

Semmelweis University, Faculty of Medicine - single, long-cycle medical training**Name of the host institution (and any contributing institution):**

Pulmonológiai Klinika

Name of subject: Cardiopulmonary clinical physiology and rehabilitation - Practical aspects**in English:** Cardiopulmonary clinical physiology and rehabilitation - Practical aspects**in German:** Kardiopulmonale klinische Physiologie und Rehabilitation- ein praktischer Ansatz**Credit value:** 2**Semester:** 3. szemeszter, 4. szemeszter, 5. szemeszter, 6. szemeszter, 7. szemeszter, 8. szemeszter, 9. szemeszter, 10. szemeszter

(in which the subject is taught according to the curriculum)

Hours per week	Lecture	Practical lesson	Seminar
0.0	0.0	0.0	0.0

Hours per semester	Lecture	Practical lesson	Seminar
28.0	14.0	14.0	0.0

Type of course:

elective

Academic year:

2025/26

Language of instruction (for optional and elective subjects):

angol

Course code:

AOSPUL989_1A

(in the case of a new course, to be completed by the Dean's Office, following approval)

Course coordinator name: Dr. Varga János Tamás (klinikai főorvos)**Course coordinator location of work, telephone availability:** Pulmonology Clinic, +36-1-355-9733**Course coordinator position:** egyetemi tanár**Course coordinator Date and number of habilitation:** 17/2017, SZTE**Objective of instruction and its place in the curriculum:**

Knowledge of cardiopulmonary interactions is essential in today's physician's careers. Cardiopulmonary rehabilitation significantly improves the patient's cardiovascular condition, metabolism, respiratory and peripheral muscles, as well as respiratory mechanics and chest kinematics. In the context of chest physiotherapy, the distribution and optimal use of air in the lungs can play a significant role, which ultimately can have a positive effect on the circulatory system in

addition to the respiratory status. Pulmonary circulation is an important target for chronic respiratory disorders and any other etiology including pulmonary arterial hypertension. Understanding the background of its etiology is one of the main focus in this course. Chronic respiratory patients and heart failure patients also report improved physical performance and quality of life, and reduced dyspnoea as a result of rehabilitation. The basic aim of the course is to provide an opportunity for prospective doctors and physiotherapists to acquire these competencies prior to graduation, to gain insight into cardiopulmonary interactions and to learn about methods and training programmes for measuring cardiopulmonary rehabilitation. We are waiting for students from the English, German and Hungarian language class.

Accordingly, the subject:

- describes the types of cardiopulmonary experimental tests, their advantages and disadvantages of their application,
- the advantages of cardiopulmonary tests,
- provides basic competence in the design of cardiopulmonary rehabilitation elements,
- provides an insight into other methods associated with cardiopulmonary studies (e.g. questionnaire techniques).

The topics of the course are based on the experience of the lecturers of the course from the previous lectures at the PhD Summer School 2020-2021 at Semmelweis University.

Method of instruction (lecture, group work, practical lesson, etc.):

lecture, practical lesson

Competencies acquired through completion of course:

Upon successful completion of the subject, the student will:

- will be able to participate in research projects based on experimental studies of cardiopulmonary interactions and rehabilitation (even as a TDK student!),
- be able to critically interpret the literature related to cardiopulmonary clinical trials,
- be familiar with the factors to be considered in the design and evaluation of cardiopulmonary clinical trials,
- knowledge of the factors affecting the validity of the conclusions of cardiopulmonary clinical trials,
- can perform simple cardiopulmonary tests
- can perform 6 minutes walking test

Course outcome (names and codes of related subjects):

Prerequisites for course registration and completion: (CODE):

In the case of multi-semester courses, position on the possibility of and conditions for concurrent registration:

The number of students required to start the course (minimum, maximum), student selection method:

Minimum number of students: 13/semester. Maximum number of students: 60/semester (there are no selection criteria, the first 60 applicants can attend the course)

Detailed course syllabus (if the course can be divided into modules, please indicate): (Theoretical and practical instruction must be broken down into hours (weeks), numbered separately; names of instructors and lecturers must be listed, indicating guest lecturers/instructors. It cannot be attached separately! For guest lecturers, attachment of CV is required in all cases!)

The lectures and exercises are divided into sections:

Session 1: Rehabilitation of Interstitial Lung Patients (Dr. Zsuzsanna Kováts, Ádám Géczi, Pulmonology Clinic), 2x45 min lecture, 2x45 min exercise Chest physiotherapy and training techniques for the rehabilitation of interstitial lung diseases

Session 2: Exercise training for athletes (Prof. Dr. Veronika Müller, Gergő Szűcs, Dr. Balázs Csoma, Dr. Nóra Tóth, Department of Pulmonology), 2x45 min lecture, 2x45 min exercise Exercise training for athletes, airway provocation tests

Session 3: Cardiopulmonary exercise testing (Prof. Dr. János Tamás Varga, Ádám Géczi Pulmonology Clinic) Walking tests to measure maximal exercise capacity, cardiopulmonary exercise testing, activity monitoring, assessment methods used in cardiopulmonary rehabilitation. 2x45 min lecture, 2x45 min exercise

Session 4: Pathophysiology of the pulmonary circulation and therapeutic options for pulmonary hypertension (Dr. Kristóf Karlócai, Dr. Erik Palmer, Ádám Géczi, Pulmonology Clinic) Characterisation of the physiological and pathophysiological processes of the circulation of the small blood vessels. 2x45 min lecture, 2x45 min exercise

Session 5: Cardiac comorbidities associated with chronic lung disease in cardiopulmonary rehabilitation. (Dr. Györgyi Csósza, Dr. Zsombor Matics, Ádám Géczi, Pulmonology Clinic,) Evaluation and therapy of cardiac comorbidities associated with chronic lung diseases during cardiopulmonary rehabilitation, 2x45 lectures, 2x45 min. exercise.

Session 6: Rehabilitation of heart failure (Dr. Attila Simon, State Heart Hospital, Balatonfüred), Ádám Géczi, Pulmonology Clinic) Training programmes for heart failure. 2x45 min lecture, 2x45 min exercise.

Session 7: Effects of respiratory pathological processes on respiratory technique and circulatory physiology (Dr. Zsolt Rozgonyi, Ádám Géczi, Pulmonology Clinic) Application of specific training programmes in pathological respiratory mechanics conditions. 2x45 min lecture, 2x45 min exercise

Week 8: Test exam

Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimize overlaps, topics should be coordinated. Code(s) of courses (to be provided):

Requirements for attendance, options for making up missed sessions, and method of absence justification:

According study and examination regulation. Make-ups will be provided several times during the semester.

Assessment methods during semester (number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks):

(number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks)

You should come prepared for the exercises. Completion of the pre-assigned tasks for the exercises will be checked by the exercise leader.

Number and type of individual assignments to be completed, submission deadlines:

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Requirements for the successful completion of the course:

According study and examination regulation.

Type of assessment:

gyakorlati jegy_en

Examination requirements (list of examination topics, subject areas of tests, lists of mandatory parameters, figures, concepts and calculations, practical skills, optional topics for the project assignment recognized as an exam and the criteria for its completion and evaluation)

Written practical examination (test) electronically via the university's e-learning (Moodle) system.

The exam is taken on the basis of the requirements for obtaining a signature.

The written test examination consists of problem-oriented test questions based on the course material (notes, practical notes and slides) compiled for the subject and available on-line, and on the knowledge acquired during the practical exercises.

Sample test questions are provided for preparation.

The practical grade is awarded on the basis of the test results as follows:

90-100% - pass (5)

80 - 89% - good (4)

70 - 79% - average (3)

50 - 69% - satisfactory (2)

< 50% - unsatisfactory (1)

Method and type of grading (Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results in the end-of-term assessment. Possibilities of and conditions for offered grades.): (Share of theoretical and practical examinations in the overall evaluation, Inclusion of the results in the end-of-term assessment, Possibilities of and conditions for offered grades)

Five practical grades based on a written practical test at the end of the semester.

Printed resources:

Required	No
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Author	Losonczy G, Müller V, Horváth G, Tamási L.
Title	Pulmonology
Publisher	Medicina
Year of publication	2020

Required	No
Author	Varga JT, Szilasi M.
Title	Handbook of pulmonary rehabilitation
Publisher	Springmed
Year of publication	2018

Signature of habilitated instructor (course coordinator) announcing the course:

Signature of the director of the host institution:

Date of submission:
