



Teaching Guide				
Identifying Data			2020/21	
Subject (*)	RESPIRATORY PHYSIOTHERAPY PHISICAL THERAPY		Code	651G01017
Study programme	Grao en Fisioterapia			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	2nd four-month period	Second	Obligatory	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Fisioterapia, Medicina e Ciencias Biomédicas			
Coordinador	Souto Camba, Sonia	E-mail	sonia.souto@udc.es	
Lecturers	Gonzalez Doniz, Maria Luz Lista Paz, Ana Souto Camba, Sonia	E-mail	luz.doniz@udc.es ana.lista@udc.es sonia.souto@udc.es	
Web				
General description	With the study of the subject of Respiratory Physiotherapy, it is intended that the student be in a position to identify the parameters of physiotherapy assessment of the patient with respiratory affection, and to know the Physiotherapy techniques in their conceptual bases and ways of application. It will recognize the role of the physiotherapist in the education of this type of patient in order to obtain the greatest possible autonomy in the execution of the techniques, integrating the therapeutic modality of aerosol therapy in the educational process.			



Contingency plan

1. Modifications in the contents

2. Methodologies

* Teaching methodologies that are maintained:

Workbook (readings)

* Teaching methodologies that are modified:

KEY NOTE SPEECH: The face-to-face oral presentation is replaced supplemented with the use of audiovisual media and the introduction of some questions directed at the students, in order to transmit knowledge and facilitate learning through participative expository classes in real time through the Microsoft Team tool and / or classes with an audio preview. They are complemented with activities aimed at students, to facilitate learning and integrate knowledge. LABORATORY PRACTICE: The practical teaching is replaced by the practical and face-to-face demonstration, by the teacher, of a specific activity or therapeutic aspect, while the students observe, to later reproduce it among themselves until they reach their mastery; through audiovisual materials that demonstrate the execution of the intervention procedures, constituting support elements for the practical guide of the subject. Students should identify the purpose of the procedure, the equipment, the phases of development and the expected results and / or their interpretation.

SUPERVISED PROYECT: The oral face-to-face presentation in groups by the students is replaced, with the corresponding teacher feedback, by the delivery by the students of a Power Point presentation with audio. Subsequently, through the Microsoft Teams platform, the teacher will provide students with comments on the work.

3. Mechanisms for personalized attention to students. Teams and Moodle weekly; email on demand.

4. Modifications in the evaluation. The mixed test and the practical test are replaced by a synchronous test type test developed through a questionnaire using the Moodle tool. It will include questions about the theoretical contents of the subject, focused on the foundations, analysis and interpretation of evaluation and intervention methods, and practical contents, focused on identifying the objective of the procedure, the description of the equipment and the phases of intervention.

* Observations of evaluation:

5. Modifications to the bibliography or webgraphy

1. Recursos apoyo fisiología respiratoria.

1Unidad VII sobre Respiración del Guyton y Hall, tratado de Fisiología Médica, en su 12ª edición:

<http://ual.dyndns.org/biblioteca/fisiologia/pdf/unidad%2007.pdf>

9ª edición del West "Fisiopatología Pulmonar: fundamentos":

<https://www.univermedios.com/wp-content/uploads/2018/08/Fisiopatologia-Pulmonar-Fundamentos-West-9a-Edicion.pdf>

2. Recursos apoyo patrones respiratorios: <https://www.youtube.com/watch?v=ViGjOiPE2mY>

3. Recursos apoyo auscultación pulmonar

<https://www.easyauscultation.com/lung-sounds-audio>

<http://fisioterapiaspiratoriasiglo21.blogspot.com/2014/04/comentario-sobre-fundamentasl-of-lung.html>

4. Recursos apoyo histología árbol bronquial

<https://view.genial.ly/5e75d90d0cfb90d9f8ae23c/interactive-image-mecanismos-de-aclaramiento-mucociliar>

5. Recursos apoyo a los métodos de tratamiento

Sistemas Acapella+PEP Mecanismo

<https://www.youtube.com/embed/L5gEwElkRjo?start=118&end=148&version=3>

PEP no oscilatoria

<http://videos.smiths-medical.com/detail/videos/english/video/3448138806001/therapep---chapter-2:-how-pep-works?autoStart=true>

<https://www.youtube.com/watch?v=JlRtqLrFmQE&feature=youtu.be>

6. Recursos de apoyo a las prácticas

Pruebas funcionales respiratorias

https://udcgal-my.sharepoint.com/personal/ana_lista_udc_es/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adjuntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020%2FEspirometr%C3%ADa%2Emp4&parent=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adju



ntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020&originalPath=aHR0cHM6Ly91ZGNnYWwtbXkuc2hhcmVwb2ludC5jb20vOnY6L2cvcGVyc29uYWwvYW5hX2xpc3RhX3VkY19lcy9FZS1TbXlyWUxpeExxSzdlQzIzR19MRUJiQ2tkX0NVcThCSElYbkNQ3pFMGp3P3J0aW1lPWt4RTNmempzMTBn

https://udcgal-my.sharepoint.com/personal/ana_lista_udc_es/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adjuntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020%2FM%C3%A1xima%20ventilaci%C3%B3n%20voluntaria%2Emp4&parent=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adjuntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020&originalPath=aHR0cHM6Ly91ZGNnYWwtbXkuc2hhcmVwb2ludC5jb20vOnY6L2cvcGVyc29uYWwvYW5hX2xpc3RhX3VkY19lcy9FZTdQQ3phSjFaRkNpR1B5Zk5NU0xsc0JQN1dMZnhsYjBTSFhnM2xsRTBSRkt3P3J0aW1lPWRwVjNqempzMTBn

https://udcgal-my.sharepoint.com/personal/ana_lista_udc_es/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adjuntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020%2FPresiones%20respiratorias%20m%C3%A1ximas%2Emp4&parent=%2Fpersonal%2Fana%5Flista%5Fudc%5Fes%2FDocuments%2FDatos%20adjuntos%2FPr%C3%A1cticas%20Fisioterapia%20Respiratoria%202020&originalPath=aHR0cHM6Ly91ZGNnYWwtbXkuc2hhcmVwb2ludC5jb20vOnY6L2cvcGVyc29uYWwvYW5hX2xpc3RhX3VkY19lcy9FWDNRrmxQWFc4ZEZoSnVXbmF2VEc3a0JHZnplZWVVFjNlSXRQMDhrY2luUF9RP3J0aW1lPWplYmduRGpzMTBn



Study programme competences	
Code	Study programme competences
A3	Cofecer e comprender os métodos, procedementos e actuacións fisioterapéuticas, encamiñados tanto á terapéutica propiamente dita a aplicar na clínica para a reeducación ou recuperación funcional, como á realización de actividades dirixidas á promoción e mantemento da saúde.
A5	Valorar o estado funcional do paciente, considerando os aspectos físicos, psicolóxicos e sociais.
A6	Valoración diagnóstica de coidados de fisioterapia segundo as normas e cos instrumentos de validación recoñecidos internacionalmente.
A7	Deseñar o plan de intervención de fisioterapia atendendo a criterios de adecuación, validez e eficiencia.
A19	Comunicarse de modo efectivo e claro, tanto de forma oral como escrita, cos usuarios do sistema sanitario así como con outros profesionais.
B1	CB1 - Que los estudiantes hayan demostrado poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio
B2	CB2 - Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio
B3	CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética
B4	CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado
B5	CB5 - Que los estudiantes hayan desarrollado aquellas habilidades de aprendizaje necesarias para emprender estudios posteriores con un alto grado de autonomía
C1	Adequate oral and written expression in the official languages.
C6	Acquiring skills for healthy lifestyles, and healthy habits and routines.
C9	Ability to manage times and resources: developing plans, prioritizing activities, identifying critical points, establishing goals and accomplishing them.

Learning outcomes			
Learning outcomes		Study programme competences	
Cofecer e comprender os métodos, procedementos e actuacións fisioterapéuticas específicas referidas ao sistema respiratorio, encamiñadas tanto á terapéutica propiamente dita a aplicar en clínica para a reeducación ou recuperación funcional do doente respiratorio, como á realización de actividades dirixidas á promoción e mantemento da saúde.		A3	B1 B2 B3
Valorar o estado funcional do doente respiratorio , considerando os aspectos físicos, psicolóxicos e sociais.		A5	B5
Valoración diagnóstica de Fisioterapia Respiratoria segundo as normas e cos instrumentos de valoración recoñecidos internacionalmente.		A6	B5 C6
Diseñar o plan de intervención de Fisioterapia Respiratoria atendendo aos criterios de adecuación, validez e eficiencia.		A7	B5 C6 C9
Comunicarse de modo efectivo e claro, tanto de forma oral como escrita, cos usuarios do sistema sanitario así como con outros profesionais		A19	B4 C1
Definir os conceptos das técnicas de permeabilización bronquial, describindo o seu mecanismo de acción e procedemento de aplicación		A7	
Definir os conceptos das técnicas de cinesiterapia respiratoria, describindo o seu mecanismo de acción e procedemento de aplicación		A7	
Definir os conceptos básicos da aerosolterapia, describir os principais mecanismos de inhalación existentes e identificar o papel do fisioterapeuta na educación ventilatoria no uso da aerosolterapia		A7	

Contents	
Topic	Sub-topic



TEMARIO TEÓRICO

Tema 1: Anatomía de superficie dos pulmóns Localización topográfica de bordes, cisuras, lóbulos e segmentos pulmonares

Tema 2: Mecanismos de defensa del sistema respiratorio y depuración bronquial

Tema 3: Ecuación fundamental da Fisioterapia Respiratoria.

Tema 4: Valoración fisioterápica do doente respiratorio.

- Estudo semiolóxico
- Análise da estática e dinámica torácica
- Estudo dos ruidos respiratorios (auscultación, ruidos en boca, palpación)
- Volumes e fluxos pulmonares (espirometría)
- Forza e resistencia musculares (manual e instrumental)
- Intercambio de gases (pulsioximetría e gasometría)
- Tolerancia ao esforzo (test simples de esforzo)

Tema 5: Métodos de intervención en Fisioterapia Respiratoria

- Claficación, obxetivos e principios xerais de actuación
- Métodos de permeabilización bronquial (concepto, procedimiento, indicacións e contraindicacións)
- Métodos de cinesiterapia respiratoria (concepto, procedimiento, indicacións e contraindicacións)

Tema 6: Empleo dos aerosóis en Fisioterapia

- Concepto e obxetivos da Aerosolterapia
- Penetración e depósito das partículas activas a nivel da árbore bronquial. Factores condicionantes
- Sistemas de administración dos aerosóis



TEMARIO PRACTICO	- Práctica 1: Localización topográfica dos pulmóns: bordes, cisuras e segmentos. - Práctica 2: Realización da auscultación. - Práctica 3: Inspección do tórax, observando a súa morfoloxía e patrón ventilatorio. Medición da amplitude torácica, manual e instrumentalmente. -Práctica 4. Valoración manual da musculatura respiratoria - Práctica 5 y 6. Execución das maniobras de espirometría simple e forzada. Determinación da máxima ventilación voluntaria. - Práctica 7. Determinación instrumental das presións respiratorias máximas - Práctica 8. Execución das técnicas de permeabilización da vía aérea por ondas de choque e posicionamento. Vibración endóxena con presión espiratoria positiva oscilatoria. Presión espiratoria positiva continua. - Práctica 9. Execución das técnicas de permeabilización da vía aérea por variación do fluxo aéreo. - Práctica 10.A aerosolterapia integrada nos programas de educación para a saúde dos enfermos respiratorios. - Práctica 11. Respiración diafragmática. Respiración a labios fruncidos. Respiración sumada. Expansións costo-pulmonares. Flexibilización da caixa torácica. Espirometría incentivada. - Práctica 12. Execución do protocolo de ventilación dirixida e execución do protocolo de entrenamiento específico da musculatura respiratoria
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Planning

Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A3 A5 A6 A7 B1 B2 B3 B5	24	30	54
Laboratory practice	A5 A6 A7 B5	29	17	46
Supervised projects	A3 A19 B3 B4 C1 C6 C9	4	26	30
Workbook	C1 C6 C9	0	14	14
Practical test:	A5 A6 A7	1	0	1
Mixed objective/subjective test	A3 A5 A6 A7 C1	2	0	2
Personalized attention		3	0	3

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

Methodologies	Description
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Guest lecture / keynote speech	Oral presentation complemented by the use of audiovisual media and the introduction of some questions for students, in order to transmit knowledge and facilitate learning The master class is also known as "lecture", "expository method" or "master class". This last modality is usually reserved for a special type of lesson given by a teacher on special occasions, with content that involves original elaboration and based on the exclusive use of the word as a way of transmitting information to the audience. During its development, methodologies for directed discussion and collaborative learning will be integrated.
Laboratory practice	Practical demonstration, by the teacher, of a specific therapeutic activity or aspect, while the students observe, and then reproduce it among themselves until they have mastered it.
Supervised projects	Preparation of a group work by the students. Nine groups will be constituted, the number of students per group will depend on the enrollment of the subject, with different works and public exposition of the same at the end of the term.
Workbook	During the course, the student will read four selected articles, complementary to the contents developed in the classroom, and which will reinforce the work during the course. The student must complete a questionnaire through the moodle platform, to verify the reading of the text and the correct understanding of the most relevant aspects.
Practical test:	Test in which it is sought that the student develops totally or partially some practice that he previously developed during the practical classes.
Mixed objective/subjective test	Test that integrates essay or development questions (two or three) and objective test questions.

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech Supervised projects	Personalized attention will be carried out electronically through the teams platform. It will be carried out at the request of the students, but in general, in two moments of the course: 1. In the mid-term of the semester: its objective is to guide the student in the development of supervised work, and correct any deviations that may occur in the teaching-learning process. It will be done with the working group. 2. Before the evaluation: Its objective is to resolve any conceptual doubts that the student may pose in relation to the master sessions. It will be done individually. The tutorials will be held in a virtual way

Assessment			
Methodologies	Competencies	Description	Qualification
Mixed objective/subjective test	A3 A5 A6 A7 C1	Theoretical exam with essay and test questions	30
Supervised projects	A3 A19 B3 B4 C1 C6 C9	Qualification of the supervised project and teacher feedback	30



Practical test:	A5 A6 A7	The student will demonstrate that he / she has sufficient motor competence to carry out the different evaluation and treatment procedures and techniques in Respiratory Physiotherapy, in addition to being able to adequately relate the practical contents to the theoretical ones.	30
Workbook	C1 C6 C9	Qualification of the questionnaires presented by the student throughout the course.	10

Assessment comments

The final grade will be the result of the sum of all the parts evaluated with their corresponding weight (practical test 30%, mixed test 30%, supervised projects 30%, workbook 10%)

The mixed test will be evaluated giving a value of 50% to the test type part and 50% to the essay questions.

To pass the subject, the student must pass the mixed test and the practical test. If one of the indicated tests is not passed, to be able to make an average, a grade equal to or greater than 5 points out of 10 (1.5 points out of 3) must be achieved.

The percentages assigned to each test may be slightly modified from one course to another depending on the needs of the subject. However, the value of the exam (mixed test and practical test) will never be less than 60% of the final grade, and the value assigned to the continuous assessment (supervised projects and workbook) will never exceed 40%

Sources of information



Basic	- Antonello, M y Delplanque D (2002). Fisioterapia respiratoria del diagnóstico al proyecto terapéutico . Barcelona: Masson - Pryor J, Ammandi S (2008). Physiotherapy for respiratory and cardiac problems / adults and pediatrics . Ediburgh : Churchill Livingstone - Hough, A (2001). Physiotherapy in respiratory care an evidence-based approach to respiratory and cardiac management. Cheltenham: Nelson Thjornes - Guell, R y De Lucas, P (2005). Tratado de Rehabilitación Respiratoria. Barcelona: Ars Médica - Valenza G, González L, Yuste MªJ. (2005). Manual de Fisioterapia respiratoria y cardiaca. Madrid: Editorial Síntesis - Cristancho Gómez W (2003). Fundamentos de fisioterapia respiratoria y ventilación mecánica. Bogotá: El manual moderno - Jiménez M., Servera E., Vergara P (2001). Prevención y rehabilitación en patología respiratoria crónica. Fisioterapia, entrenamiento y cuidados respiratorios. Madrid: Ed. Médica Panamericana - Postiaux G (1999). Fisioterapia respiratoria en el niño. Madrid: Mc Graw ? Hill. Interamericana - Pryor J.A (1993). Cuidados respiratorios. Barcelona: Masson - Salvat medicina - J. Giner, LV Basualdo, P Casan, C Hernández, V Macián, I Martínez y A Mengíbar. (2000). Utilización de los fármacos inhalados. Arch Bronconeumol 2000; 36: 34-43 - J Sanchís Aldás, P. Casan Clará, J. Castillo Gómez, N. Gómez Mangado, L. Palenciano Ballesteros, J. (). Espirometría. http://www.separ.es/biblioteca-1/Biblioteca-para-Profesionales/normativas - Coordinadores: Felip Burgos Rincón, Pere Casan Clará (2004). Evaluación de la función pulmonar II. http://www.separ.es/biblioteca-1/Biblioteca-para-Profesionales/manuales - Coordinador: Luis Puente Maestu (2002). Evaluación de la función pulmonar . http://www.separ.es/biblioteca-1/Biblioteca-para-Profesionales/manuales - Jones M, Moffatt F (2002). Cardiopulmonary Physiotherapy. Cardiopulmonary Physiotherapy - âcote M., Chevalier A.M., Miranda A., Bleton J - B., Stevenin P. (1984). Valoración de la función muscular normal y patológica. Barcelona: Masson - Netter FH (1991). Sistema Respiratorio. Barcelona: Salvat - Hislop HJ, Montgomery J. (2003). Daniels y Worthingham. Técnicas de balance muscular. Madrid: Elsevier - Kendall FP, Kendall E, Geise P (2000). Músculos,pruebas, funciones y dolor postural. Madrid: Marban - Marti Romeu JD, Venderll Relat (2013). Manual SEPAR de procedimientos: técnicas manuales e instrumentales para el drenaje de secreciones bronquiales en el paciente adulto. http://www.separ.es/biblioteca-1/Biblioteca-para-Profesionales/manuales. - Souto Camba, S., González Doniz, L, López García, A., Lista Paz, A. (2017). Guía Práctica de Fisioterapia Respiratoria. Servicio de publicaciones: Universidade da Coruña - Seco J. (2018). Sistema Respiratorio: Afecciones Médico-Quirúrgicas. Métodos de Intervención.Fisioterapia Clínica. Editorial Médica Panamericana Área de asma de SEPAR, Área de enfermería de SEPAR, Departamento de asma ALAT. Consenso SEPAR-ALAT sobre terapia inhalada. Arch Bronconeumol. 2013;49(Supl 1):2-14. GEMA: Guía española para el manejo del asma para pacientes [Internet]. Madrid: SEPAR; 2011 [citado el 26/04/2016]. Disponible en: https://issuu.com/separ/docs/gema_para_pacientes?backgroundColorRodríguez Machado MG. Patrón respiratorio. En: Rodríguez Machado MG. Bases de la Fisioterapia Respiratoria. Terapia intensiva y rehabilitación. Río de Janeiro: Editorial Guanabara Koogan SA; 2009:p.11-19.
Complementary	Agostini P, Knowles N. Autogenic drainage: the technique, physiological basis and evidence. Physiotherapy. 2007;93:157-163.Fernandes Brito M, Moreira GA, Pradella-Hallinan M, Tufik S. Air stacking and chest compression increase cough flow in patients with Duchenne muscular dystrophy. J Bras Pneumol. 2009;35(10):973-979Agostini P, Knowles N. Autogenic drainage: the technique, physiological basis and evidence. Physiotherapy. 2007;93:157-163.Fernandes Brito M, Moreira GA, Pradella-Hallinan M, Tufik S. Air stacking and chest compression increase cough flow in patients with Duchenne muscular dystrophy. J Bras Pneumol. 2009;35(10):973-979

Recommendations



Subjects that it is recommended to have taken before

ANATOMY I AND HISTOLOGY/651G01001
ANATOMY II/651G01002
PHYSIOLOGY/651G01003
BIOPHYSICS AND BIOCHEMISTRY/651G01004
GENERAL KINESIOTHERAPY/651G01005
FUNCTIONAL AND PSYCHOSOCIAL ASSESSMENT/651G01007
CLINICAL SEMIOLOGY/651G01010
KINESIOTHERAPY: BASES OF THERAPEUTIC EXERCISE BASES/651G01013

Subjects that are recommended to be taken simultaneously

MEDICAL AND SURGICAL PATHOLOGY I/651G01011

Subjects that continue the syllabus

CARDIAC, RESPIRATORY AND VASCULAR REHABILITATION/651G01020

Other comments

Para axudar a conseguir unha contorna inmediata sustentable e cumprir cos obxectivos estratéxicos do Plan Green Campus da Facultade de Fisioterapia, os traballos documentais que se realicen nesta materia poderanse solicitar tanto en formato papel como virtual ou soporte informático. De realizarse en papel, seguiranse na medida do posible as seguintes recomendacións xerais:- Non se utilizarán plásticos.- Realizaranse impresións a dobre cara.- Empregarase papel reciclado.- Evitarase a realización de borradores.

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.