomy, physiology and chemistry in support of cutting-edge courses in applied exercise science and rehabilitation. Students are required to take major courses including functional anatomy, biomechanics, exercise assessment and prescription, and exercise physiology. The program is structured to provide students with the opportunity to develop the skills and abilities that are critical in the growing fields of health, fitness, medicine and rehabilitation.

Upon graduation, students are equipped to work in a variety of professional settings including community recreational agencies, health-related clinics and hospitals, and corporate and sport industries. The major also provides an excellent foundation for those choosing to pursue advanced education in occupational therapy, physical therapy, and other fields related to exercise and health science [5].

Graduates of the Exercise Science stream can pursue careers with both the public and private sectors in a variety of roles. A research career is also an option if the graduate completes an honors degree and then a higher degree. From the point of view of the field application of knowledge, career opportunities with major in exercise science may be such as following.

In fitness industry they can work as: fitness center manager (fitness leader, fitness programmer, personal trainer); recreation/ activity officer (a wide variety of companies in the health and tourism sectors employ graduates to provide sport and recreation services for their clients).

In the sphere of pure Exercise Science there may the positions as: Sport Scientist, Exercise physiologist, and Biomechanist. These jobs are concerned with the testing and training of elite athletes. Sport scientists work in laboratories and wherever athletes train and compete. The role of the sport scientist is to assist the athlete and coach to improve performance. Sport scientists conduct research in an attempt to improve sport equipment and training techniques. The majority of employers are institutes and academies of sport. The Defence Forces also employ exercise scientists to train soldiers and conduct research. Some sporting equipment manufacturers employ sports scientists to help design racquets, bats, balls, shoes, etc. Graduates with a specific interest in a sport should consider a career as a coach with an institute of sport or sporting association. Some elite coaches are able to work for themselves.

The career of Strength and Conditioning Specialist focuses on the physical preparation of athletes. Strength and conditioning specialists work in Institutes and Academies of Sport and are also employed by many professional and semi-professional sporting teams.

As for the medical/clinical environment, the careers may be:

- Cardiac/Respiratory technician. This position may involve cardiac stress testing and/or lung function testing under the supervision of a cardiologist for the purpose of diagnosis of cardiovascular and pulmonary disease. Employers are almost exclusively hospitals.
- Cardiac Rehabilitation/Exercise physiologist. This job involves the prescription of exercise for those who have had heart surgery or those with heart disease, obesity, insulin resistance, Type II diabetes, elevated cholesterol, osteoporosis. Employers are almost exclusively hospitals
- Exercise Rehabilitation. This is a growth industry that provides a rehabilitation service for those injured in the work place. Most of the opportunities exist with small businesses. Work in this area usually requires a post graduate qualification.
- Corporate Health**.** Fitness/health/exercise consultant: implementation of a health package tailored for the specific needs of an organization. This organization may have needs for both "white" & "blue" collar working populations. Physiological testing can help employees identify their capacity to perform the required tasks with minimal risk to themselves. Most employers are small businesses or you may be self employed.

Dwelling upon Fitness Specialist major, it should be mentioned that fitness specialists lead and teach exercise routines, in addition to offering training advice and motivation. Prospective fitness specialists earn professional credentials, educational certificates or associate's and bachelor's degrees in physical fitness or exercise science.

Fitness specialists typically work for organizations, such as universities, health clubs, professional gymnasiums, resorts, country clubs and hospitals. They work with small or large groups to help improve clients' fitness levels or to rehabilitate injuries. Some fitness specialists may hold personal training sessions at a gym or in clients' homes, in which they help clients reach personal fitness goals.

Before performing an exercise regiment with a class or client, fitness specialists assess the physical condition of the participants. They lead warm-up activities, like stretching, and run through an entire exercise program. A fitness specialist may assist or offer suggestions to individuals who are having difficulty. In addition to exercise duties, a fitness specialist also performs administrative work, which may include leading tours of fitness facilities, registering new members, monitoring the front desk, writing articles or supervising exercise rooms [1].

According to the U.S. Bureau of Labor Statistics (BLS), the training necessary for a fitness specialist career varies greatly by employer. Most fitness specialists must acquire a high school diploma and pursue education at the college level. Technical schools and community colleges frequently offer certificate or associate's degree programs in physical fitness. Some employers prefer a fitness specialist with a bachelor's degree in exercise physiology, kinesiology, or health and fitness.

Other requirements for this position include maintaining a positive mental outlook and remaining physically fit. Fitness specialists lead exercise classes and demonstrate workouts, so being able to perform these activities is important. Additionally, because interacting with clients is a major component of the job, fitness specialists must have effective, friendly communication skills.

Employers usually look for fitness specialists with professional certifications from organizations that are officially accredited. Certification may verify expertise in a specific type of exercise, like pilates or yoga, as well as a type of training, such as group fitness or personal training.

The American Council on Exercise (ACE) offers several certifications, including the Advanced Health and Fitness Specialist credential, which requires the highest level of training. This designation requires fitness specialists to hold certification, along with ACE Personal Trainer or equivalent certification, though a bachelor's degree in Exercise Science fulfills this requirement. Additionally, candidates must complete at least 300 hours of professional work experience and an exam.

Purpose, tasks of the work, material and methods

The purpose of the research is to study and provide comparative analysis of curriculum content for the most importance majors: Athletic Training, Exercise Science, Fitness Specialist.

The tasks of the research: on the base of comparative analysis of curriculum content to study up-to-date situation of structure of the general education component, field disciplines and specialization/major disciplines.

The methods of the research: analytical analysis of scientific-methodic literature, pedagogic observations.

Organization of the research: the received results were processed with the help of pedagogic analytical analysis, comparative analysis of curriculum content.

Results of the research

The given scientific studies, in terms of curricula structure, indicate their hierarchical order and complex structure. It was discovered, however, that their general frame is based on three key components: the general education component, science field disciplines and disciplines of majoring [14, 21, 18].

Thus, the majors' peculiarities being displayed, we are shifting to the essence of the article, comparative analysis of curriculum content. As far as the analysis of the programmers on the whole proved to be ineffective, we shall execute it in three stages. At the first stage the general education component will be compared, at the second stage – field disciplines and at the third stage – specialization/major disciplines [9].

Speaking of the general education component it should be noted that despite slight differences between the majors the former component is practically the same for every specialization even taking into consideration majors beyond kinesiology realm. The Table 1 epitomizes the given disciplines and points out at the divergences.

Table 1

List and credits of General Education component

Discipline / College	Athletic Training (Pennsylvania State University)	Exercise Science (Indiana University of Pennsylvania)	Fitness Specialist (Pennsylvania State University)
Composition	6	7	6
College Algebra	3	-	3
Chemical Principles	4	3	3-4
General Psychology	3	3	3
Elementary Statistics	4	3	4
Humanities	6	9	6
Arts	6	3	6
Effective Speech	3	-	3
Total credits	35	28	34-35

The disciplines presented in the table are taken from the correspondent major's curricula and bear integral information. For the purposes of our research the slight differences in the discipline titles are omitted. It also should be born in mind that different establishments have different systems of discipline subdivision i.e. at one university where general chemistry is considered as a course of general education, in another it may be a subject of field disciplines. However within the number of general education and even field courses the level of matching is very high.

The information given in the Table 1 is taken from the most explicit programs of study in each area. Athletic Training's curriculum is represented by Pennsylvania State University, Exercise Science by Indiana University of Pennsylvania and Fitness Specialist by Pennsylvania State University.

The course of College Algebra which is studied at Pennsylvania State University is omitted at Indiana University of Pennsylvania but this fact doesn't note that the discipline is not studied there. As it turned out it is integrated in the course of elementary statistics, as well as the course of Effective Speech at the latter university is an integral part of Arts and Humanities and is not represented as a separate discipline. Basically, the conclusion to be drawn is that of 120 credits of BS degree from 30 to 35 are assigned to general education disciplines. The set of these disciplines is practically the same for all establishments under study.

Table 2 reflects the tentative picture of field disciplines which despite specialization differences bear common core. This is quite natural and understandable because all three specializations belong to the area of Kinesiology. Particularly noticeable is the similarity between educational programs of San Diego State University. Unfortunately this establishment doesn't have Exercise Science major so that we could compare all three specializations within the framework of a single university.

Table 2

List and credits of Division disciplines' (Parks, recreation, leisure, and fitness studies)

Athletic Training (San Diego State University)	Exercise Science (Bowling Green State University)	Fitness Specialist (San Diego State University)
Human Anatomy	Introduction to Kinesiology	Human Anatomy
Prin of Cell & Molecular Biology	Lifetime Fitness	General Biology
General Chemistry	Structural and Functional Bases of Human Movement	Intro to General Chemistry
Fundamentals of Nutrition	Motor Development Across Lifespan	Fundamentals of Nutrition
Introductory Psychology	Motor Learning	Introductory Psychology
Introduction to Physiological Psychology	Exercise Physiology	Introductory Sociology: The Study of Society
Introductory Sociology: The Study of Society	Applied Exercise Physiology	ENS Activity (2) Weight Training (1)
Intro to ENS	Biomechanics of Human Movement	Intro to ENS
Care & Prevention of Athletic &Recreational Injuries	Exercise Science Practicum	Care & Prevention of Athletic &Recreational Injuries
Care & Prevention Lab	Human Anatomy	Biostatistics
Biostatistics	Nutrition	
	Introduction to Research in HMSLS	
	Foundations of Sport Psychology	

	Psychological Aspects of Exercise and Fitness	
Total credits 34	Total credits 40	Total credits 32

Comparing the field component of Athletic Training and Fitness specialist it becomes obvious that they are practically the same mostly due to their belonging to one university. But even in analysis of Exercise Science major it is evident that the courses are pretty much alike. The disciplines which have different titles are still the same if reviewed by their content. This concerns, in particular, the so called ENS discipline at San Diego State University which stands for Exercise and Nutritional Sciences and has its correspondent at Bowling Green State University at the title of Kinesiology, etc.

Thus, the field discipline component takes from 35 to 40 credits out of 120 credits of the whole BS degree program. Via method of mere calculations it is not difficult to assume that the specialization component will include approximately 50 educational credits.

As the Table 3 shows we were right concerning the amount of credits and, as expected, the differences among the specialization disciplines are the greatest. The first staggering fact for a reader is of course the visual quantity of Exercise Science courses. Looking at the number of credits assigned, however, the thing becomes more or less clear. The first thing is that separate disciplines at the Exercise Science section are more volumetric. Exercise Science Internship, for example, solely has 15 credits, while the amount of so called electives may extend to 14 credits.

Table 3

List and credits of the specialization disciplines

Athletic Training (San Diego State University)	Exercise Science (Bowling Green State University)	Fitness Specialist (San Diego State University)
Principles of Human Physiology	Exercise Testing and Prescription	Principles of Human Physiology
Nutrition Throughout the Life Span	Exercise Testing and Prescription for Special Cases	Nutrition Throughout the Life Span
Physical Growth and Development	Sport Conditioning	Nutrition for Athletes
History and Philosophy of Sport & PE	Designing and Directing Exercise Programs	Physical Growth and Development
Applied Kinesiology	Exercise Science Internship	History and Philosophy of Sport & PE
Physiology of Exercise	Sport and Public Assembly Facilities	Applied Kinesiology
Exercise Physiology lab	Legal Aspects of Sport and Recreation	Physiology of Exercise
Measurement & Evaluation in Kinesiology	Electives	Exercise Physiology lab
Biomechanics of Human Movement		Measurement & Evaluation in Kinesiology
Motor Learning & Performance		Biomechanics of Human Movement
Scientific Basis of Sports Injuries		Motor Learning & Performance
Clinical Evaluation of Sport Injuries I		Corrective Physical Education
Clinical Evaluation of Sport Injuries II		Adapted Phys Ed Lab
Practicum in Athletic Training		Musculo-Skeletal Fitness
Practicum in Athletic Training		Musculo-Skeletal Fitness Activity
Practicum in Athletic Training		Admin of Exercise & Fitness Program
Practicum in Athletic Training		Exercise, Fitness & Health
Promoting Physical Activity and Health Behavior		Exercise, Fitness & Health Lab
Musculoskeletal Fitness		Exercise, Sport & Aging
Principles & Techniques in Therapeutic Exercise		Promoting Physical Activity and Health Behavior
Organization & Administration in Athletic Training		Fitness Practitioner Internship
Clinical Pathology for Athletic Trainers		
Total credits 53	Total credits 42-47	Total credits 51

On the whole the majoring field may be roughly subdivided into such components as: Kinesiology disciplines, nutritional disciplines and internship i.e. purely majoring courses.

Conclusions:

Thus, not regarding the exact specialization and establishment under study it may be clearly stated that despite the absence of strict governmental control the educational programmers of the USA universities have common and quite unified character and consist of three key components: general education, field disciplines and major courses. Within the field of physical education, sport and fitness these components are pretty much alike and display slight divergences not as much in the content of curricula as in the titles of the disciplines studied.

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