

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

Code	33022
Name	Cardiocirculatory physiotherapy
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1202 - Degree in Physiotherapy	Faculty of Physiotherapy	3	First term

Subject-matter

Degree	Subject-matter	Character
1202 - Degree in Physiotherapy	13 - Specific intervention methods in physiotherapy	Obligatory

Coordination

Name	Department
CEZON SERRANO, NATALIA	191 - Physiotherapy
MARQUES SULE, ELENA	191 - Physiotherapy

SUMMARY

The Cardiocirculatory Physiotherapy course pretends that the student develops knowledge, skills and attitudes necessary to plan, treat and assess the physiotherapy intervention in order to promote, prevent and recover health status in different cardiocirculatory diseases.

PREVIOUS KNOWLEDGE



Relationship to other subjects of the same degree

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

Other requirements

There are no previous requirements.

OUTCOMES

1202 - Degree in Physiotherapy

- Respect fundamental rights and equality between men and women.
- Recognise diversity, multiculturalism, democratic values and peace culture.
- Work in teams.
- Have the ability to organise and plan work.
- Acquire knowledge related to the information and communication technologies.
- Acquire sensitivity to environmental issues.
- Know how to plan treatment goals in the different pathologies of the locomotor, respiratory, cardiovascular and nervous systems from the data of the Physiotherapy Clinical Records.
- Know how to establish a therapeutic plan to reach the proposed goals.
- Know how to apply the different physiotherapy techniques for the promotion, prevention and health preservation in the pathologies of the locomotor, respiratory, cardiovascular and nervous systems. Know how to apply manual techniques, manipulative therapy, osteopathy and chiropractic techniques.
- Know how to evaluate the physiotherapy treatment applied.
- Know how to assess the results of the physiotherapy treatment.

LEARNING OUTCOMES

Learning outcomes that students should acquire are:

1. Know physiotherapy objectives in different cardiocirculatory diseases and clinical situations.
2. Plan the physiotherapy intervention according to the programmed objectives.
3. Apply physiotherapy techniques appropriately in the cardiocirculatory disease.



4. Assess the results of physiotherapy intervention and proceed accordingly.

5. Work in groups and understand the importance of multidisciplinary professional team.

DESCRIPTION OF CONTENTS

1. Introduction (theoretical program)

Lesson 1. Introduction to Cardiocirculatory Physiotherapy.

Lesson 2. Review of the anatomical and physiological cardiovascular system: a basis for physiotherapy practice.

2. Planning the physiotherapy performance (practical program)

Seminar 1. Introduction and planning of the group work.

Seminar 2. Clinical case study: heart disease.

Seminar 3. Presentation of the group work.

3. Physiotherapy in heart diseases (theoretical program)

Lesson 3. Clinic and functional assessment of heart diseases.

Lesson 4. Cardiac rehabilitation: concept, objectives, multidisciplinary and comprehensive program.

Lesson 5. Cardiac rehabilitation: phases of cardiac rehabilitation and physiotherapy.

Lesson 6. Physiotherapy in ischemic heart disease.

Lesson 7. Physiotherapy after cardiac surgery: coronary artery bypass grafting, valve surgery and congenital heart disease.

Lesson 8. Physiotherapy in heart failure.

Lesson 9. Physiotherapy in heart transplantation.

Lesson 10. Physiotherapy in hypertension.

4. Physiotherapy in heart diseases (practical program)

Practice 1. Basic life support in the cardiac rehabilitation context.

Practice 2 Clinic and functional assessment of heart diseases.

Practice 3. Physiotherapy in the different cardiac rehabilitation phases .

**5. Physiotherapy in peripheral vascular diseases (theoretical program)**

Lesson 11. Clinic and functional assessment in peripheral artery disease.

Lesson 12. Physiotherapy in peripheral artery disease.

Lesson 13. Clinic and functional assessment in venous and lymphatic insufficiency. Lesson 14. Physiotherapy in venous insufficiency.

Lesson 15. Physiotherapy in lymphedema: decongestive lymphatic therapy.

6. Physiotherapy in peripheral vascular diseases (practical program)

Practice 4. Clinic and functional assessment in peripheral artery disease. Kinesiotherapy in peripheral artery disease.

Practice 5. Clinic and functional assessment in venous insufficiency. Physiotherapy in deep vein thrombosis.

Practice 6. Physiotherapy in circulatory return problems (venous and lymphatic insufficiency). Compression and containment techniques for upper and lower limb.

Practice 7. Manual lymphatic drainage (MLD): general aspects, description and application of basic manipulations. MLD on neck, MLD on breast.

Practice 8. MLD on upper limb, MLD on lower limb.

WORKLOAD

ACTIVITY	Hours	% To be attended
Laboratory practices	45,00	100
Theory classes	15,00	100
Development of individual work	20,00	0
Study and independent work	33,00	0
Readings supplementary material	10,00	0
Preparation of evaluation activities	27,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

The contents of the theoretical program are developed in traditional lectures with active participation of students.

Throughout the practical program, students learn by simulating physiotherapy techniques in the professional context, solving clinical cases and problems and planning physiotherapeutic management. Cooperative learning will be encouraged in groups, aiming at encouraging the exchange of ideas and fostering students' active participation.



Seminars are of compulsory attendance.

The teaching program might be modified during the development of the subject if the professor considers it appropriate, in order to guarantee the teaching quality and the learning process.

EVALUATION

Theoretical program (30% of final mark)

1. Final exam (30%): Multiple choice test: 30 questions, 3 answers, 1 correct. $MARK = [hits - (errors/n^{\circ} options - 1)] * (maximal\ mark/n^{\circ} questions)$.

Practical program (70% of final mark)

1. Continuous assessment task (10%). The assessment criteria of the task to be provided by the teaching staff.
2. Group work and presentation (20%). The assessment criteria of the task to be provided by the teaching staff.
3. Final exam (40%). Simulation of physiotherapy techniques.

In all written tests orthographic incorrection will be penalized, and in the case of the group work plagiarism will be penalized. The final mark for the course will be the pondered sum of the marks on the theoretical and practical programs, provided that the student had obtained at least 50% of the maximum score on each one of the final tests (theoretical final exam and practical final exam) and had completed and presented the group work. Failure to attend seminars 1 and 3 will result in a penalty in the group work mark (0.2 points for each seminar not attended).

The score obtained at the theoretical final exam will not be used in future calls. The score obtained at the first call of the practical final exam will be used in the second call of the same academic course. In order to qualify and pass/approve the continuous assessment tasks of the practical program, they must be carried out and delivered following the instructions provided by the teaching staff.

**REFERENCES****Basic**

- American Association of Cardiovascular & Pulmonary Rehabilitation. Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs. 5th ed Human Kinetics; 2013.
- Cebrià i Iranzo MA, Sentandreu Añó T, Espí López GV, Mora Américo ER, García Lucerga MC, Igual Camacho C. Fisioterapia cardiocirculatoria. Material multimedia disponible en: <http://roderic.uv.es/handle/10550/1999/search>
- Ferrandez JC, Theys S, Bouchet JY. Reeduación de los edemas de los miembros inferiores. Barcelona: Masson; 2002.
- Fardy PS, Yanowitz FG. Rehabilitación Cardíaca: la forma física del adulto y las pruebas de esfuerzo. Barcelona: Editorial Paidotribo; 2003.
- Niebauer J. Cardiac rehabilitation manual. Suiza: Springer; 2017
- Seco Calvo J. Sistema Cardiovascular. Métodos, fisioterapia clínica y afecciones para fisioterapeutas. Madrid: Editorial Médica Panamericana; 2017.
- Vinyes F. La linfa y su drenaje manual. 7ª ed. Barcelona: RBA integral; 1998.

Additional

- Achttien RJ, Staal JB, Van der Voort S, Kemps HMC, KoersH, Jongert MWA, et al. Practice Recommendations Development Group. Exercise-based cardiac rehabilitation in patients with coronary heart disease: a practice guideline. Netherlands Heart Journal, 2013; 21(10), 429-438.
- Alemán, J. A., de Baranda Andujar, P. S., & Ortín, E. J. O. (2014). Guía para la prescripción de ejercicio físico en pacientes con riesgo cardiovascular. Seh-Lelha.
- Alonso-Pulpón, L., Almenar, L., Crespo, M. G., Silva, L., Segovia, J., Manito, N., et al. Guías de actuación clínica de la Sociedad Española de Cardiología. Trasplante cardíaco y de corazón-pulmones. Revista Española de Cardiología, 1999; 52(10), 821-839.
- American College of Sports Medicine, et al. ACSM's guidelines for exercise testing and prescription. Lippincott Williams & Wilkins, 2013.
- Balady GJ, Williams MA, Ades PA, Bittner V, Comoss P, Foody JM, et al. Core Components of Cardiac rehabilitation/Secondary prevention programs: 2007 Update. A scientific statement from the American Heart Association. Exercise, Cardiac Rehabilitation and Prevention Committee, the Council on Clinical Cardiology; the Councils on Cardiovascular Nursing, Epidemiology and Prevention, and Nutrition, Physical Activity, and Metabolism; and the American Association of Cardiovascular and Pulmonary Rehabilitation (AHA/AACVPR Scientific Statement). Circulation. 2007;115(20):2675-82.
- Buckup K. Pruebas clínicas para patología ósea, articular y muscular. Barcelona: Masson; 2002. Serra Escorihuela M. Linfedema. Métodos de tratamiento aplicados al edema de miembro superior post-mastectomía. Monografía Faes, 1995.
- Cardiopulmonary Physical Therapy. A Guide to Practice. 4th ed. St. Louis (Missouri). Mosby; 2004.
- Cebrian Pinar M, Martínez Penadés S, Marques-Sule E, Almenar Bonet L. Trasplante de corazón: guía para pacientes. 1st. ed. Valencia: Asociación Valenciana de Trasplantados de Corazón AVATCOR, Federación Española de Trasplantados de Corazón FETCO; 2016
- De Velasco JA, Maureira JJ. Rehabilitación del paciente cardiaco. Barcelona: Ediciones Doyma; 1993.



- Frownfelter D, Dean E. Cardiovascular and Pulmonary Physical Therapy. Evidence and Practice. 4th ed. St. Louis (Missouri). Mosby; 2006.
- Klompstra L, Kyriakou M, Lambrinou E, Piepoli MF, Coats AJS, Cohen-Solal A, Cornelis J, Gellen B, Marques-Sule E, Niederseer D, Orso F, Piotrowicz E, Van Craenenbroeck EM, Simonenko M, Witte KK, Wozniak A, Volterrani M, Jaarsma T. Measuring physical activity with activity monitors in patients with heart failure: from literature to practice. A position paper from the Committee on Exercise Physiology and Training of the Heart Failure Association of the European Society of Cardiology. Eur J Heart Fail. 2021;23(1):83-91.
- Levy MN, Pappano AJ. Cardiovascular Physiology. 19th ed. Philadelphia. Mosby Elsevier; 2007.
- López Chicharro J, Fernández Vaquero A. Fisiología del ejercicio. 3ª ed. Madrid: Editorial Médica Panamericana; 2006.
- Maroto JM, De Pablo C, Artigao R, Morales MD. Rehabilitación cardiaca. Barcelona: Olalla ediciones; 1999.
- Maroto Montero JM, De Pablo Zarzosa C, eds. Rehabilitación Cardiovascular. Madrid: Editorial Médica Panamericana; 2011.
- Mezquita C, Mezquita B. Fisiologia dels sistemes circulatori, respiratori i renal. Barcelona: Publicacions i Edicions de la Universitat de Barcelona; 2005
- Miquel Abbad, C., Rial Horcajo, R., Ortega, B., & García Madrid, C. (2016). Guía de práctica clínica en enfermedad venosa crónica del Capítulo de Flebología y Linfología de la Sociedad Española de Angiología y Cirugía Vascular. Angiología, 68(1), 55-62.
- Piepoli MF, Corra U, Benzer W, Bjarnason-Wehrens B, Dendale P, Gaita D, et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. Eur J Cardiovasc Prev Rehabil. 2010;17:1-17.
- Piepoli MF, Hoes, A. W. (coord) Guía ESC 2016 sobre prevención de la enfermedad cardiovascular en la práctica clínica. Revista Española de Cardiología, 2016: 69(10), 939-e1-e87.
- Pleguezuelos Cobo, Miranda Calderón, Gómez González, Capellas Sans. Principios de Rehabilitación Cardiovascular. Madrid: Editorial Médica Panamericana; 2011.
- Ponikowski, P., Voors, A. A., Anker, S. D., Bueno, H., Cleland, J. G., Coats, A. J., et al. Guía ESC 2016 sobre el diagnóstico y tratamiento de la insuficiencia cardiaca aguda y crónica. Revista Espanola de Cardiologia, 2016: 69(12), 1167-1167.
- Portuondo Maseda MT (coord). Manual de Enfermería en Prevención y Rehabilitación Cardiaca, Madrid, Asociación Española de Enfermería en Cardiología, 2009.
- Probert H et al. Standards for Physical Activity and Exercise in the Cardiovascular Population. 3rd Edition. London (UK): Association of Chartered Physiotherapists in Cardiac Rehabilitation, 2015
- Ruescas-Nicolau MA. El desarrollo de la rehabilitación cardiaca en España, entre la cardiología y la rehabilitación. Medicina e Historia 2013, 3: 6-25.
- Serra MR, Díaz J, De Sande ML. Fisioterapia en neurología, sistema respiratorio y aparato cardiovascular. Barcelona: Masson; 2005.
- Sociedad Española de Cardiología. Sección de Cardiología Preventiva y Rehabilitación. Disponible en: <http://www.secpyr.org>
- Williams, B., Mancia, G., Spiering, W., Agabiti-Rosei, E., Azizi, M., Burnier, M., et al. Guía ESC/ESH 2018 sobre el diagnóstico y tratamiento de la hipertensión arterial. Revista española de cardiología, 2019, 72: 160.e1-e78.