

PSYCHO-PHYSICAL PERFECTION OF ECONOMIC SPECIALTIES' GIRL STUDENTS UNDER INFLUENCE OF SPORT-ORIENTED TECHNOLOGY, BASED ON PREVALENCE OF VOLLEYBALL PRACTICING

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Abstract. *Purpose:* to work out content of sport-oriented technology of physical education, based on prevalence of volleyball practicing. *Material:* in the research two experimental (n=25, n=25) and one control (n=25) groups of girl students participated. The content of sport-oriented technology, based on prevalence of volleyball practicing included additionally elements of fitness. *студенток.* Quickness of mental processes and efficiency of mind operations were assessed with the help of special cards, on which 9 dials with pointers were depicted. The sense of test was: addition of dials' readings in mind; simultaneous calculation of value of scale one division; keeping in memory the previous sum of readings. This task was to be fulfilled for 6 minutes. *Results:* it was found that quickness of mental processes and mind operations as well as operative memory were at level below average. The most expressed positive factor was registered in group in which circle sport trainings were conducted. It was also found that over-fatigue at the end of academic year influences on testing indicators. *Conclusions:* the offered by us sport-oriented technology, based on prevalence of volleyball practicing can be recommended as effective mean of economic specialties girl students' psycho-physical qualities' strengthening.

Key words: girl students, economic specialties, professional-applied physical training, perfection, psycho-physical qualities.

Introduction

Among numerous important problems special place belongs to determination of new ways for students' health strengthening, morbidity and traumatism prophylaxis, healthy life style practicing, proper physical and psychic training for professional functioning [2, 6, 8, 12, and 14]. Technological approach to professional;-applied physical training (PAPT) in higher educational establishments (HEE) shall ensure formation of required psycho-physical qualities, applied knowledge, abilities and skills in the process of education. All these shall help future specialists to quickly adapt to production conditions, increase level of their professional reliability [19].

In some works [3, 11] it is noted that physical education at HEEs shall consist of general physical training and develop and improve main psycho-physical qualities. The most important special physical qualities of future specialists are high coordination of arms' movements, static endurance of torso muscles and high level of special endurance [13]. Such level of qualities shall correspond to professional portrait of economic profile specialists. For them also such important psychic qualities are characteristic: sense of time and space; volume, distribution, re-switching, concentration and stability of attention; operative thinking; operative and long-term memory; emotional stability and restraint.

Some scientists devoted their works to correction of students' physical fitness with the help of different kinds of sports as mean of health strengthening [5, 7, 20–29].

Specialists in physical education see solution of physical education perfection problem by implementation of sport-oriented physical education. Its basis is creative usage of new methodic. It can permit to better solve training and educational tasks, comparing with traditional approaches to organization of physical education in higher educational establishments [1, 9].

The trend to students' health worsening in our country, recent years have been requiring seeking of new forms of physical education perfection in higher educational establishments. Such important issue can not be solved without implementation of new forms and technologies in students' physical education process [4, 10, and 16]. Application of sport-oriented technologies in physical education ensures high quality of physical education that is manifested in rising of physical fitness, improvement of health indicators and psychic stability in stress situations. Positive attitude to physical work helps to overcome significant loads [15, 17]. To increase effectiveness of physical

education it is recommended to distribute students in sport circles. When building physical education's training process it is necessary to consider students' functional fitness, psycho-physiological potentials and level of physical qualities [18].

So, there is a demand in experimental researches for development and implementation of sport-oriented technology of physical education for economic specialties' girl students. Such technology shall be directed at psycho-physical perfection of students. Its realization is possible in different forms of trainings. All these witness about importance of our research.

Purpose, tasks of the work, material and methods

The purpose of the work is to work out content of sport-oriented technology of physical education, based on prevalence of volleyball practicing and determine its influence on their psych-physical qualities.

Material: for checking of the worked out technology's effectiveness we formed experimental group (E_1 , $n = 25$), in which trainings by the offered technology practiced as per curriculum, twice a week, on base «UAB NBU». Second experimental group (E_2 , $n = 25$) was also formed on base of «UAB NBU». In this group main forms of training were circle trainings. The content of sport-oriented technology was built on the base of volleyball practicing prevalence with adding of fitness elements. Trainings in this group were also conducted twice a week. In contrast to them control group (C , $n = 25$) was trained by traditional HEE program (two physical education lessons a week).

The methods of the research: for determination of mental processes' quickness and mind operations' efficiency we chose methodic "arithmetic calculation". The tested were given cards, on which 70 arithmetic tasks were formulated. Girl students were proposed to fulfill simple arithmetic during 10 minutes.

All arithmetic shall be fulfilled by girl students in mind and the received results shall be written down under line.

For studying of girl students' operative memory we used "scale" methodic [23]. For this purpose we used special cards, on which 9 dials with pointers were depicted. Under these dials 10 squares - tasks were drawn. In every square 9 rings and a pointer, which shows sequence of task's fulfillment were depicted. Upper line of rings corresponds to upper dials, central line – to central dials and bottom line – to bottom dials.

The sense of test was: addition of dials' readings in mind; simultaneous calculation of value of scale one division; keeping in memory the previous sum of readings. The received results shall be written down above appropriate square. This task was to be fulfilled for 6 minutes.

Results of the research

We received indicators of psycho-physical qualities of economic specialties' girl students of two HEEs in Sumy. These indicators showed that quickness of mental processes and mind operations as well as operative memory were at level below average and require perfection.

We also studied dynamic of change of important, for professional economists, psychological qualities and psychic states. As we can see in table 1, at the beginning of experiment respondents from group C solved correctly in average 23.84 ± 3.01 tasks. At the end of experiment this indicator worsened by 4.75 %. It was 22.76 ± 2.55 tasks ($p < 0.001$). The testing showed that control group girl students showed results at level below average (4 points from 9-possible).

At the beginning of experiment for the set period of time the tested girls in group E_1 gave 24.21 ± 3.09 correct answers. At the end of academic year the quantity of correctly solved tasks increased in average up to 27.33 ± 2.82 ($p < 0.001$). This indicator improved by 11.43 %. It witnesses about improvement of mental processes up to average level.

Girl students of group E_2 correctly solved simple arithmetic tasks at the beginning of academic year. Their mean indicator was 24.4 ± 2.52 task. At the end of academic year we stated statistically confident positive changes of this indicator ($p < 0.001$). It was 28.64 ± 2.48 correctly fulfilled tasks. Increment was 14.8%. We can state that this indicator also increased up to average level.

Table 1. Dynamic of mental processes' quickness and mind operations' efficiency of economic specialties' girl students in the course of pedagogic experiment (n=74)

Group	N	Before experiment	V (%)	After experiment	V (%)	Increment (%)	p
C	25	30.08±3.96	13.16	28.8±3.34	11.6	-4.44	<0.001
E ₁	25	30.84±3.22	10.45	32.44±3.18	9.79	4.93	<0.001
E ₂	24	30.58±4	13.08	32.29±3.5	10.82	5.29	<0.001

Methodic of "scale" [23] permitted for us to study specific features of girl students' operative memory. As we can see in table 2, at the beginning of experiment girl students of group C solved tasks in average correctly with result 5.16 ± 0.55 tasks. At the end of experiment their indicator worsened by 5.74%. In average indicator was 4.88 ± 0.6 correctly solved tasks. It can be connected with over-fatigue at the end of academic year in pre-examination period. These data corresponds to level below average.

Indicator of operative memory in group E₁ was at the beginning of academic year in average 5.08 ± 0.41 tasks. At the end of academic year this indicator was 6.88 ± 0.74 (higher by 26.06%). The revived result was statistically confident. As we can see in table 2, in second experimental group, at the beginning of experiment this indicator was within the range of 5.24 ± 0.6 of correctly solved tasks. At the end of experiment this indicator was 7.4 ± 0.5 tasks. We registered statistically confident changes of this indicator ($p < 0.001$). Increment was 29.19%.

We found that mental processes' quickness, mind operations' efficiency and operative memory of experimental groups' girl students increased from level below average to average level. In contrast, indicators of control group girl students remained at level below average and were only 4 points.

So, basing on received by us results we can state that there are positive changes in mental processes of experimental groups' members. It witnesses that the offered by us sport-oriented technology positively influences on girl students' thinking processes in average strengthening them by 5%.

Table 2. Dynamic of operative memory indicators of economic specialties' girl students in the course of pedagogic experiment (n=74)

Group	N	Before experiment	V (%)	After experiment	V (%)	Increment (%)	p
C	25	6.84±0.85	12.43	6.52±0.77	11.81	-4.91	<0.01
E ₁	24	6.75±0.68	10.01	6.88±0.74	10.78	1.82	>0.05
E ₂	25	7±0.82	11.66	7.4±0.5	6.76	5.41	<0.001

Discussion

Results of our researches confirm opinion of other authors about positive influence of circle sport trainings on students' main psycho-physical qualities [3, 11, 13]. In its turn implementation of sport-oriented physical education will permit to better solve training and educational tasks in comparison with traditional approaches to organization of physical education [1, 9].

The conducted researches permit to assume that implementation of sport-oriented physical education technology on the basis of volleyball practicing prevalence will facilitate progressing of such psychic qualities as: mental processes' quickness, mind operations' efficiency and operative memory.

We found that sport-oriented technology positively influenced on quickness of memorizing in both experimental groups. But the most expressed effect was registered in second experimental group, where sport circle trainings were the form of training. It was facilitated by usage of game and competition functioning. Besides, we included fitness exercises in auxiliary block of the worked out by us technology for increasing of professionally important potentials.

Conclusions:

1. Analysis of scientific-methodic literature showed that the existing system of students' physical education is not effective for improvement of physical fitness, health and students' motivation for physical exercises' practicing. It does not ensure graduates professional readiness for production functioning in their future life.

2. Thus, development of sport-oriented technologies is a promising direction of students' physical education; of improvement of their health, physical fitness indicators and students' psycho-physical perfection.

3. The offered by us sport-oriented technology, based on prevalence of volleyball practicing can be recommended as effective mean of psycho-physical qualities' improvement of economic specialties' girl students.

The prospects of further researches imply work on improvement and arranging of control system over application of sport oriented technology in higher educational establishments.

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Conflict of interests

The authors declare that there is no conflict of interests.

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