

MEDICAL REHABILITATION AND SPORTS MEDICINE

1. Subject of sports medicine. Historical overview. Goal and objectives. Provision of medical services to the persons engaged in professional and recreational sport. Medical control of athletes.
2. Muscle contraction metabolism. Aerobic and anaerobic pathways of energy supply. Types of muscle fibers. Types of exercise by energy supply.
3. Peculiarities of cardiovascular system among athletes.
4. Peculiarities of respiratory and nervous systems of athletes.
5. Sports nutrition. Biologically active supplements.
6. Sports pathology. Sudden cardiac death in athletes.
7. Effects of muscular exertion and sports training on human body.
8. Somatoscopy and anthropometry (height, weight, BMI and fat percentage, chest circumference).
9. Speed-and-Strength sports. Flexibility exercise. Strength exercise (isotonic and isometric). Assessment of range of motion of joints. – goniometry. Investigation of muscular system – dynamometry.
10. Endurance sports. Aerobic exercise. Aerobic capacity and maximum oxygen consumption (VO_{2max}). Hemodynamic changes accompanying physical exertion. Athlete's heart.
11. Cardiovascular functional (qualitative) tests: Martine-Kushelevski, Letunov and Svanishvili tests. Assessment of various types of hemodynamic response. Exercise stress testing. Assessment of physical working capacity of athletes. Quantitative PWC_{170} test.
12. Functional investigation of respiratory system of athletes. Vital capacity (spirometry). Breath holding duration (Stange's and Genche's tests). Investigation of respiratory parameters in relation with physical exertion (ergospirometry). Functional tests of CNS investigation: Nekrasov's and Birjukov's tests.
13. Examination of autonomous neural system: eye-heart (Danin-Ashner) test, ortho-clinostatic test, skin dermographism.
14. Sports trauma. Traumatic injuries characteristic for various types of sport. Chronic overuse injuries
15. Overtraining and its prevention. Hypertrophic cardiomyopathy, as a leading cause of sudden cardiac death among young athletes. Female athlete triad.
16. Doping in Sport. Prohibited list. Doping testing. Obtaining therapeutic use exemptions (TUE). Health and doping risks of food supplements.

Samples of MCQ test for the Medicine Faculty

1. Which of the following statements describes most precisely the ultimate goal of medical control of athletes?
 - a. Assessment of health status, physical development and functional abilities of athletes
 - b. Conduction of somatoscopy and anthropometry and evaluation of obtained findings
 - c. Determination of overall state of health
 - d. Detection of pathologies

2. Which anthropometric sign reflects functional condition of thorax (respiratory system) best of all?
 - a. Thoracic circumference in inspiration phase
 - b. Thoracic circumference in expiration phase
 - c. Thoracic circumference during the pause
 - d. Thoracic excursion (chest expansion)

3. Which activity would be the best example of a cardiovascular exercise?
 - a. Rowing
 - b. Isometrics
 - c. Wrestling
 - d. Table tennis

4. Which statement is true in regards with male and female athletes' bodily response towards physical exertion?
 - a. Oxygen consumption increases equally
 - b. Pulse increases equally
 - c. Respiratory rate increases more in males compared to females
 - d. Lactic acid accumulates less in females than in males

5. Which method of physical rehabilitation can be used during acute muscular trauma?
 - a. Massage and hot bath
 - b. Passive and active exercises
 - c. Cryotherapy (cold treatment)
 - d. Heating ointments