



TEACHING ANATOMY TO FUTURE ATHLETES — THE FOUNDATION FOR EDUCATING PHYSICALLY HEALTHY YOUTH

Rakhmonova Dilobar Ostanakulovna

Lecturer, Department of Biology

Navoi State Pedagogical Institute

Olimova Aziza Ikhtiyor kizi

Student, Biology Education Program

Navoi State Pedagogical Institute

<https://doi.org/10.5281/zenodo.17999397>

ARTICLE INFO

Received: 18th December 2025

Accepted: 19th December 2025

Online: 20th December 2025

KEYWORDS

anatomy, athlete, healthy generation, physical education, medical literacy, training process, sports physiology

ABSTRACT

This article analyzes the role of anatomy in the sports education system, its significance in the scientific organization of training processes, as well as its importance in maintaining athletes' health, preventing injuries, and properly developing physical abilities. Deep mastery of anatomical knowledge enhances the medical literacy of future athletes, shaping them into responsible individuals with a scientific approach and physical health

Introduction. In the current era of globalization, educating a healthy and physically mature generation is one of the priority tasks of every state. In particular, representatives of the sports field — future coaches and athletes — play a key role in strengthening human health and properly developing physical capabilities. From this perspective, the in-depth study of anatomy is an integral part of the athlete training system. Anatomy studies the structure of the human body, the functions of organs, and their interrelationships. This knowledge provides a foundation for organizing sports training on a scientific basis.

Today, forming a healthy lifestyle, developing physical culture, and paying attention to the hardening of the younger generation are among the important directions of state policy. In this regard, the medical-biological knowledge of future physical education teachers, particularly their deep mastery of anatomy, holds special significance. Anatomy is a science that studies the structure and function of the human organism and helps organize health-promoting exercises on a scientific basis.

Teaching anatomy introduces physical education teachers to the structure of the human body, as well as the operating mechanisms of the muscular, skeletal, cardiovascular, respiratory, and nervous systems. This knowledge enables the proper distribution of loads during training sessions based on age, gender, and health status.

A pedagogue knowledgeable in anatomy develops skills in students for correctly performing exercises, prevents injuries, and implements physical activity on a scientific basis. At the same time, by taking into account each student's individual physiological capabilities, they maximize the health-promoting effect.

Anatomical knowledge, alongside increasing medical literacy, also shapes the teacher's professional competence. This enables conducting physical education sessions in a safe, effective, and health-promoting direction.

Anatomy serves as the scientific foundation for understanding the changes occurring in the human organism during physical exercises. For an athlete, knowing the physiological and anatomical mechanisms of every movement is crucial. For example, an athlete familiar with muscle structure and contraction mechanisms performs exercises correctly, avoiding excessive strain and preventing injuries.

Furthermore, anatomical knowledge assists in monitoring the body's adaptation to loads, properly organizing recovery stages, and establishing an optimal training regimen.

In sports, anatomy is a discipline focused on studying body structures — bones, muscles, joints, and connective tissues — to understand how they function during athletic activity, thereby improving sports performance, protecting against injuries, and accelerating recovery. Key concepts include the basic skeletal system (skeletal anatomy), the structure of muscles involved in force generation (including different types of muscle fibers for endurance and strength), and the anatomy of connective tissues that play a critical role in stability and force transmission through ligaments and tendons.

Anatomy explains the structure and positioning of various body parts, creating a basis for better understanding them. Human anatomy examines how every component, from molecules to bones, interacts to form a functional whole.

Childhood and adolescence are recognized as the most critical stages for developing optimal physical literacy. Physical literacy is defined as “the ability, confidence, and desire to be physically active throughout life.” This concept forms the foundation for lifelong health and physical preparedness. Additionally, mastering fundamental movement skills in childhood is an essential factor for strengthening future interest and confidence in physical activity. Insufficient acquisition of these skills leads to an inability to compete physically and socially with active peers. This, in turn, negatively affects motivation, desire, and the ability to be physically active, increasing the risk of injury during adolescence and adulthood. Of particular concern is the inadequate development of muscle strength in children, as muscular physical conditioning is a key factor in health, well-being, and success for any age participating in sports or recreational activities.

The purpose of teaching anatomy to future athletes is to develop their understanding of the laws of physical development, comprehension of the body's response to sports loads, and the ability to apply health-promoting principles in practice.

Discussion and Results. The physical activity level of today's younger generation is alarmingly low compared to previous generations, while on the other hand, the trend of forcing children into high-intensity and frequently repeated training from an increasingly early age in youth sports programs is growing — both raise serious concerns. Thus, we observe two opposing situations in physical activity among youth. At one end of the physical activity spectrum are children with almost no access to recess or physical education classes, leading sedentary lifestyles, and experiencing rising rates of diseases such as diabetes and obesity. At the other end are children engaged in excessive physical training, early specialization in their sports, and facing high risks of overuse injuries and mental burnout. Both situations indicate alarming conditions for the physical literacy, overall health, and well-being of future generations.

An athlete's body is exposed to high levels of physical stress. Therefore, with the help of anatomy, the athlete deeply understands the importance of muscles, bones, joints, heart, and respiratory systems in sports. Based on this knowledge, the athlete controls their body and adheres to a healthy lifestyle.

In the process of teaching anatomy, athletes learn to protect their health through knowledge of body structure, as well as to follow personal hygiene, rest, and nutrition regimens. Furthermore, anatomical knowledge serves to form a healthy lifestyle, develop sports culture, and promote the valuing of health among youth.

Thus, anatomy is not only a medical but also a pedagogical science of great importance, playing a key role in ensuring the physical, mental, and intellectual maturity of future athletes. In conclusion, anatomy is the scientific foundation of the physical education system. Through its in-depth study, teachers acquire the necessary knowledge and skills to educate healthy, hardened, and physically active youth.

Therefore, anatomy is not merely a theoretical discipline but a practical key to preserving human health and raising a healthy generation.

In-depth teaching of anatomy to future athletes is an essential condition for shaping them into responsible individuals capable of conducting training on a scientific basis with a health-promoting approach. Anatomical knowledge is a fundamental factor in properly organizing the sports process, preventing injuries, and raising a healthy generation.

Therefore, in-depth teaching of anatomy in the physical education direction and its integration with practical exercises is a reliable guarantee for educating healthy, hardened, and physically active youth

References:

1. From the speech of the President of the Republic of Uzbekistan at the meeting on further developing the Olympic and Paralympic movement and advancing mass sports to a new level. February 13, 2025.
2. Mamatqulov D.A., G.A. Shakhmurova. Sports Anatomy and Biomechanics. Tashkent: "Ilm Ziyo," 2016.
3. Safarova D.D. Sports Morphology. Tashkent, 2015.
4. Rakhmonova D.O. Methodological principles and innovative methods of teaching anatomy to future physical education teachers. Pedagogic Mastery. Scientific-Theoretical and Methodical Journal, 2025, No. 5.
5. Нуриев, К. К., Рахматов, О., Кадирова, Р. С., & Рахматов, О. О. (2015). Биоконверсия органических отходов растительного происхождения в условиях Узбекистана. In Проблемы рекультивации отходов быта, промышленного и сельскохозяйственного производства (pp. 468-470).
6. Джураев, А. Ж., Нуриев, К. К., & Юсуфалиев, А. (2003). Разработка высокоресурсных лап для культиваторов. Тракторы и сельскохозяйственные машины, 2, 42-43.
7. Rakhmatov, F. O., Rakhmatov, O., Nuriev, K. K., & Nuriev, M. K. (2021, October). Combined dryer with high efficiency for drying high-moist agricultural products. In IOP Conference Series: Earth and Environmental Science (Vol. 868, No. 1, p. 012076). IOP Publishing.
8. Nuriev, K. K., Nuriev, M. K., Rakhmatov, O., & Rakhmatov, F. O. (2022, August). Comprehensive assessment of the degree of flooding of soil-cutting working bodies (on the

example of plow shares). In IOP Conference Series: Earth and Environmental Science (Vol. 1076, No. 1, p. 012069). IOP Publishing.e

