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INNOVATIVE TYPES OF MOTOR ACTIVITY IN PROFESSIONAL TRAINING OF SPECIALISTS IN PHYSICAL CULTURE AND SPORT

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Abstract

Innovative programs of physical culture and sports are designed to be more comprehensive, dynamic, mobile, open than traditional physical culture and sports. This helps to perform physical exercise and produce a commitment to a healthy lifestyle, exercise physical culture and sports independently, to teach different layers of the population of motor activity, emphasizing the psychological impact of physical exercises on health. Innovative types of motor activity embodied in new programs allow specialists in physical culture and sports to develop various motor skills and ability to work in a team, while pupils feel more comfortable in the motor environment.

Detecting the role of leading elements of movements allows coaches and their ward to focus on decisive movement links and on this basis to achieve an increase in the effectiveness of sports exercises. It is on this basis that the latest innovative types of motor activity are created. Thus, for a more rational development of human physical qualities, it is worth using modern digital technologies that we consider the comprehensive component of innovative motor activity.

Sports and physical culture, beyond doubt, one of the main means of education of movements, improving their fine and accurate coordination, development of the necessary individuals of motor physical qualities. However, the functionality of sport is much more multifaceted than it may seem in the surface study of this sphere of human activity. It is a common view that sport helps develop exclusively in physical plan. In fact, sports contribute to the formation of a harmonious and comprehensively developed personality, which is easily adapted in changing conditions of life, which is especially relevant for the modern world. In the process of exercise physical culture and sports, it is hardened by the will, character, improves the ability to manage themselves, quickly and properly navigate in various complex situations, to make decisions, reasonably risk or refrain from risk. Physical culture and sports plays an important social, moral and ethical, valuable orientation function. Innovations and innovative activities are traditionally presented as a direction of scientific and technological progress and as a process associated with the introduction of results of scientific research and development in practice. However, the meaning and content of the concept of "innovation" on physical culture and sports are wider. The scope of innovation is comprehensive, it not only covers the practical use of scientific and technical developments and inventions, but also includes changes in the product, processes, marketing, organization. Innovation acts as an explicit factor of change as a result of activity embodied in a new or advanced product, technological processes, new services and new approaches to meet social needs. Implementation of innovations in professional activities of FC&S specialists involves increasing the efficiency of motor activity of various categories of population due to the use of innovative health and fitness technology and digital sports and health technologies.

Keywords: specialists in physical culture and sports, innovative sports technologies, physical activity, health and fitness technologies, digital sports and health technologies.

Formulation of the problem. Innovative education is the development and expansion of quality education, a vital way to develop the creativity, high quality abilities and talents of students. In the modern era with the development of information and communication technologies various sports and physical education programs are improving. Innovative physical education and sports programs are designed to be more comprehensive, dynamic, mobile, open than traditional physical education and sports. It helps to exercise and develop a healthy lifestyle, exercise and play sports on one's own, teach different segments of the population motor activities, emphasizing the psychological impact of exercise on health. Innovative types of motor activity, embodied in the new programs, allow specialists in physical culture and sports to develop students' different motor skills and abilities to work in a team, while they feel more comfortable in the motor environment.

In this context, the introduction of innovative types of motor activity in the professional activity of physical culture and sports specialists is of interest as a new paradigm for training (Chesbrough, 2003), and physical education would be useful to "systematically encourage and study a wide range of internal and external sources of innovations and new opportunities, consciously integrating these studies with sustainable opportunities and resources and making extensive use of these opportunities in a variety of ways" (West and Gallagher, 2006). Thus, the problem of studying innovation in sports and physical programs is relevant.

Analysis of current research. The development of physical culture and sports is based on the Resolution of the Verkhovna Rada of Ukraine "On ensuring sustainable development of physical culture and sports in Ukraine in the context of decentralization of power" (2016), Targeted comprehensive social program for physical culture and health (2016) and others.

Conceptual, theoretical and methodological principles of activity of specialists in the field of physical education and spots are revealed in the works of O. Azhippo, O. Tomenko, Y. Lyanny, O. Mikheenko, P. Rybalko, D. Bermudes, N. Belikova, B. Dolynsky, M. Nosko and etc. A significant scientific contribution to the development of the theory of physical education and sports was made by domestic scientists S. Bubka, M. Dutchak, I. Maksymenko, V. Platonov, Y. Briskin, V. Kostyukevich, A. Maglyovany, and others. Researchers have revealed in their works the leading direction of optimizing the training of athletes.

Physical culture and sports are an important part of our lives that are becoming increasingly popular. Exercise maintains health, provides relaxation, and maintains the figure and strengthens social, psychological and spiritual health through the education of patience and endurance. Also, physical education and sports is a process where one of the social activities of people takes place, which is recognized in society around the world, and therefore is a means of bringing people together (Eitzen and Sage, 2003). Participation in sports activities and training allows you to feel part of a reliable group and learn a sense of belonging (Allen et al. 2008). Researchers also believe that physical education and sports bring health benefits or pleasure when people get together, but for many participants it is an experience that is inextricably linked to their individuality and self-esteem (Weiss et al., 2001). In other words, physical education and sports can be used as a way to preserve one's cultural identity (Stodolska and Alexandris, 2004). Therefore, people who do not play sports may lose valuable opportunities for socialization, education, and even professional development (Majumdar et al., 2012). Promoting physical culture and sports has a positive impact on well-being, health and, consequently, a reduction in the costs that accompany health care (Pawlowski et al., 2014). In this context, it is necessary to promote the participation of various segments of the population in sports, providing adequate sports infrastructure (Wicker et al., 2013). It develops the skills, knowledge, values and attitudes needed to form and lead an active and healthy lifestyle, as well as build confidence and competence in solving problems through a wide range of activities. It is also an approach to increase physical activity of young people and reduce chronic diseases (Hilland et al., 2016). Physical education and sports provide a rational basis for involving young people in regular structured physical activity, and also help to accumulate knowledge, skills and approaches that allow you to participate in innovative physical activity throughout life (Heath et al., 2012). In other words, physical activity can be seen as an important aspect of quality of life and is evidence of organized physical activity (Kilborn et al., 2016). Physical education supports personal and social well-being, helps to achieve a high level of activity and fitness for all; encourage the acquisition of motor skills; develop new approaches and develop specific technologies designed to meet the needs of all in physical growth and development.

At the same time, the analysis of scientific works shows the lack of systematic theoretical and practical research on the use of innovative technologies in the professional activities of physical education and sports specialists. This problem needs further understanding and research.

The purpose of the article. To consider the basics of using innovative types of physical activity in the professional activities of specialists in physical culture and sports.

Research methods. Theoretical methods: systematic analysis of scientific, psychological and pedagogical, methodological literature; generalization and systematization of theoretical information on the professional activity of specialists in physical culture and sports. Empirical methods: questionnaires to study the real state of professional activity of specialists in physical culture and sports.

Presenting main material. Innovation is the process by which new assets are created or new potential for action is developed. Innovation is the key to competitive advantage in a changing environment. This is an important source of market and economic growth, and hence all other areas of public life. In a complex and changing environment, innovation creates value and sustainable advantage, as well as helping to work better and create new products and services (Hana, 2013). In other words, innovation can be seen as the adoption of a new idea, product, method or service. In addition, innovations such as the introduction of inventions and modified products and services have commercial value and are seen as a process or sequence of events in which people interact with each other to bring new ideas to the organization. Innovative potential reflects the trend towards novelty, experimentation and the creative process that help in growth and diversification. On the other hand, it is considered a successful exploitation of new ideas. In other words, it is the process of creating new things and phenomena through the necessary technological channels and creative thinking (Comlek et al., 2012). In order to successfully move forward, it is necessary to pay more attention to innovative projects. This should be a key point in the organization of practical work on physical education and

sports. The introduction of innovative technologies allows to conduct the training process at a qualitatively new level and develop sports for all.

Today, innovative health and fitness technologies are not the property of the personal experience of individual professionals, but they are evolving in line with the achievements of medical science. Any technology of physical culture and rehabilitation includes setting goals and objectives of rehabilitation and the actual implementation of physical culture and fitness in one form or another.

Among the innovative technologies for health and fitness are now relevant: stretching, stretching toys (for preschool children), press dance techniques (exercises on the step platform, step aerobics, Zumba, step, step-basic + core, StepmiSculpt, doublestep), dancemix, hotiron (Training with mini bar), Crossfit (circular training without rest), fitball (exercises with a big elastic ball), ABL (leg training, Pilates exercises, yoga and stretching), body training (strength training , conducted in aerobics), slide, "Bosu" Platform training.

For example, stretching is a set of exercises designed to keep muscles elastic and joints flexible and mobile. Experts believe that stretching has many advantages:

a) due to stretching the muscles receive more blood, they relax and become more elastic;

b) joints become more mobile, resulting in increased flexibility;

c) better prevention against salt deposition;

d) focused, deep breathing has a beneficial effect on the brain, especially after a hard day's work;

e) the opportunity to practice at home on one's own, at a convenient time.

New needs, requirements and interests in the field of physical education and spots dictate the need for new knowledge, with which the specialist will be able to independently develop new sports and sports programs and techniques.

We conducted a survey of the coaching staff of well-known online gyms and sports clubs of Ukraine (126 respondents, conducted using the Google platform). According to its results, we note that gyms and clubs today present new health technologies on the following principles - synthesis of technologies: Zumba-step (Zumba + steppl form exercises), ABL (abdominal + buttocks + feet in the program), Dancemix (a mixture of different elements dance styles of the past and present), Wellnessmix (Pilates + individual training program), etc.

Identifying the leading elements of movement, providing the main effect of motor action in training and improving technique in sports training, gymnastics and martial arts, is of great importance because, on the one hand, assessing the role of movement elements allows more purposeful construction of the training process. another - the features of geotechnical actions allow relatively simple techniques to identify the leading elements of movement, using models with a small number of body parts. In simple exercises, you can sometimes qualitatively assess the role of the elements of movement. In complex exercises, when the role of the elements of movement depends on the set of motor actions of many parts of the body, it is often difficult to identify the leading element of movement at all, without even touching on the question of quantifying its role. In most cases, the effectiveness of motor activity can be expressed by any basic, leading biomechanical characteristic (or a set of such characteristics).

Thus, when lifting weights, when getting up from a squat and in a number of other similar cases, the leading biomechanical characteristic is the change in the ordinate of the total center of gravity of the "human-weights" system or, respectively, the ordinate of the center of gravity of the human body. In jumping upwards from a place the basic biomechanical parameter of the reference period is speed of a body at the moment of the termination of connection with a support which characterizes height of its flight phase. When changing the static force of the main biomechanical parameter is the amplitude of the forces of interaction with the support. In somersaults back from the crossbar, the leading parameters of the reference period are: the velocity vector of the body and the rotational momentum at the moment of termination of connection with the support, which characterize the translational and rotational motion in the unsupported phase of the descent.

Similarly, for each human movement, for any sports exercise, given the purpose, target orientation and the expected result of motor action, you can find one (or more) leading, basic biomechanical characteristics. Obviously, the role of the leading elements of movements should be assessed by their impact on the leading, basic biomechanical characteristics of movement.

In order to successfully navigate in different areas of use of modern biomechanical ergogenic tools in sports, it is necessary to know the patterns of spatial orientation of the athlete's body relative to different coordinate systems, as well as the main causes of certain movements of the human body. Identifying the role of the leading elements of movement allows coaches and their wards to focus on the crucial links of the movement and to improve the effectiveness of sports exercises. The latest innovative types of motor activity are created on this basis.

Questionnaire responses of the coaching staff of well-known network gyms and sports clubs of Ukraine revealed that today the latest digital technologies are being actively introduced into the process of physical training, strength, muscle, speed, endurance, thus ensuring the innovativeness of the process of motor activity.

For example, a very useful technical novelty was developed by the Finnish company Fam Sports. The device for sports is designed for low voltage currents and is used to stimulate neuromuscular reactions of the brain. The device gives a complete assessment of the body in just 15 seconds. The name of this device is Check (Fig. 1).

Fig. 1. Check – the device stimulating the neuromuscular response of the brain

It also gives a signal at a time when training can hurt or injure. The principle of operation of the device is very simple. The electrodes are attached to the palm of the hand, then the device, by transmitting small electrical impulses to the athlete's body, transmits an electric current through the body to the brain. The body's reaction to such an action is recorded in the application on the smartphone, and then all the necessary information for further action is issued. The developers claim that the device will be useful to those who do exercises that require strength, coordination and speed. Nowadays, fitness trackers or fitness bracelets are gaining more and more popularity. They look like ordinary electronic watches, but do a tremendous job. Measurements of heart rate, calories burned, walking and running distance, fluid intake and more are included in the standard data set of bracelet data. The most popular fitness trackers today are: Xiaomi MiBand 3 and Samsung GearFit 2 (Kokoulina, Simina & Tatarova, 2019).

In 2000, the Austrian doctor of sports medicine, physiologist Norbert Egger proposed a unique simulator that allows you to perform exercise in conditions of low and high atmospheric pressure for certain body segments. This led to a significant increase in the intensity of blood circulation in the abdomen and lower extremities and provided an active supply of oxygen to adipose tissue. As a result, a moderate load led to a reduction in fat in places where regular exercise and diet to get rid of fat was extremely difficult. HYPOXI exercise machines are presented in the form of capsules with an exercise bike inside, in which the mode of change of pressure and loading is simulated that allows to solve actively a problem of fat deposition on hips and in the lower part of a stomach. These exercise machines are especially effective for women with a pear-shaped physique who have problems with fat deposits in the thigh area. This technique is also used for the prevention of venous diseases and venous stasis, due to the use of compression techniques, stimulating blood vessels, which accelerates the outflow of metabolites, which in turn relieves and supports blood vessels (Fig. 2).

Fig. 2. HYPOXI - exercise machines in the form of capsules with an exercise bike

Thus, for more rational development of physical qualities of the person it is necessary to use modern digital technologies which we consider as an obligatory component of innovative motor activity.

Conclusions and prospects for further scientific research. Sport and physical culture, without a doubt, is one of the main means of training of movements, improvement of their fine and exact coordination, development of motor physical qualities necessary for the

person. However, the functionality of sport is much more diversified than it may seem in a cursory study of this area of human activity. It is widely believed that sport helps only physical development. In fact, sport contributes to the formation of a harmoniously and comprehensively developed personality that is easily adapted to the changing conditions of life, which is especially true for the modern world. In the process of physical culture and sports, the will and character are hardened, the ability to manage oneself, to orient oneself quickly and correctly in various difficult situations, to make timely decisions, to take reasonable risks or to refrain from risk is improved. Physical culture and sports play an important social, moral and ethical, value-oriented function.

Innovation and innovative activity are traditionally presented as a direction of scientific and technological progress and as a process associated with the implementation of research and development in practice. However, the meaning and content of the concept of "innovation" in relation to physical culture and sports is broader. The field of innovation is comprehensive, it not only covers the practical use of scientific and technical developments and inventions, but also includes changes in the product, processes, marketing, organization. Innovation acts as a clear factor of change, as a result of activities embodied in a new or improved product, technological processes, new services and new approaches to meeting social needs. The introduction of innovations in the professional activities of physical education and spots specialists involves increasing the efficiency of physical activity of various categories of the population through the use of innovative health and fitness technologies and digital technologies of sports and health.

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