



Syllabus

Term: 2025/26/2 **Subject name:** Physiology, Sportphysiology II. **Subject code:** ENAEDZN1302

Unit (Unit code) (TESTNEV)

Lecturer responsible for the course: Dr. ATLASZ Tamás

Requirement: Exam

Classes per week : 2/2/0

Classes per term:

Purpose of education:

Physiology II is the second part of a two-semester subject. This course provides the student with an introduction to each of the major physiological organ systems (cardiovascular, respiratory, renal, gastrointestinal and endocrine).

Contents:

Lecture

1. The structure and function of cardiac muscle.
2. Electrocardiography (ECG). Cardiac cycle.
3. The blood circulation. blood pressure. Cardiovascular system in exercise. cardiac output, venous return. The circulation. Overview of the circulation. Regulation of circulation, circulation of different organs. Blood flow regulation in skeletal muscle at rest and during exercise. Heartstroke.
4. Arterial blood pressure, The regulation of blood pressure. Hypertonic pressure.
5. Respiratory system, respiration. PTX. Pulmonary volumes and capacities.
6. Changes in respiration during exercise. written test 1.
7. Aerob capacity. Oxygen consumption in exercise. Effect of training on VO₂max.
8. Multiple functions of the kidneys. Physiologic anatomy of the kidneys. Glomerular filtration and tubular reabsorption and secretion.
9. Regulation of extracellular fluid osmolarity and sodium concentration. Isoosmosis.



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10. Gastrointestinal physiology. The digestive system. Secretion of saliva. Esophageal secretion. Motor and secretory function of the stomach.

11. The gastrointestinal tract. digestion and absorption in the gastrointestinal tract. Liver. Pancreas. Metabolism of carbohydrates. Regulation of blood sugar level and its function in short and long term exercise. diabetes mellitus.

12. The endocrine system I. Pituitary hormones and their control by the hypothalamus. Stress theory. Stress and its physiological consequences. written test 2.

13. The endocrine system II. Thyroid hormones. Adrenocortical hormones, the adrenal medulla. The pancreas . Reproductive and hormonal functions of the male and female. Monthly ovarian cycle. Hormones and sports. The autonomic nervous system.

Practice

1. Fire protection, accident protection. Anthropometric measurement.
2. Body fat calculation. BMI, hip/waist ratio.
3. Body shape assessment: Heath-Carter anthropometric method of somatotyping. Conrad growth type method.
4. Monitoring of heart rate and blood pressure
5. Measuring of lung capacity.
6. Written exam I.
7. Stretch reflex. Reaction-time test.
8. Range of motion test
9. Force test
10. Measuring of maximum oxygen capacity, VO₂max
11. Blood test
12. Electrocardiography (ECG) measurement.
13. Written test II.

System of examing and valuation:

Lecture

Written exam is based on lectures, accessible electronic sources and lecture materials.



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System of examining and valuation:

written tests during the term (the satisfactory level is at least 50%)

Written examination.

Grades:

0–50% fail

51–65% acceptable

66–75% average

76–90% good

91–100% excellent

Practice

laboratory record. 33%, two written test: 67%

0–49% fail

50–65% acceptable

66–75% average

76–85% good

86–100% excellent



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Bibliography:

1. Guyton and Hall (2012): Medical Physiology, Elsevier
2. Pocock G and Richard C.D. (2006) Human Physiology (Third edition), Oxford University press
3. Berne RM. and Levy MN (2000): Principles of Physiology (Third edition) Mosby
4. Wilmore JH, Costill DL, Kenney WL (2008): Physiology of Sport and Exercise (Fourth Edition)
5. McComas AJ (1996) Skeletal muscle. Form and Function

Bibliography: