

Academy of Physical Education and Mass Sports

Advanced Training Courses Sports Physiology in Coaching Practice



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COURSE TITLE

Sports Physiology in Coaching Practice

Target Audience: Coaches in various sports



COURSE DESCRIPTION

The course is designed for specialists in the field of sports, aiming for a deep understanding of body systems and their responses to physical exertion, as well as applying the acquired knowledge in the training process.



LEARNING OUTCOMES

Understanding the key physiological mechanisms of sports activity, the ability to analyze movements and techniques of athletes, skills in applying modern diagnostic and recovery methods, as well as the ability to individualize training based on physiological data.



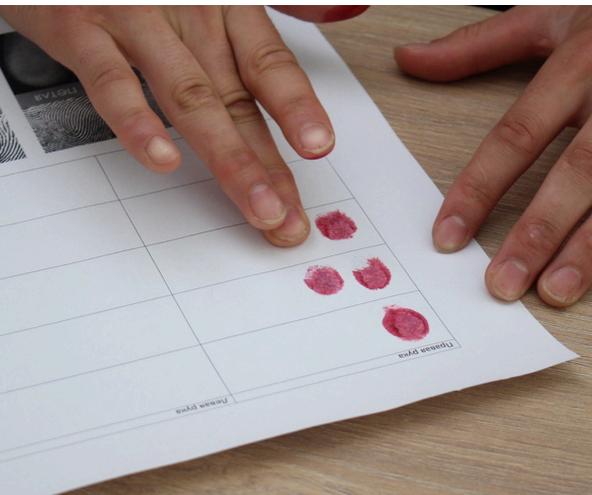
TEACHING METHODS

- Laboratory work
- Brainstorming
- Thematic research
- Interactive lesson
- Consultation
- Case study
- Work in mini-groups



COURSE OBJECTIVE

Develop fundamental knowledge in anatomy and physiology necessary for the proper design of the training process, analysis of movements and muscle mechanisms, understanding of recovery processes, as well as the hormonal and energy systems of the body.



DURATION AND FORMAT

Duration: 1 week

Dates: March 2025

Format: Online – Offline



Module 1: Fundamentals of Sports Physiology and Adaptation of the Body to Physical Exertion

Theoretical Part

Physiology as a Science: Key Concepts and Modern Research

Energy Supply of Muscular Activity: ATP, Aerobic and Anaerobic Processes

Physiological Adaptation of the Body to Physical Exertion: Supercompensation, Fatigue, Overtraining

Impact of Training Stress on the Body: Hormonal Balance, Recovery

Practical Part

Testing Aerobic and Anaerobic Capacity: Using the KardiaMobile App and Analyzing Heart Rate

Assessing Fatigue and Overtraining: Heart Rate Variability (HRV)

Applying the Supercompensation Principle: Planning Training Cycles

Module 2: Biomechanics of Movement and Optimization of the Training Process

Theoretical Part

- Principles of Biomechanics: Kinematics and Dynamics of Movements
- Muscle and Joint Function in Sports: Activation, Strength, Endurance
- The Impact of Posture, Mobility, and Stability on Movement Technique
- Load Optimization: Periodization, Progression, Variability

Practical Part

- Movement Analysis with Video Recording: Identifying Errors in Technique
- Measuring Joint Range of Motion (Goniometry) using the Goniometer Pro App
- Studying the Impact of Fatigue on Movement Technique

Module 3: Physiology of Recovery and Injury Prevention

Theoretical Part

- Physiology of Recovery: Active and Passive Recovery
- The Impact of Sleep, Nutrition, and Hydration on Recovery
- Common Sports Injuries: Mechanisms, Diagnosis, Prevention
- Physiotherapy and Rehabilitation Methods for Athletes

Practical Part

- Recovery Testing: Heart Rate, Heart Rate Variability (HRV)
 - Application of Recovery Methods: Myofascial Release
 - Learning Taping Techniques for Injury Prevention
 - Ruffier-Dickson Test
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Module 4: Modern technologies in sports physiology

Theoretical Part

- Wearable Technologies in Sports: Heart Rate Monitors, Motion Sensors, GPS
- Data Analysis in Training: Monitoring Load and Recovery
- Individualization of Training: Genetics, Metabolism, Blood Biochemistry
- Psychophysiological Aspects: The Impact of Stress and Motivation on Performance

Practical Part

- Working with Modern Sensors and Trackers: Analyzing Athlete Metrics (Inbody)
- Studying the Impact of Cognitive Loads on Physical Performance (Reaction, Stress Resistance)
- Conducting Functional Testing and Interpreting Data
- Developing an Individual Training Plan Based on Collected Data

**For more information, please
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