

Cardio-respiratory Physiology

Code: 102974
ECTS Credits: 6

2025/2026

Degree	Type	Year
Physiotherapy	OT	4

Contact

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Teachers

Alba Gomez Garrido

Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

The student is required to be enrolled in the Bachelor's Degree in Physiotherapy.

The student needs to have basic knowledge of anatomy, histology, physics, and physical exercise in order to understand cardiorespiratory function in healthy individuals and in patients with cardiorespiratory pathology or other comorbidities.

The student is required to have a basic level of English and be familiar with the main search engines and scientific journals in order to conduct bibliographic research when necessary.

Objectives and Contextualisation

An understanding of exercise physiology and the principles of training as applied to cardiorespiratory function.

Familiarity with the physiology and anatomy of the cardiorespiratory system.

Basic knowledge of pathology and an understanding of the benefits of physical exercise in various medical conditions.

The ability to interpret the basics of cardiopulmonary exercise testing.

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Display critical reasoning skills.
- Display knowledge of the morphology, physiology, pathology and conduct of both healthy and sick people, in the natural and social environment.
- Display knowledge of the physiotherapy methods, procedures and interventions in clinical therapeutics.
- Integrate, through clinical experience, the ethical and professional values, knowledge, skills and attitudes of physiotherapy, in order to resolve specific clinical cases in the hospital and non-hospital environments, and primary and community care.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Show sensitivity to environmental issues.
- Solve problems.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Work in teams.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Apply the specific methods and techniques for chest diseases.
3. Communicate using language that is not sexist.
4. Consider how gender stereotypes and roles impinge on the exercise of the profession.
5. Critically analyse the principles, values and procedures that govern the exercise of the profession.
6. Display critical reasoning skills.
7. Explain in detail the physiopathology of chest diseases.
8. Explain the explicit or implicit code of practice of one's own area of knowledge.
9. Identify situations in which a change or improvement is needed.
10. Identify the principal forms of sex- or gender-based inequality present in society.
11. Propose new methods or well-founded alternative solutions.
12. Propose new ways to measure success or failure when implementing innovative proposals or ideas.
13. Show sensitivity to environmental issues.
14. Solve problems.
15. Use physiotherapy to treat clinical cases involving chest pathologies.
16. Weigh up the impact of any long- or short-term difficulty, harm or discrimination that could be caused to certain persons or groups by the actions or projects.
17. Weigh up the risks and opportunities of suggestions for improvement: one's own and those of others.
18. Work in teams.

Content

Exercise Physiology and Training Principle

Basic concepts: physical activity / physical exercise, physical fitness, sedentary lifestyle / physical inactivity

Benefits of physical exercise

Training principles

Energy sources

Skeletal muscle and movement control

Aerobic power and capacity

Anaerobic power and capacity

Responses and adaptations to exercise:

Cardiovascular /Pulmonary system /Other organs (renal, gastrointestinal, neuroendocrine, hematological, white blood cells, and coagulation)

Benefits of physical exercise in cardiorespiratory diseases, associated comorbidities, and other medical conditions

Functional Capacity Assessment and Its Application to Training

Mechanisms of fatigue during exercise

Physical training in special conditions: Hypoxia / Thermal stress and exercise / Altitude physiology and exercise /Hyperbaria, microgravity, and exercise

Physiological aspects of physical exercise across different life stages and populations: Childhood / Aging / Women

Obesity: assessment of body composition and muscle strength

Pulmonary Physiology

Structure and function of the lungs

Ventilation / Diffusion / Blood flow and metabolism

Ventilation-perfusion relationship

Gas transport in the blood

Control of ventilation

Respiratory mechanics

Pulmonary pathophysiology

Cardiovascular Physiology

Structure and function of the cardiovascular system

Electrical activity of the heart

Cardiac function

Vascular function

Neurohormonal control of the heart and circulation

Blood flow in organs

Exchange function of the microcirculation

Cardiovascular pathophysiology

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Clinical Case Seminars (SCC)	13	0.52	5, 15, 2, 3, 13, 7, 10, 6, 14, 18, 4, 16
Laboratory Practices (PLAB)	7	0.28	15, 2, 13, 7, 6, 14, 18
Theory (TE)	20	0.8	5, 1, 15, 2, 3, 13, 7, 8, 10, 9, 17, 11, 12, 6, 14, 18, 4, 16
Type: Autonomous			

The teaching combines master classes, clinical case seminars and practices in the cardiorespiratory function laboratory.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Clinical Case Seminars (SCC)	5%	13	0.52	5, 1, 15, 2, 3, 13, 7, 8, 10, 9, 17, 11, 12, 6, 14, 18, 4, 16
Objective tests of selection of multiple choice items.	50%	2	0.08	5, 1, 15, 2, 3, 13, 7, 8, 10, 9, 17, 11, 12, 6, 14, 18, 4, 16
Seminar	25%	3	0.12	5, 1, 15, 2, 3, 13, 7, 8, 10, 9, 17, 11, 12, 6, 14, 18, 4, 16
Seminar	15%	3	0.12	5, 1, 15, 2, 3, 13, 7, 8, 10, 9, 17, 11, 12, 6, 14, 18, 4, 16
Theory (TE)	5%	20	0.8	1, 15, 2, 3, 7, 9, 11, 6, 14, 18

The evaluation will be carried out as follows:

Attendance and participation in theoretical classes and clinical case seminars: 10% of the final grade.

Group work: submission and presentation, which will account for 15% of the final grade.

Individual work: submission and oral presentation, representing 25% of the final grade.

Multiple-choice exam: each correct answer will add 1 point and each incorrect answer will subtract 0.33 points. The minimum passing grade for the exam is 5 out of 10. This exam accounts for 50% of the final grade.

The evaluation of exchange students will be the same as that of regular UAB students.

If a student does not attend the theoretical exam or does not complete the corresponding assignments, they will be considered non-assessable and will receive a 0 for that part of the evaluation.

According to article 116.8, when it is considered that the student has not provided sufficient evidence of assessment, the subject will be marked as non-assessable in the corresponding record.

Students who do not pass the subject through continuous assessment may opt for a make-up exam.

Bibliography

- *Función pulmonar aplicada*. A.GN. Agustí. Mosby/Doyma Libros SA, 1995.

- *Fisiología respiratoria*. West. 7^a edición. Editorial Médica Panamericana.
- *Respiratory Physiology, a clinical approximation*. R. M. Schwartzstein. Lippincott Williams and Wilkins.
- *Fisiología Humana*. J. A. Tresguerres. 3^a edición. Ed. McGraw-Hill Interamericana.
- Manuales de procedimientos SEPAR.
- Indicaciones e interpretación de gasometría. A. Crespo Giménez, F. J. Garcés Molina, Y. Casillas Viera y J. C. Cano Ballesteros. *Medicine*. 2007; 9 (90): 5813-5816.
- Rehabilitación respiratoria. Gómez Garrido A. 1a ed. Madrid: Médica Panamericana; 2025.
- Rehabilitación cardíaca. Sanz Ayan P. 2a ed. Madrid: Médica Panamericana; 2025.

Software

PowerPoint

Adobe Acrobat

Teams

Microsoft Word

Wooclap

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(PLAB) Practical laboratories	301	Catalan	first semester	afternoon
(SCC) Clinical case seminars	301	Catalan	first semester	afternoon
(TE) Theory	301	Catalan	first semester	afternoon