

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

Code	33020
Name	Physiotherapy of the nervous system
Cycle	Grade
ECTS Credits	6.0
Academic year	2021 - 2022

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
QUEROL GINER, FELIPE	191 - Physiotherapy
SENTANDREU MAÑO, TRINIDAD	191 - Physiotherapy

SUMMARY

The Physiotherapy Nervous System course pretends that student develops knowledge, skills and attitudes necessary to plan, intervene and assess physiotherapy techniques in order to promote, prevent and recover health status in the different neurological 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

It is not necessary previous requirements.

OUTCOMES

1202 - Degree in Physiotherapy

- Respect fundamental rights and equality between men and women.
- Recognise diversity, multiculturality, 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

At the end of this course students should able to:

1. Know physiotherapy objectives in different nervous system diseases.
2. Plan an strategy of physiotherapy for promotion, prevention and health maintenance.
3. Apply physiotherapy techniques appropriately in different clinical situations.
4. Assess the results of physiotherapy intervention.

DESCRIPTION OF CONTENTS

1. Physiotherapy in disorders of the nervous system I. Spinal cord injury

Unit 1. Fundamentals of physical therapy spinal cord injury syndrome.

Unit 2. Neurological assessment of the injured spinal cord according to the ASIA scale. Spinal cord syndromes.

Unit 3. Assessment, functional objectives and rehabilitation in cervical spinal cord injury.

Unit 4. The hand function in people with tetraplegia.

Unit 5. Assessment, functional objectives and rehabilitation in thoracic spinal cord injury.



- Unit 6. Assessment, functional objectives and rehabilitation in lumbar spinal cord injury.
- Unit 7. Complications associated with spinal cord injury.
- Unit 8. Imaging of the injured spinal cord.
- Unit 9. Respiratory physiotherapy in the injured spinal cord.
- Unit 10. Cardiocirculatory physiotherapy in spinal cord injuries.
- Unit 11. Bladder and bowel management in spinal cord injuries.
- Unit 12. Treatment of the skin. Pressure ulcers.
- Unit 13. Transfers and bed mobility of people with paralysis of the lower limbs.
- Unit 14. Tasks of motor training and strength training in spinal cord injuries.
- Unit 15. Standing and gait training in spinal cord injury.
- Unit 16. Gait training in spinal cord injury: orthotics and new technologies.
- Unit 17. Treatment of contractures and spasticity in the injured spinal cord.
- Unit 18. Treatment of pain in the injured spinal cord.
- Unit 19. Functional Index. Assessment of disability, activity limitations and participation restrictions for spinal cord injuries.
- Unit 20. Spinal cord injury and aging.
- Unit 21. Spinal cord injury, exercise and sport.
- Unit 22. Clinical cases.
- Unit 23. Cognitive Therapeutic Exercise I.
- Unit 24. Cognitive Therapeutic Exercise I.

2. Physiotherapy in disorders of the nervous system II. Peripheral nerve injury

- Unit 25. Fundamentals of physiotherapy in the treatment of peripheral nerve injury.
- Unit 26. System longitudinal neurodynamic: neuraxis and lower limbs. Physiotherapy for sciatica, neuropathic cruralgia and compressive syndromes of the lower limb.
- Unit 27. Neurodynamic System Transverse: Upper limbs. Physiotherapy in cervical radiculopathy syndrome scapulohumeral chest pass, carpal tunnel syndrome and other compressive syndromes of the upper extremity neuropathic.
- Unit 28. Physiotherapy neuropathic problems with conduction deficit.
- Unit 29. Injuries of cranial nerves susceptible to physiotherapy treatment.
Physiotherapy in injuries to the trigeminal nerve, the oculomotor nerve and the facial nerve.
- Unit 30. Physiotherapy in the acquired polyneuropathies: Guillain-Barre syndrome, acquired immunodeficiency syndrome, intercostal neuralgia, Herpes Zoster.
- Unit 31. Physiotherapy in the hereditary polyneuropathies: hereditary sensory motor neuropathy (type I or Charcot-Marie-Tooth disease, type II and type III or Dejerine-Sottas).
- Unit 32. Physiotherapy in muscular disorders and post-polio syndrome.
- Unit 33. Physiotherapy in muscular disorders of childhood-onset, muscular dystrophies and spinal muscular atrophy.
- Unit 34. Physiotherapy in migraine.

**3. Practical program**

Practice 1. Functional diagnosis of spinal cord injury. Implications for physiotherapy I.
Practice 2. Functional diagnosis of spinal cord injury. Implications for physiotherapy II.
Practice 3. Transfers and bed mobility in spinal cord injury. Physiotherapy approach.
Practice 4. Physiotherapy treatment plan in spinal cord injury. Clinical reasoning.
Practice 5. Physiotherapy applied to the neural pathomechanics I.
Practice 6. Physiotherapy applied to neural pathomechanics II. Practice 7. Physiotherapy applied to neural pathomechanics III.
Practice 8. Introduction to Cognitive Therapeutic Exercise I.
Practice 9. Introduction to Cognitive Therapeutic Exercise II.
Practice 10. Physiotherapy in disorders of the peripheral nervous system.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	45,00	100
Laboratory practices	15,00	100
Development of group work	32,00	0
Preparation of evaluation activities	21,00	0
Preparing lectures	24,00	0
Preparation of practical classes and problem	13,00	0
TOTAL	150,00	

TEACHING METHODOLOGY

The theoretical teaching will take place in the classroom with the agenda for the exposure (type lecture participatory activities). Students know in advance the topics in order to answer questions, concepts, and encourage their participation.

In the practical program, students will learn by solving problems and exercises, group activities and case studies, and they will train in skills and procedures used in physical therapy nervous system.

The student should complete a portfolio of proposed theoretical-practical activities, which involves learning and problem solving exercises. Clinical cases should be schematized, according to the instructions that will be published promptly, can be solved in groups (something that is advised) but the student must be willing to defend what is written in your portfolio, it may be a matter of question in assessments.



EVALUATION

1. Theoretical program (60% of the final mark)

Written test: Test with questions, $\text{Score} = [\text{hits} - (\text{errors} / n^{\circ} \text{ options} - 1)] * (\text{maximal score} / \text{number of questions})$.

2. Practical program (20% of the final mark)

Resolution of a clinical case in which is requested functional diagnosis and physiotherapy strategy.

3. Continuous evaluation of the theoretical-practical activities of the portfolio (20% of the final mark).

The rating of the course will be averaged provided the student has earned at least 5 out of 10 in each of the theoretical and practical blocks. All written tests will be penalized spelling impropriety.

REFERENCES

Basic

- Bisbe M, Santoyo C, Segarra VT. Fisioterapia en neurología: Procedimientos para restablecer la capacidad funcional. Madrid: Editorial Médica Panamericana; 2012
- Cano R, Collado S. Neurorrehabilitación: Métodos específicos de valoración y tratamiento. Madrid: Editorial Médica Panamericana; 2012.
- Esclarin A. Lesión medular: Enfoque multidisciplinario. Madrid: Panamericana; 2010.
- Giner M, Delgado M, Miguel I, Forner JV, Miró R. Guía de autocuidados lesión medular. 1ª ed. Valencia: Generalitat Valenciana. Conselleria de Sanitat; 2001.
- Harvey L. Tratamiento de la lesión medular. Guía para fisioterapeutas. Barcelona: Elsevier; 2010.
- Hoppenfeld S. Neurología ortopédica. México: Manual Moderno; 2009
- Shacklock M. Neurodinámica Clínica. Un nuevo sistema de tratamiento músculo-esquelético + CD-ROM. Madrid: Elsevier; 2007.
- Stokes M. Fisioterapia en la rehabilitación neurológica. Madrid: Elsevier; 2006
- Torres C. La Columna Cervical; Síndromes Clínicos y su tratamiento manipulativo. Madrid: Panamericana; 2008.
- Xhardez Y. Vademecum de kinesioterapia y reeducación funcional. 5º edición. Argentina: Editorial el Ateneo; 2010.
- Zamorano E. Movilización Neuromeningea. Madrid: Panamericana; 2010.



Additional

- Esclarín de Ruz, A. Lesión medular. Enfoque multidisciplinario. Madrid: Médica Panamericana; 2009.

Stokes M. Fisioterapia en la rehabilitación neurológica. Elsevier. 2006.

Pérez JM. Manual de fisioterapia. Neurología, pediatría y fisioterapia respiratoria. Módulo II. Sevilla: Mad; 2004.

Giner M, Delgado M, Miguel I, Forner JV, Miró R. Guía de autocuidados lesión medular. 1ª ed. Valencia: Generalitat Valenciana. Conselleria de Sanitat; 2001.

Cano de la Cuerda R, Collado S. Neurorrehabilitación. Métodos específicos de valoración y tratamiento. Editorial Médica Panamericana: Madrid: 2012.

Redondo M^a A, Conejero J.A. Rehabilitación infantil. SERMEF. Editorial Médica Panamericana: Madrid: 2012.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

This addendum will only be activated if the health situation so requires and with the prior agreement of Consell de Govern.

1. Contents:

The contents initially included in the teaching guide are maintained.

2. Workload and temporary teaching planning:

The proportion of the different activities that add up to the hours of dedication in ECTS credits marked in the original teaching guide has been maintained.

3. Teaching methodology:

Depending on the needs, teaching will be adapted to the blended or non-classroom mode, through the implementation of the corresponding teaching strategies (i.e. hybrid teaching, videoconference sessions, voice-over presentations, videos or additional multimedia material).

The tutorials may be conducted virtually, following the guidelines of the Universitat de València, via e-mail or videoconference, through the Blackboard Collaborate or Teams platform.



4. Evaluation:

The final evaluation tests will be presential, and only in case of problems caused by the evolution of the pandemic, final evaluation tests will be done online through Aula Virtual of the Universitat de València.

