



## IDENTIFYING DATA

### Manual Therapy in Neuromotor Disorders

Subject	Manual Therapy in Neuromotor Disorders			
Code	P05G171V01301			
Study programme	Grado en Fisioterapia			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Mandatory	3rd	1st
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Machado de Oliveira, Iris			
Lecturers	González González, Yoana Machado de Oliveira, Iris Monge Pereira, Esther			
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Web				
General description	This is a subject given in the first term of the third year of the degree in physiotherapy where tackle theoretical and practical contents about methods of treatment and strategies of assessment in neuromotor alterations.			
	Subject of the English Friendly program. International students may request teachers: a) materials and references bibliographies for monitoring the subject in English, b) attend tutoring in English, c) tests and assessments in English.			

## Training and Learning Results

Code	
A2	Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.
B1	To know how to work in professional teams as a basic unit in which professionals and other personnel of health care organizations are structured in a uni or multidisciplinary and interdisciplinary way.
B3	Communicate effectively and clearly, both orally and in writing, with users of the health system as well as with other professionals.
C7	Know the physiological and structural changes that can occur as a result of the application of physiotherapy.
C13	Have the ability to assess from the perspective of physiotherapy, the functional status of the patient/user, considering the physical, psychological and social aspects of the same.
C15	Understand ergonomic and anthropometric principles.
C19	Understand and perform specific methods and techniques related to the locomotor system (including manual therapies, joint manipulative therapies, osteopathy and chiropractic), neurological processes, respiratory system, cardiocirculatory system and static and dynamic alterations. Specific methods and techniques that take into account the implications of orthopedics in physiotherapy, reflex therapeutic techniques, as well as other alternative and/or complementary methods and techniques whose safety and efficacy is demonstrated according to the state of development of science.
C20	Identify the most appropriate physiotherapeutic treatment in the different processes of alteration, prevention and health promotion as well as in the processes of growth and development.
C35	To know and understand the sciences, models, techniques and instruments on which physiotherapy is based, articulated and developed.
D3	Recognition of diversity and multiculturalism
D7	Maintain an attitude of learning and improvement.
D8	Ability to understand the meaning and application of the gender perspective in different areas of knowledge and professional practice with the aim of achieving a more just and egalitarian society.

## Expected results from this subject

Expected results from this subject	Training and Learning Results			
To know and describe the basic principles of operation of the nervous and muscular systems.	A2	B3	C35	D7
To know and describe the biomechanics principles involved in the neuromotor alterations.	A2	B3	C35	D7
To describe the physiological principles of the proprioceptive system and apply different forms of intervention in alterations of the proprioceptive system.	A2	B3	C15 C35	D7
To know, execute and register the assessment of patients with neuromotor disorders.	A2	B3	C7 C13 C15	D3 D7
To appoint and apply therapeutic techniques for the treatment of neuromotor conditions.	A2	B3	C15 C19 C20	D3 D7
To relate the physiological and therapeutic bases of different methods of physiotherapy used in the treatment of neuromotor disorders.	A2	B3		D7
To make, expose and defend, in a group, a work on a theme related to the contents of the subject.	A2	B1 B3	C15 C20	D7 D8

## Contents

Topic	
Principles of the functioning of the nervous and muscular system.	To deepen the principles of the functioning of the nervous system, both central and peripheral, and its interrelation with the musculoskeletal system.
Biomechanical principles in neuromotor disorders.	To deepen into typical biomechanical patterns of functional movement and how alterations in these patterns can lead to different neuromotor disorders.
Methods of assessment of neuromotor disorders.	To explain and apply the main tools for the evaluation of sensitivity and movement in patients with some type of neuromotor disorder in order to allow the approach of the intervention and also the monitoring of the evolution of the pathology.
Physical therapy methods in the treatment of neuromotor disorders.	Explain and apply different treatment methods in physiotherapy, with different basic approaches, but focused on neuromotor disorders of different etiologies.

## Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Lecturing	24	44	68
Laboratory practical	45	55	100
Mentored work	2	10	12
Essay questions exam	1	20	21
Simulation or Role Playing	1	20	21
Essay	0	2	2

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

## Methodologies

	Description
Introductory activities	The subject coordinator will explain the points to be taken into account regarding the syllabus and the teachers responsible for it, the form of evaluation to be carried out, and how the theoretical and practical classes of the subject will be structured, as well as the group work to be done. It will be explained the proposed schedule of classes to be carried out during the four-month period and the dates of the exams. Finally, it will explain the teaching obligations of the students for the development of the subject.
Lecturing	Theoretical classes will combine lectures with theoretical-participatory classes where student participation is encouraged and motivated. Activities may be established prior to the class and delivered through the virtual platform of the subject in Moovi for subsequent discussion during the lecture. In addition, problem-solving activities and collaborative work activities may be carried out during the classes. At the discretion of the teachers responsible for the different modules, discussion forums may be established in the subject's own space in the virtual teaching platform Moovi.
Laboratory practical	A demonstrative methodology will be followed, seeking the integration of theoretical knowledge into practice. Students will perform the practice, being corrected by the teacher and clarifying any doubts that may arise. In addition, there will be case studies and debates related to the subject matter of the classes.

Mentored work	Development of a theoretical/practical work on a topic related to the contents of the subject. The work groups will be determined by subject at the beginning of the term by the subject coordinator. The work will consist of a first part where a review of the scientific literature on the agreed topic will be made and a second part where an explanatory video of the technique or valuation tool that is the subject of the topic of the work will be made and a written work with the results of the first part of the work will also be presented. Each member of the group will be individually monitored as the grades will be established individually. The deadlines for the delivery of the work and presentation will be published at the beginning of the term in the virtual platform of the subject in Moovi.
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### Personalized assistance

Methodologies	Description
Lecturing	Personalized attention will be focused on solving any doubts regarding the theoretical syllabus that students may have and guide their efforts in the subject. This can be done in person or remotely through Campus Remoto in the virtual office of each professor of the subject.
Laboratory practical	Personalized attention will be focused on solving any doubts that the students may have regarding the practical and to guide their efforts in the subject. This can be done in person or remotely through Campus Remoto in the virtual office of each professor of the subject.
Mentored work	Personalized attention will be focused on solving doubts, guiding the work to be done in the subject, and keeping a record and assessing what has been done by the students in the same group. the subject, and to keep a record and evaluate what has been done by the students of the same group and also individually for each member. individually for each member. This can be done in person or remotely through Campus Remoto in the virtual office of each professor of the subject.

### Assessment

Description		Qualification	Training and Learning Results			
Essay questions exam	It consists of questions to develop on the contents of the subject. All questions will have the same value. This exam, referring to the theoretical subject matter of the subject, will take place during school hours as indicated in the subject's schedule.	40	A2	B3	C15 C35	D7
Simulation or Role Playing	Practical exam where students answer different questions in a practical way. These practical cases are chosen at random. In order to pass the practical exam, the student must not have a score of "0" in any of the questions. In order to be able to take the practical exam, the student must first take the theoretical exam. This part of the evaluation will be carried out in the timetable established in the document referring to the calendar of exams for the ordinary exams.	40	A2	B3	C7 C13 C15 C19 C20	D3 D7
Essay	The completion of the work of the subject and passing it is mandatory to pass the subject. The work will be considered passed if it reaches, at least, 1.0 point. The work will be delivered in digital support using the virtual platform Moovi.	20	A2	B1 B3	C15 C20	D7 D8

### Other comments on the Evaluation

To pass the subject the student must have passed each part separately (exam of development questions, simulation or Role Playing and work). Students who do not pass the subject in the ordinary exam will keep the part passed for the 2nd opportunity exam within the same academic year.

#### Continuous evaluation:

It is the evaluation established by default and that is described in the evaluation section of the subject with their respective percentages.

#### Global evaluation:

The student may request the waiver of the continuous evaluation by informing the coordinator of the subject within the established period. In this case, he/she will be evaluated by the global evaluation procedure. The global evaluation of the subject includes exactly the same sections as the continuous evaluation.

#### Second chance evaluation:

The second opportunity evaluation includes the same sections as the continuous evaluation, with the difference that, the work, in case of not having it passed in group modality, will be done in individual modality following the guidelines established by the subject coordinator.

#### Other comments:

The failing grade will never be higher than 4.5. Therefore, it could be the case that a student obtains in the global

evaluation, taking into account the percentages of the evaluation tests, a grade of 5 out of 10 or higher; however, if the student has failed any of the parts of the evaluation, the grade in the global evaluation will be a fail.

Students who do not wish to follow the continuous evaluation must notify in writing following the procedure established by the Faculty of Physiotherapy. The waiver to the continuous evaluation must be made before the 5th week of teaching, which means that the student will assume the global evaluation established in the subject. Once the continuous evaluation has been waived, the student will not be entitled to it, nor to the considerations established therein.

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## Sources of information

### Basic Bibliography

Shumway-Cook, **CONTROL MOTOR DE LA INVESTIGACION A LA PRACTICA CLINICA: De la investigación a la práctica clínica**, 2019

Kisner et al, **Therapeutic Exercises: foundations and techniques**, 2018

Cano de la Cuerda, **Nuevas tecnologías en neurorrehabilitación: aplicaciones diagnósticas y terapéuticas**, 2018

### Complementary Bibliography

Souchard, **Reeducación postural global**, 2022

Gelener et al, **Proprioception and Clinical Correlation**, 2021

Dunleavy & Slowik, **Therapeutic Exercise Prescription**, 2019

Sánchez-Rodríguez et al, **APPS En Neurorrehabilitación**, 2016

Cano de la Cuerda, **Neurorrehabilitación: métodos específicos de valoración y tratamiento**, 2012

Downie, **Neurología para fisioterapeutas**, 2001

Alamer et al, **Effect of Ankle Joint Mobilization with Movement on Range of Motion, Balance and Gait Function in Chronic Stroke Survivors: Systematic Review of Randomized Controlled Trials**, 2021

Reid et al, **Adding mobilisation with movement to exercise and advice hastens the improvement in range, pain and function after non-operative cast immobilisation for distal radius fracture**, 2021

Pourahmadi et al, **Effectiveness of Proprioceptive Neuromuscular Facilitation on Pain Intensity and Functional Disability in Patients with Low Back Pain: A Systematic Review and Meta-Analysis**, 2020

Weerasekara et al, **Effect of Mobilisation with Movement (MWM) on clinical outcomes in lateral ankle sprains: A systematic review and meta-analysis**, 2020

Delhaye et al, **Neural Basis of Touch and Proprioception in Primate Cortex**, 2019

Bastos et al, **Proprioceptive Neuromuscular Facilitation: A Physiotherapeutic Concept with Excellent Clinical Results but Little Explored in its Potential in Scientific Research**, 2018

Chaturvedi et al, **Proprioceptive neuromuscular facilitation (PNF) vs. task specific training in acute stroke: the effects on neuroplasticity**, 2018

Tuthill & Azim, **Proprioception**, 2018

Sharma & Kaur, **Effect of core strengthening with pelvic proprioceptive neuromuscular facilitation on trunk, balance, gait, and function in chronic stroke**, 2017

Yildirim et al, **Comparison of effects of static, proprioceptive neuromuscular facilitation and Mulligan stretching on hip flexion range of motion: a randomized controlled trial**, 2016

Behm et al, **Acute effects of muscle stretching on physical performance, range of motion, and injury incidence in healthy active individuals: a systematic review**, 2015

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## Recommendations

### Subjects that continue the syllabus

Physical therapy in clinical specialties I/P05G171V01308

Physical therapy in clinical specialties II/P05G171V01309

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### Subjects that it is recommended to have taken before

Human anatomy: Human anatomy/P05G171V01101

Physiology: Human physiology/P05G171V01102

Physiology: Functional movement in physiotherapy/P05G171V01105

Human anatomy: Medical conditions/P05G171V01201

Human anatomy: Surgical conditions/P05G171V01202

Kinesitherapy/P05G171V01203