

Physiotherapy in Neurology II

Code: 102987
ECTS Credits: 6

Degree	Type	Year	Semester
2500892 Physiotherapy	OB	3	1

Contact

Name: Anabel Alba Perez
Email: anabel.alba@uab.cat

Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: Yes

Teachers

Maria Muñoz Carvajal

Prerequisites

Have basic knowledge of anatomy and physiology of the nervous system to interpret diseases and how to approach them therapeutically.

Objectives and Contextualisation

This course aims to convey theoretical knowledge and practical skills to students, so they can perform evaluations and treatments based on scientific evidence in the field of neurological physiotherapy.

The knowledge of this area of physiotherapy is essential within the profile of the degree and the profession, because the increase in the incidence of vascular and neurodegenerative pathologies makes the number of people who are subsidiaries of this specialty more and more important

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Apply quality-assurance mechanisms in physiotherapy practice, in accordance with the recognised and validated criteria.
- Design the physiotherapy intervention plan in accordance with the criteria of appropriateness, validity and efficiency.
- Display critical reasoning skills.
- Display knowledge of the physiotherapy methods, procedures and interventions in clinical therapeutics.
- Evaluate the functional state of the patient, considering the physical, psychological and social aspects.
- Integrate, through clinical experience, the ethical and professional values, knowledge, skills and attitudes of physiotherapy, in order to resolve specific clinical cases in the hospital and non-hospital environments, and primary and community care.
- Make a physiotherapy diagnosis applying internationally recognised norms and validation instruments.

- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Make the most correct decisions in given situations.
- Participate in drawing up physiotherapy protocols on the basis of scientific evidence, and promote professional activities that facilitate physiotherapy research.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Take sex- or gender-based inequalities into consideration when operating within one's own area of knowledge.
- Work in teams.

Learning Outcomes

1. Analyse a situation and identify its points for improvement.
2. Apply advanced evaluation procedures in physiotherapy in order to determine the degree of damage to the nervous system and possible functional repercussions.
3. Apply the basic physiotherapy methods, procedures and interventions to nervous system conditions.
4. Communicate using language that is not sexist.
5. Consider how gender stereotypes and roles impinge on the exercise of the profession.
6. Critically analyse the principles, values and procedures that govern the exercise of the profession.
7. Describe and analyse the evidence-based physiotherapy protocols for nervous system disorders.
8. Describe and analyse the quality-assurance mechanisms of physiotherapy in treatments for the nervous system.
9. Describe the bases for assessing nervous system conditions.
10. Design therapeutic exercises and activities for neurological diseases.
11. Display critical reasoning skills.
12. Establish diagnostic physiotherapy hypotheses through clinical cases with disorders of the nervous system.
13. Explain the explicit or implicit code of practice of one's own area of knowledge.
14. Identify situations in which a change or improvement is needed.
15. Identify the principal forms of sex- or gender-based inequality present in society.
16. Identify the social, economic and environmental implications of academic and professional activities within one's own area of knowledge.
17. Make the most correct decisions in given situations.
18. Propose new methods or well-founded alternative solutions.
19. Propose new ways to measure success or failure when implementing innovative proposals or ideas.
20. Propose projects and actions that incorporate the gender perspective.
21. Propose viable projects and actions to boost social, economic and environmental benefits.
22. Propose ways to evaluate projects and actions for improving sustainability.
23. Use physiotherapy to treat clinical cases involving neurological conditions.
24. Weigh up the impact of any long- or short-term difficulty, harm or discrimination that could be caused to certain persons or groups by the actions or projects.
25. Weigh up the risks and opportunities of suggestions for improvement: one's own and those of others.
26. Work in teams.

Content

1. Principles of neurological physiotherapy
 - 1.1 Clinical reasoning in neurophysiotherapy
 - 1.2 Systematization of the exploration and evaluation of the neurological patient.
 - 1.3 Motor control and postural tone.
 - 1.4 Therapeutic approach to spasticity.
2. Applied therapies in neurological physiotherapy

- 2.1 Bobath's Concept
- 2.2 Cognitive therapeutic exercise
- 2.3 Other therapeutic methods applied in neurological physiotherapy
- 3. Physiotherapy approach in neurological pathologies
 - 3.1 Acquired brain damage
 - 3.2 Spinal cord injury
 - 3.3 Parkinson
 - 3.4 Multiple sclerosis
- 4. Neurological march
- 5. Support products in Neurology
- 6. Facial paralysis
- 7. New technologies

Methodology

Teaching involves both theoretical and practical classes.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
LABORATORY PRACTICES (LABP)	12	0.48	6, 1, 3, 2, 4, 10, 13, 16, 15, 14, 25, 17, 22, 18, 19, 20, 21, 23, 5, 24
THEORY (TE)	18	0.72	3, 8, 7, 9, 10, 12, 23
Type: Autonomous			
PREPARATION OF WRITTEN WORKS	28	1.12	3, 2, 8, 7, 9, 10, 12, 17, 11, 23, 26
SELF-STUDY	83.5	3.34	2, 9, 23

Assessment

Description of evaluation system

Written evaluation via objective quizzes: multiple-choice and short answer tests (final exam: 50% of the final grade)

Questions type test with 4 possible answers, only one is correct. Correct answers will be worth 1 point and each incorrect answer will subtract 0.25 points

Practical evaluation through objective and structured clinical evaluation and simulations:

- Practical exam 20% of the final grade.
- Co-evaluation and self-evaluation: 5%

Clinical reasoning and hand skill in the application of different techniques will be valued.

Written evaluation via objective tests: applied case test (clinical case submission: 20% of the final grade)

Clinical case (20% of the final grade). At the beginning of the course the methodology and presentation day of the clinical case will be provided. The clinical case will be completed in student groups.

Attendance and participation in practical and theoretical seminars and the realisation of a newspaper that will represent 5% of the final grade

The evaluation of active participation in the practical seminars will be continuous. All participants will have to sign in for each attended seminar. Attendance to the practical seminars is mandatory and non-attendance will be penalized proportionally to the missing classes on the final grade of the practical seminars.

Students will have the right to request proof of attendance for each of the attended course activities.

The programming of evaluation activities will follow university schedules.

All course sections have to be completed to obtain a final grade. Students who do not take the final or practical exam, present the clinical case and/or do not attend 50% of the practical seminars will not be graded.

Test revisions will follow current regulations at the UAB and can be individually requested via written application in the established terms.

Students who fail the course can take a second objective quiz consisting of a multiple-choice test. The maximum grade those students (repeaters) will be able to achieve for the course will be a "pass" (5 score).

To participate in the second quiz repeaters must have been previously evaluated in a set of activities which scores should account for at least two thirds of the full grade for the course.

Repeaters can request to withdraw the clinical case, in which case the course rubric will be as follows: final exam (70% of the final grade), practical evaluation (15% practical exam + 10% practical exercise will be carried in one of the practical seminars) and attendance to practical seminars and active participation (5% of the final grade).

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Attendance and active participation in class and in seminars	5%	0	0	3, 2, 10, 12, 17, 11, 23
Practical evaluation : Objective, structured clinical evaluation and simulation	25%	2	0.08	6, 1, 3, 2, 4, 10, 12, 13, 16, 15, 14, 25, 17, 22, 18, 19, 20, 21, 11, 23, 5, 24
Written evaluation: objective multiple-choice questions	50%	2	0.08	8, 7, 9, 10, 12, 11, 23
Written evaluation: objective tests	20%	4.5	0.18	8, 7, 9, 10, 17, 11, 23, 26

Bibliography

SPECIFIC BIBLIOGRAPHY:

- Armenta Peinado. Contribución del método Brunnstrom al tratamiento fisioterápico del paciente hemipléjico adulto. *Rev. Fisioterapia*. Vol. 25, 2003
- Bisbe, M., Santoyo, C., Segarra, V. *Fisioterapia en neurología. Procedimientos para restablecer la capacidad funcional*. Madrid: Panamericana, 2012
- Butler, D. *The sensitive nervous system*. Noigroup publications. Adelaide, 2000 Butler, D., Nieto, E. *Movilización del sistema nervioso*. Editorial Paidotribo, 2002
- Cano, R., Collado, S. *Neurorrehabilitación. Métodos específicos de valoración y tratamiento*. Madrid: Panamericana, 2012
- Carr, J., Sheperd, R. *Rehabilitación de pacientes en el ICTUS*. Madrid: Elsevier, 2004
- Cudeiro, F. J. Reeducción funcional en la enfermedad de Parkinson. Barcelona: Elsevier, 2008
- Davies, P. *Pasos a seguir. Tratamiento integrado de pacientes cono hemiplejia*. 2ª ed. Madrid: Panamericana, 2002
- Edwards, S. *Neurological physiotherapy*. 2ª ed. Londres: Churchill-Livingstone, 2002
- Esclarín de Ruz, A; Lesión medular: enfoque multidisciplinario. Ed. Panamericana, 2010
- Harvey, L, Donovan, H. W. *Tratamiento de la lesión medular: guía para fisioterapeutas*. Elsevier, 2010
- Heine, M., van de Port I., Rietberg, M, van Wegen E., Kwakkel, G. *Tratamiento con ejercicios para la fatiga en la esclerosis múltiple*. Cochrane Database of Systematic Reviews, 2015
- Kandel, E. *Principles of Neural science*. 4ª ed. McGraw-Hill. Nueva York, 2000
- Keus, S. H. J., Munneke, M., Graziano, M., et al. *European Physiotherapy Guideline for Parkinson's disease*. KNGF / ParkinsonNet, the Netherlands, 2014
- Loeser, J. D. Bonica: *Terapéutica del dolor*. 3ª ed. McGraw-Hill. México, 2003
- Lundy-Ekman, L. *Neurociencia. Fundamentals for rehabilitation*. 2ª ed. Philadelphia: Saunders, 2002
- Noguer, L., Balcells, A. *Exploración clínica práctica*. 24ª ed. Barcelona: Científico-Médica, 1992 OMS. *Clasificación internacional del funcionamiento, de la discapacidad y de la salud*. Madrid: Grafo SA, 2001
- Paeth, B. *Experiencias con el concepto Bobath. Fundamentos, tratamientos y casos*. 2ª ed. Madrid: Panamericana, 2006
- Pandian, S., Arva, K. N., Davidson, E. W. Comparison of Brunnstrom movement therapy and Motor Relearning Program in rehabilitation of post-stroke hemiparetic hand: a randomized trial. *J Bodyw Mov Ther*. 2012 Jul.; 16(3): 330-7.
- Perfetti, C. *El ejercicio terapéutico cognoscitivo para la reeducación motora del hemipléjico adulto*. Edikamed. Barcelona, 1998
- Purves, D. *Invitación a la neurociencia*. Madrid: Panamericana, 2001 Purves. *Neurociencia*. Editorial Panamericana, 2004
- Sawner, K., LaVigne, J. Brunnstrom's Movement Therapy in hemiplegia. *Neurophysiological Approach*. 2ª ed. Philadelphia: J.B. Lippincott Company, 1992
- Schieber, M. Constraints on Somatotopic Organization in the Primary Motor Cortex. *J Neurophysiol.*: 2001; Vol. 86
- Serra, M., Díaz, J., Sande, M. *Fisioterapia en neurología, sistema respiratorio y aparato cardiovascular*. Elsevier. Barcelona, 2005
- Shacklok, M. *Neurodinámica clínica*. Madrid: Elsevier, 2007
- Spicher, C. *Handobook of somatosensory rehabilitation*. Montpellier: Sauramps Medicals, 2008 Stokes, M. *Fisioterapia en la rehabilitación neurológica*. 2ª ed. Madrid: Elsevier, 2006
- Sultana, R. *La méthode de Brunnstrom*. Ed.Masson, 1994
- Umphered, D. A. *Neurological rehabilitation*. Saint Louis: Elsevier, 2007
- Vojta, V., Peters, A. *El Principio Vojta. Juegos musculares en la locomoción refleja y en la ontogénesis motora*. Springer-Verlag Ibérica, 1995
- Vojta, V. *Alteraciones motoras cerebrales infantiles, Diagnóstico y tratamiento precoz*. 2ª Edición Ediciones Morata. 2005

RECOMMENDED TEXTS:

- Damasio, A. *Y el cerebro creó al hombre*. Barcelona: Ediciones Destino, 2010 Ramachandram, V. *Fantasmas en el cerebro*. Madrid: Debate pensamiento, 1999
- Ramachandram V. *Fantasmas en el cerebro*. Debate pensamiento. Madrid, 1999
- Sacks, O. *El hombre que confundió a su mujer con un sombrero*. 8ª ed. Barcelona: Anagrama, 2007

Software