To National university of Ukraine
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Review of the Educational and Professional Program "Physiology of Motor Activity" for Master of Science in Biology and Biochemistry in National university of Ukraine of physical education and sport

General Information

The educational program "Physiology of Motor Activity" at the Master's level aims to prepare highly qualified specialists capable of conducting scientific research and applying knowledge in the fields of physiology, biomechanics, sports medicine, and physical rehabilitation. The program focuses on the theoretical understanding of physiological processes during physical activity, as well as the development of methodologies to optimize sports performance and improve the health of individuals through movement.

The program covers the physiological mechanisms that underlie physical activity, the body's adaptation to various types of movement, as well as the mechanisms involved.

Program Content:

The program covers a broad spectrum of scientific disciplines, including exercise physiology, neurophysiology of movement, biomechanics, training physiology, sports medicine, and methods for monitoring physiological parameters of the body (such as cardiopulmonary monitoring, electromyography). The focus is on understanding the impact of different physical loads on various body systems, including the muscular, cardiovascular, respiratory, and nervous systems.

A unique feature of the program is the in-depth study of adaptation mechanisms to prolonged or intense exercise, as well as the emphasis on recovery after physical efforts, which is essential for developing rehabilitation methods and sports training programs. The inclusion of specialized courses such as "Physiology of Recovery" and "Prevention of Sports Injuries" facilitates a thorough understanding of the rehabilitation process after overexertion.

The program also incorporates the application of cutting-edge technologies in physiology and sports medicine, such as biomechanical motion analysis, sports engineering, and bioengineering methods to enhance athletic performance.

Teaching Methodology:

The teaching methods in the program combine traditional techniques (lectures, seminars) with modern practical approaches. Students are actively involved in scientific research, conducting laboratory work, analyzing data, observing physiological processes, and working with advanced equipment for measuring physiological parameters. Special attention is given to developing skills for conducting experimental research and interpreting the results.

The program integrates the case-study method, allowing students to work with real-life examples from sports medicine, athletic teams, and training processes. In addition, students have the opportunity to engage in research projects aimed at addressing current challenges in exercise physiology, which provides valuable experience in conducting complex studies.

Compliance with Labor Market Requirements:

The program meets the current demands of the labor market. Specialists trained under this program can work in various fields, including sports medicine, rehabilitation, physiotherapy, sports training, and scientific research. Graduates are prepared to apply theoretical knowledge to solve practical problems, such as developing individualized training plans, analyzing physiological processes during physical activity, and preventing injuries in athletes.

However, to ensure better alignment with labor market requirements, the program should emphasize interdisciplinary skills, such as an understanding of sports psychology, coaching, and sports organization management. These competencies are essential for professionals to effectively operate in modern sports environments.

Recommendations:

- It is recommended to expand the curriculum to include modern trends in sports medicine, such as genetic physiology, the use of artificial intelligence technologies for analyzing physiological data, and predicting training outcomes.
- Greater emphasis should be placed on interdisciplinary approaches, including the integration of physiology with other fields such as sports psychology, nutrition, and bioethics.
- To improve practical training, more opportunities for internships in sports clinics, training centers, and research institutions should be offered.

Conclusion:

The "Physiology of Motor Activity" Master's program is a comprehensive, research-oriented educational track that provides students with in-depth theoretical knowledge and practical skills in the fields of physiology and sports medicine. The

program prepares specialists capable of addressing complex challenges related to analyzing and improving human physical activity.

To further enhance the effectiveness of the program, it is recommended to focus on integrating the latest technologies, as well as deepening collaboration with real-world work environments in sports institutions and scientific laboratories. Overall, the program is of high quality and meets the requirements of the current labor market.

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