

**COURSE DATA****Data Subject**

Code	44638
Name	Specialised aspects of cardiorespiratory function and its alterations
Cycle	Master's degree
ECTS Credits	6.0
Academic year	2024 - 2025

Study (s)

Degree	Center	Acad. Period	year
2220 - Master's Degree in Functional Recovery in Physiotherapy	Faculty of Physiotherapy	1	Second term

Subject-matter

Degree	Subject-matter	Character
2220 - Master's Degree in Functional Recovery in Physiotherapy	7 - Specialised aspects of cardiorespiratory function and its alterations	Optional

Coordination

Name	Department
CEBRIA I IRANZO, MARIA DELS ÀNGELS	191 - Physiotherapy

SUMMARY

This subject introduces the main aspects of the cardiovascular and respiratory systems' anatomy and function, as well as the pathophysiology of major diseases and cardio-respiratory syndromes, in which functional recovery is based on scientific evidence and clinic experience. Moreover, it includes the most relevant aspects of cardiorespiratory exploration related to functional recovery in cardiorespiratory pathology.

PREVIOUS KNOWLEDGE



Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

2220 - Master's Degree in Functional Recovery in Physiotherapy

- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Ser capaz de elaborar informes orales y escritos acerca de la situación funcional de las/os pacientes.
- Profundizar en la fisiopatología de las lesiones y enfermedades más frecuentes.
- Diferenciar específicamente la estructura afectada en una imagen diagnóstica y su implicación en recuperación funcional.
- Ser capaces de aplicar correctamente las diferentes metodologías disponibles basadas en la evidencia en el tratamiento de las patologías y lesiones que nos ocupa.
- Establecer específicamente los factores de riesgo, etiología y características de las patologías y lesiones más frecuentes según su entorno clínico.

Study this subject will enable the student to:

- Know the parameters of proper functioning of the cardiovascular and respiratory systems.
- Know which are the functional changes in major cardiorespiratory diseases, in order to adapt the rehabilitation program
- Assess the specific semiotics of heart and/or respiratory diseases.
- Know and interpret the main functional and complementary tests in the context of cardiorespiratory diseases.

DESCRIPTION OF CONTENTS

1. Physiological fundamentals as the basis for functional recovery in cardiorespiratory diseases.

- 1.1. Integration of the respiratory, cardiovascular and systemic metabolism.
- 1.2. Pathophysiology of major cardio-respiratory diseases and syndromes.

**2. Evaluation and diagnosis of cardiac patient.**

- 2.1. Assessment of the main signs and symptoms in cardio-respiratory diseases and syndromes.
- 2.2. Pulmonary and cardiac outcrowding.
- 2.3. Exploration of the ventilatory mechanics.
- 2.4. Assessment of the respiratory and peripheral muscles strength.
- 2.5. Respiratory functional exploration. Gasometry.
- 2.6. Basic electrocardiography and major alterations.
- 2.7. Diagnostic imaging in the cardiac and/or respiratory disorders: radiography, magnetic resonance imaging, medical ultrasonography, etc.
- 2.8. Assessment of exercise tolerance: heart and/or respiratory failure.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	24,00	100
Laboratory practices	12,00	100
Study and independent work	80,00	0
Readings supplementary material	26,00	0
Resolution of case studies	8,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

- Lecture participatory
- Practical Case
- Tutorials
- Autonomous work student

EVALUATION

Evaluation system	Percentage of qualifying
Development of a clinical case proposed by the teacher.	15%



Student participation and attendance in the classroom	30%
Final written test to assess both the conceptual and procedural contents related to functional recovery in the cardiorespiratory patient.	55%

The final grade of the subject will be the weighted sum of the marks obtained in each evaluation test, as long as the student has obtained at least 50% of the maximum mark in each of the tests: individual activity (clinical case), participation-attendance in class and written final test.

REFERENCES

Basic

- Pastrana Delgado J. Fisiopatología y patología general básicas para ciencias de la salud 2ª ed. Barcelona: Elsevier, 2023
- López Chicharro J, Fernández Vaquero A. Fisiología del Ejercicio 4ªed. Madrid: Editorial Médica Panamericana, 2022.
- Seco Calvo J, et al. Diagnóstico por la Imagen para Fisioterapeutas. Madrid: Editorial Médica Panamericana, 2025.
- Strayer DS (editor). Rubin y Strayer patología: fundamentos clinicopatológicos en medicina. 7ª ed. Barcelona: Wolters Kluwer, 2017.
- Herring W. Radiología básica. Aspectos fundamentales (2ª ed.). Ed. Elsevier, 2016

Additional

- Jiménez Tobón G, et al. Principios básicos de patología para fisioterapia. Volumen II. Bogotá: Editorial Universidad del Rosario: 2022.
- Barret KEt, Barman SM, Brooks HL, Yu JXJ. Ganong Fisiología médica, 26ª ed. Nueva York: Mc Graw Hill. Lange, 2008.
- Sietsema KE, Sue DY, Stringer WW, Ward S. Wasserman y Whipp's Principles of Exercise Testing and Interpretation: Including Pathophysiology and Clinical Applications. 6ªed. Philadelphia: Editorial LWW, 2020.
- Gavotto A, Mura T, Rhodes J, Yin SM, Hager A, Hock J, et al. Reference values of aerobic fitness in the contemporary paediatric population. Eur J Prev Cardiol [Internet]. 2023 Feb 21;33:110. Available from: <https://academic.oup.com/eurjpc/advance-article/doi/10.1093/eurjpc/zwad054/7049938>
- Le Neindre A, Mongodi S, Philippart F, Bouhemad B. Thoracic ultrasound: Potential new tool for physiotherapists in respiratory management. A narrative review. J Crit Care. 2016 Feb;31(1):101-9. doi: 10.1016/j.jcrc.2015.10.014. Epub 2015 Oct 26. PMID: 26613650.
- Porcel JM. Pleural ultrasound for clinicians. Rev Clin Esp (Barc). 2016 Nov;216(8):427-435. English, Spanish. doi: 10.1016/j.rce.2016.05.009. Epub 2016 Jun 6. PMID: 27282205.