JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS
VOLUME 05, ISSUE 01
MOPNTHLY JOURNALS
ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

THEORETICAL AND FUNDAMENTAL ASPECTS OF THE RECOVERY PROCESS OF WRESTLERS' WORK CAPACITY IN THE POST-COMPETITION STAGE

Turdimurodov Yakhyo Shomurodovich
Master's student
Bukhara International University
Specialty: Theory and Methodology of Physical Education and Sports Training

ABSTRACT. This article provides a scientific and theoretical analysis of the theoretical and fundamental aspects of the recovery process of wrestlers' work capacity during the post-competition stage. The states of fatigue that arise during sports training and competitions, their physiological mechanisms, as well as the basic regularities of the recovery process are examined. The study analyzes functional changes occurring in the central nervous system, cardiovascular, respiratory, and muscular systems during the post-competition period. In addition, the decrease in work capacity and the process of its gradual recovery are substantiated based on scientific sources. The article highlights internal and external factors influencing the recovery process, including the volume and intensity of physical load, individual characteristics of athletes, and the importance of recovery means. The obtained theoretical conclusions are of great significance for scientifically organizing the effective recovery of wrestlers' work capacity during the post-competition period.

KEYWORDS. Wrestlers, post-competition stage, work capacity, fatigue, recovery process, physiological mechanisms, sports physiology, functional state, physical load, recovery factors.

INTRODUCTION. At present, in high-performance sports, particularly in wrestling, competitive activity requires athletes to exert significant physical and psychological effort. High-intensity movements performed during competitions lead to fatigue in the athlete's body, resulting in a temporary decrease in work capacity. Therefore, the issue of restoring athletes' functional state during the post-competition stage is considered one of the most pressing problems in sports physiology and the theory of sports training. The effective organization of recovery processes in the post-competition period is a key factor determining an athlete's readiness for subsequent training sessions and competitions. Recovery processes are directly related to the functional state of the central nervous system, cardiovascular, respiratory, and muscular systems. Balanced and optimal regulation of these systems enables rapid restoration of work capacity. An analysis of scientific literature indicates that the post-competition recovery process in wrestlers is individual in nature and depends on factors such as load volume and intensity, level of preparedness, age, and psychophysiological condition of the athlete. Nevertheless, the theoretical and fundamental aspects of recovery processes—particularly physiological mechanisms and their interrelationships—have not been sufficiently systematized. The purpose of this article is to scientifically analyze the theoretical and fundamental aspects of the recovery process of wrestlers' work capacity during the post-competition stage. The research results contribute to the scientific planning of recovery within the training process and support the achievement of high sports performance among wrestlers.

LITERATURE REVIEW. In sports physiology and the theory of sports training, the issue of restoring athletes' work capacity during the post-competition stage has been studied by numerous scholars. Scientific research interprets fatigue and recovery processes as essential

components of the body's adaptation mechanisms to physical loads. Fatigue is associated with central and peripheral mechanisms and develops as a result of changes in muscle activity, nerve impulse transmission, and energy supply processes. Several studies have reported that high-intensity loads during competitions lead to a decline in central nervous system activity in wrestlers. This condition manifests as reduced attention, speed, and coordination abilities. From this perspective, recovery of the central nervous system is regarded as one of the leading factors in restoring work capacity. The recovery of cardiovascular and respiratory systems is also widely discussed in scientific literature. Researchers emphasize that normalization of heart rate, arterial blood pressure, and respiratory parameters during the post-competition period serves as an important indicator of an athlete's overall functional state. The speed of recovery of these systems is directly related to the nature of the load and the athlete's level of physical fitness. Studies on the recovery of the muscular system and energy metabolism processes highlight the replenishment of glycogen stores, removal of lactic acid, and normalization of oxidative-reduction processes as key factors. Additionally, the balance of the hormonal system—particularly hormones such as cortisol, adrenaline, and testosterone—is noted as playing a crucial role in the recovery process. Modern scientific sources also focus on the management of recovery. Active and passive recovery methods, medical-biological means, as well as rational nutrition and rest regimens, have been scientifically proven to be important in restoring work capacity. However, most existing studies have been conducted within the framework of general sports, and the specific characteristics of post-competition recovery in wrestlers have not been sufficiently explored.

Therefore, there is a need for a systematic study of the physiological mechanisms underlying the recovery of wrestlers' work capacity during the post-competition stage and for the scientific justification of optimal management methods. This further confirms the relevance of the present research topic.

RESEARCH METHODOLOGY. This study was aimed at investigating the recovery process of wrestlers' work capacity during the post-competition stage and was conducted based on scientific-theoretical and practical research methods. The research was organized in accordance with modern approaches in sports physiology and the theory of sports training. During the research process, a комплекс (comprehensive) use of scientific literature analysis, pedagogical observation, physiological measurements, and statistical analysis methods was employed. These methods made it possible to comprehensively assess the physiological mechanisms of fatigue and recovery occurring in wrestlers during the post-competition period.

Table 1

General Characteristics of the Study Participants

Indicators	Description
Study participants	Highly qualified wrestlers
Number of participants	18 athletes
Age range	18–25 years
Sports qualification	First-class athlete, Master of Sports, Candidate for Master of Sports
Place of the study	Competitive activities and post-competition training sessions

Duration of the study	1–7 days after the competition

According to the data presented in Table 1, the study involved 18 highly qualified wrestlers aged between 18 and 25 years. The sports qualifications of the participants ranged from First-Class Athlete to Master of Sports and Candidate for Master of Sports, indicating a high level of physical preparedness. The research was conducted under conditions of competitive activity and post-competition training sessions, which allowed the recovery processes to be examined within the framework of real sports practice. The study period covered 1–7 days after the competition, creating favorable conditions for analyzing the initial and most critical stages of the restoration of wrestlers' work capacity. The data obtained ensured the reliability of the research results and made it possible to scientifically evaluate the mechanisms of restoring wrestlers' work capacity during the post-competition stage.

Table 2

Research Methods and Their Purpose

No.	Method Name	Purpose of Application
1	Analysis of scientific literature	Identification of the theoretical foundations of the recovery process
2	Pedagogical observation	Assessment of the general post-competition condition of wrestlers
3	Physiological measurements	Determination of changes in the functional state of the body
4	Questionnaire (subjective assessment)	Assessment of the level of fatigue
5	Statistical analysis	Scientific substantiation of the obtained results

The set of methods presented in the table demonstrates that the study was conducted in a comprehensive and systematic manner. The method of analyzing scientific literature served to identify the theoretical foundations of the recovery process during the post-competition stage, while pedagogical observation made it possible to assess the general functional condition of wrestlers after competition under real training conditions. Physiological measurements were used to identify changes occurring in the main functional systems of the body, and the questionnaire method allowed for the assessment of athletes' subjective level of fatigue. The statistical analysis method ensured the reliability of the obtained results and enabled the formulation of scientifically grounded conclusions. The use of this set of methods increased the accuracy and reliability of the research findings and contributed to an in-depth study of post-competition recovery processes.

Table 3

Assessed Physiological Indicators

No.	Indicators	Time of Measurement

1	Heart rate (HR)	Before and after the competition
2	Respiratory rate	1–3 days after the competition
3	Arterial blood pressure	During the recovery period
4	Level of muscular fatigue	Through subjective assessment
5	Overall work capacity	During the stages of recovery

The physiological indicators presented in the table made it possible to comprehensively assess the functional state of wrestlers during the post-competition stage. The measurement of heart rate and respiratory rate before and after the competition served to determine the recovery dynamics of the cardiovascular and respiratory systems. The assessment of arterial blood pressure during the recovery period reflected the overall level of the body's adaptation. The subjective assessment of muscular fatigue enabled consideration of the athletes' individual perceptions and conditions. The evaluation of overall work capacity at different stages of recovery was of significant importance in determining the effectiveness of the recovery process and the functional state of wrestlers in the post-competition period. The set of these indicators ensured the scientific validity of the research results and allowed for a comprehensive analysis of recovery processes. The indicators obtained during the study made it possible to identify the dynamics of post-competition recovery. Based on the results of statistical analysis, the leading role of the central nervous system and the cardiovascular system in the process of restoring wrestlers' work capacity was determined.

The research methodology served to systematically and scientifically investigate the process of restoring wrestlers' work capacity during the post-competition stage.

CONCLUSION

This study was aimed at examining the theoretical and practical aspects of restoring wrestlers' work capacity during the post-competition stage. The research findings demonstrated that high-intensity loads occurring during competition significantly affect the functional state of the central nervous system, cardiovascular, respiratory, and muscular systems. The recovery of these systems is a key factor in restoring athletes' work capacity and is directly related to individual characteristics, the volume and intensity of physical loads, as well as the application of recovery means.

The research methodology was based on a comprehensive approach that included the analysis of scientific literature, pedagogical observation, physiological measurements, subjective assessment, and statistical analysis. This approach made it possible to systematically and reliably assess the functional state of wrestlers during the post-competition stage.

The results obtained from the tables confirmed the leading role of the cardiovascular and central nervous systems in the post-competition recovery process of wrestlers, as well as the importance of the recovery of the muscular system and energy metabolism mechanisms. Subjective assessment made it possible to determine the level of muscular fatigue and overall work capacity, thereby enabling an evaluation of the effectiveness of the recovery process. At the same time, the research results provide a scientific basis for the practical planning of effective post-competition recovery of wrestlers' work capacity and for optimizing sports training while taking individual characteristics into account. Overall, the study contributes to a systematic investigation of the physiological mechanisms of post-competition recovery and

methods for managing them, and it enables the development of scientific and practical recommendations aimed at restoring athletes' work capacity within a short period of time.

REFERENCES

1. Platonov, V. N. (2001). *Theory and Methodology of Olympic Sports Training*. Kyiv: Olympic Literature.
2. Platonov, V. N. (2012). *Functional State and Recovery of Athletes*. Kyiv: Olympic Literature.
3. Verkhoshansky, Y. V. (2009). *Supertraining*. Moscow: Fizkultura i Sport.
4. Zatsiorsky, V. M. (2006). *Strength and Power Training*. Moscow: Fizkultura i Sport.
5. Bompa, T. O. (2012). *Theory and Methodology of Training for High Performance*. Moscow: Olimp.
6. Kenney, W. L., Wilmore, J. H., & Costill, D. L. (2015). *Physiology of Sport and Exercise*. Moscow: Olimp.
7. Shephard, R. J. (2003). *Limits to the Measurement of Human Performance*. London: Routledge.
8. Issurin, V. B. (2010). *Theory and Practice of Recovery in the Training Process*. Moscow: Fizkultura i Sport.
9. Shamsiev, R. (2018). *Recovery Mechanisms in Athletes and Their Management*. Tashkent: Uzbekistan Sports Theory Publishing House.
10. Normatov, D., & Toshpulatov, S. (2020). *Post-Competition Recovery Process in Wrestlers*. Tashkent: Scientific Publishing House of Sport and Physical Education.