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Innovative Problems of Improving the Quality of Life of the Welfare State

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ABSTRACT

Improvement of the population quality of life should be based on promoting healthy lifestyle, active physical exercises and sports activities as one of its main priorities. In order to facilitate the achievement of this priority, the author proposes management technique of complicated coordination movements in space in the development of professional competencies by using physical training methods during independent physical training and sports. This article provides a system of special exercises aimed at physical and psychological training of students. Physical and psychological stability in the professional activity training is defined as a complex system consisting of two components (fine muscle activities coordination of students and management of receptors by means of targeted scientific methodology of special training, as well as the competitive experience of each student). The author proposed inclusion of special control actions in the teaching and learning process aimed at the development of physical and psychological stability, active exercises and other means providing a significant increase in physical preparedness of students. Improving spatial coordination ability of students provides the possibility to strengthen their healthy lifestyle attitudes and contributes to the improvement of student quality of life.

KEYWORDS
Quality of life, the problems of health promotion, sports, innovative methods of physical culture

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Introduction

In the modern context, health improvement is an integral part of harmonious development of any young person. One of the areas that influence health is the active, fitness-minded lifestyle, which is especially important for young people. Therefore, physical culture and sports is not an end in itself; it becomes a catalyst for vital activity, a precondition and integral part of a harmonious and sound life.

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According to a number of studies (Dobrotvorskaya 2001; Fox et al, 2010), young people who are engaged in physical culture and sports, demonstrate higher academic performance, better assimilate the training program, successfully pass their exams, reach good results in research work. As for manufacturing, performance of physically trained people is 20-30% above the average and catarrhal morbidity is considerably lower than in other people (Proskuryakova, 2006).

In order to make physical education and sport a part of life, one should develop a strong relevant orientation. Along with family as an important social institute, significant role in this respect could and should be played by school, health care providers, and media (Blum, Mc.Neely & Rinehart, 2002; Stewart-Brown, 2006). Physical exercises and sports participation improve living standards of children (Vella et al., 2014) and students (Joseph et al., 2014). Therefore, one should pay special attention to the organization of sports activities and to the development of physical culture of youth. However, physical exercises have an impact on the entire human body through the main trigger – the nervous system (Albitsky & Makeev, 2010). Moderate physical activity contributes to the development of a healthy lifestyle, which improves the quality of life (Haskell et al., 2007).

Literature Review

Adolescence and youth present the time when healthy lifestyle attitudes are formed (Stewart-Brown, 2006); it is particularly appropriate and effective to teach physical education to these respondents in order to improve their quality of life (McQueen & Jones, 2007). Sport is an effective means of physical education. Its value is determined by the stimulating effect on the development of physical culture among different social strata, and in this regard, sport is of international importance (Ivanov, 1999; Akhmerova, 2001). However, it is not limited to physical education. Sport has an independent general cultural, educational and aesthetic value; it promotes orientation at healthy lifestyle, which in turn improves the population quality of life.

Diverse situations in sports, everyday life, and in a business environment determine strict requirements to coordination of movements, psychological stability, which is integrated in all other forms of motor actions and can be displayed only in conjunction with other physical and mental qualities. It should be noted that the method of physical and psychological stability is least developed in the modern physical training theory (Kozlova, 2011). At the same time, one can be confident regarding the positive effect of the quality features of human motor activity (Udalova, 2015). Motor activity management is carried out by means of sensory corrections, i.e., processes of continuous control over sense organs.

Development of coordination abilities and motor qualities of students contributes to the development of their healthy lifestyle attitudes and academic progress, and thus improves their quality of life (Dobrotvorskaya, 2001; Fox et al, 2010; Karelina, 2014). Improvement of the population quality of life and depopulation reduction should be based on the following: 1) Healthy lifestyle promotion, active physical training and sports, life quality improvement; 2) Development of a system aimed at preventing social pathologies: high level of mortality, poverty, crime, alcoholism and drug addiction; 3) Optimization of

medical and social services, ensuring preservation and strengthening of public health, increased life expectancy (Akhmerova, 2001).

Thus, sports activity is one of the main and specific social factors in the social sphere; the subject of this activity is its object at the same time; i.e., such activities are aimed directly at the individual (Weiner, 2004). Sports activity presents an integrative concept, which includes the entire variety of consciously cultivated human motor activity associated with the transformation of its physicality. It determines formation of individual physical culture (and its types - sports education, sport, sports recreation and sports rehabilitation) in the bodily and spiritual unity, creating a harmony of its essential (spiritual and physical) strength. This is determined by its content having a creative nature.

At the same time, sports activity is an integrative factor of functional, value-based and effective aspects of physical training (Haskell et al., 2007). Sports activity should be considered as one of the most important human activities, having socio-cultural features, as human development presents its subject, purpose and the main result (Stewart-Brown, 2006). It is the essence of physical culture of the personality and presents the basis (the main tool) of its development (Pate et al., 2000).

Development of coordination abilities and motor qualities of students contributes to the development of their healthy lifestyle attitudes and academic progress, and thus improves their quality of life (Dobrotvorskaya 2001; Karelina, 2014). According to the study (Joseph et al., 2014), moderate and well-organized physical activity improves self-esteem and consolidation of physical skills through such a feeling of satisfaction. In other words, physical activity will be beneficial only in the form of a desirable and positively reinforced experience (Eime, Harvey & Payne, 2014). This research aimed at the development of exercises, which: 1) is easy and can be performed by students themselves; 2) could form physical skills related to the general life features, not only providing development of a certain muscle group; 3) could bring emotional satisfaction, motivating permanent training. In general, the original technique improves the quality of life of students by means of physical training.

Research Purpose

The purpose of this research was to develop a method for improving spatial abilities by means of physical training in order to improve the population quality of life.

Research questions

The overarching research question of this study was as follows:

What combined movements aimed at the improvement of spatial coordination ability will lead to real improvement of this ability in students and to the development of their healthy lifestyle attitudes and thus – to the improvement of their quality of life?

Methods

Development of a simple and effective method aimed at managing complex spatial movements in the development of professional competencies through physical training methods during independent physical training and sports was based on special physical training of the polytechnic university students. The

experimental combined movements included special exercises aimed at managing physical and emotional stability (Panachev & Chaliapin, 2010; Udalova, 2015) - the foundation of the entire physical education: relaxation exercises, motor reaction speed exercises, exercises aimed at coordination of movements of different body parts, at the accuracy of motion reproduction according to time parameters, spatial strength, special exercises with vibration fitness equipment simulating body tremors and vibrations at an elevated heart rate during the competition. In order to develop the effectiveness of physical and psychological stability, movements were executed both with opened and with closed eyes. Student's T-test was used to compare the results in the experimental and control groups (50 people) that provided the possibility to compare the mean values of two independent samples. Comparison parameters were the general characteristics of student physical fitness related to coordination of movements - spatial coordination ability aspects (SCA).

Data, Analysis, and Results

Development of combined movements was carried out by identification of points that could be used to measure management efficiency of spatial coordination ability. Using the biomechanical method proposed by D.D. Donskoy (1994), the author of this study identified five most active points that influence spatial management of the human body in statics and dynamics:

- I-II point - right and left shoulder;
- III-IV point - the upper part of the left and right hip;
- V – the active point in the front area of the diaphragm and chest.

These points are used for balance control during the execution of specific exercises (stability in the Romberg position with closed and open eyes, at a special mobile platform) in statics and dynamics, work stability in these poses. In this research, the author designed accessible (for students) educational system of special means of classical dance choreography and individual training technique that implies high level of coordination abilities and motor qualities in the process of physical education.

The analysis of educational materials on physical education found inaccurate substantiation of training methods and techniques of performing a perfect stability exercise (Akhmerova, 2001; Weiner, 2004). According to some adjustments, stability technique under complex coordinated spatial body management aimed at providing professional motor competencies from various positions is implemented across the sagittal plane that divides the human body in half vertically and passes through its center of gravity. These adjustments prevent loss of balance and excessive energy consumption as well as inexpedient and lasting training process (Panachev & Chaliapin, 2010).

In particular, the physical and psychological stability control technique is not accurately adjusted under the current execution procedure of precise physical exercises (Weiner, 2004). In this regard, the author developed a perfect technique of precise physical movement by using the electronic complex stability equipment SCATT. This machine is widely used in training shooters as well as in the general training process (Udalova, 2015). SCATT was used to control the coordination of students during physical training classes to achieve better results of the applied exercises.

Under such coordination of the musculoskeletal system, special exercise is carried out in a controlled manner with feedback through SCATT showing the most effective result. SCATT is an electronic exercise machine designed for training in shooting from different types of weapons, which allows simulating shooting at distances from 5 to 1000 m. Unlike devices that make it possible only to record a hole in the target, SCATT records prehistory by means of precision registration of the aiming point movement (i.e., movement of a weapon in regard to the target) with a very high registration accuracy of the aiming point movement (less than 0.1 mm/10 m). The aiming trajectory when a person moves the weapon to the target is displayed on the computer screen. The analysis allows identifying errors in shot performance, trigger usage, and methods aimed at their prevention and elimination, using the computerized simulator SCATT (Udalova, 2015). The possibility of using feedback and error analysis in the complex coordination of movements allowed using the simulator in the present study to assess execution of exercises for SCA development in students.

The study, which lasted 9 months, was attended by 100 male students aged 17 -19. The experimental (EG) and the control group (CG) consisted of 50 people. The EG students were trained according to the originally developed program, the KG students – according to the standard one.

Statistical analysis of the main experiment, which lasted 3 months, found that EG demonstrated significant improvement of spatial coordination control in terms of the ideal performance of special exercises, reflecting interaction clarity of all sensory (analyzer) systems and the level of inter- and intramuscular coordination of the motor apparatus.

In general, the quality improvement made 8% ($p < 0,001$). In the CG, this figure decreased to - 0,3% ($p > 0,05$).

In the EG, SCA with open eyes made 11% ($p < 0,001$), in the CG - 4% ($p < 0,05$).

SCA with closed eyes in the EG made 15% ($p < 0,001$) and in the CG, 1% ($p > 0,05$), respectively.

SCA after the standard load (which amounted to 30 full sit-ups in 30 seconds) with open eyes in the EG improved by 12% ($p < 0,001$), in the CG – by 0,2% ($p > 0,05$).

SCA with closed eyes made 18% ($p < 0,001$) and 2% ($p > 0,05$), respectively.

As regards static stability management, the EG growth amounted to 6% ($p < 0,05$), sensitivity of the vestibular analyzer - 8% ($p < 0,001$), reflexometry - 5% ($p < 0,001$). Similar indicators in the CG students trained according to the standard program did not change significantly.

The results are reliable and indicate that the developed method can improve spatial coordination abilities of students. Combined movements are easy to learn, therefore, students quickly passed to independent training without a coach. Experimental data show that students become stronger, gained confidence in their own abilities and determination to continue their physical education and healthy lifestyle. This attitude motivates to consolidate the result and has a positive impact on their quality of life.

Discussion and Conclusion

Increasing physical and psychological stability in students, the proposed exercises lay the foundation for the improvement of their physical fitness and motor activity throughout life, i.e., they provide lifelong learning. The study (Pate et al., 2000) showed that the positive correlation between physical activity and a healthy lifestyle were most pronounced in the youth period. Thus, the author of this research believes that development of an innovative approach to physical education of university students is very relevant.

The present study provided a system of special exercises aimed at physical and psychological training of students for their further selection into the groups of special professional competence. The author of this research believes that physical and psychological stability in preparation for the professional activity is defined as a complex system consisting of two components: fine coordination of student muscle activity and management of receptors through targeted special training technique and personal competitive experience of students (Panachev & Chaliapin, 2010). Research results showed that involvement of special control actions into the teaching and learning process aimed at the development of physical and psychological stability, active exercises and other means provided better results in terms of physical preparedness of students.

In order to achieve and to maintain health, and a good quality of life, experts recommend a combination of moderate and intense exercises on a weekly basis (Haskell et al., 2007). The original combined movements provide moderate regular physical activity, thereby increasing the quality of life. The author determined the structure of the model aimed at the improvement of physical and psychological stability and motion control during exercise. This provides effectiveness of the pedagogical process in terms of student-oriented content of education and self-education.

Implications and Recommendations

Implications and recommendations for future studies are as follows. First, one needs to test the developed methodology by involving for other population groups, since research results show significantly different sports achievements of respondents depending on their gender (Pate et al., 2000) and age (Haskell et al., 2007). Second, one should promote the development of social attitudes towards a healthy lifestyle along with the understanding of physical training as the most important health guarantor. Finally, one should conduct permanent monitoring of the level of quality of life and to keep track of the ways that may contribute to its improvement; specific methods that should be developed and implemented in different regions, given the socio-cultural specificity of sport activities.

Disclosure statement

No potential conflict of interest was reported by the authors.

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