



Syllabus

Term: 2025/26/2 **Subject name:** Physiology, Sportphysiology I. **Subject code:** ENAEDZN1301

Unit (Unit code) (TESTNEV)

Lecturer responsible for the course: Dr. ATLASZ Tamás

Requirement: Exam

Classes per week : 2/0/0

Classes per term: 26/0/0

Purpose of education:

The first part of the course focuses blood and muscle movement in physiological terms.

Contents:

1. Functional organization of the human body and control of the `internal environment. Intracellular and extracellular fluids.
2. The cell and its function. Transport of substances through cell membranes. Active and passive transports.
3. Blood cells, blood types. Blood transfusion. Immunity. The immune system and the sports.
4. Transport of oxygen and carbon dioxide in blood and tissue fluids. Homeostasis and blood coagulation.
5. Acid-base regulation. Acidosis and physical activity. Body temperature regulation.
6. Resting membrane potentials. Action potentials.
7. Physiologic anatomy of skeletal muscle. General mechanism of muscle contraction.
8. Molecular mechanism of muscle contraction. Excitation-contraction coupling. Sliding filament mechanism.
9. Contraction of skeletal muscle. Isotonic, isometric, auxotonic contractions. Tetanic tension. Fast and slow fibers. Body temperature regulations.
10. Basic functions of synapses and neurotransmitters. Motor endplate. Motor coordination. Neuromuscular transmission.
11. Energetics and metabolite rate. ATP functions. Control of energy release in the cell. Written test 1
12. Electromyography (EMG). Contraction of smooth muscle. Nervous and hormonal control of smooth muscle contraction.
13. The structure of tendon connective tissues. Structure-function relationships in tendon. Muscle reflexes

System of examining and valuation:

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

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



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System of examining and valuation:

Written examination.

Grades:

0–50% fail

51–64% pass

65–74% average

75–84% good

85–100% excellent

Bibliography:

Wilmore JH, Costill DL, Kenney WL (2008): Physiology of Sport and Exercise (Fourth Edition)

Bibliography: