Muscular Chains

Code: 103012
ECTS Credits: 6

2024/2025

Degree	Type	Year
2500892 Physiotherapy	OT	4

Contact

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Teachers

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Teaching groups languages

You can view this information at the end of this document.

Prerequisites

It is advisable to have the acquired knowledge of Anatomy and Physiology of the device Locomotive, Foundations in Physiotherapy, Biophysics,

Human Pathology and Physiotherapy of the Locomotive device I and II

Objectives and Contextualisation

The subject is programmed in the fourth year of the Degree in Physiotherapy and is part of the subjects of " "Depths of the locomotive device"

Competences

- Act with ethical responsibility and respect for fundamental rights and duties, diversity and democratic values.
- Design the physiotherapy intervention plan in accordance with the criteria of appropriateness, validity and efficiency.
- Display critical reasoning skills.
- Display knowledge of the morphology, physiology, pathology and conduct of both healthy and sick people, in the natural and social environment.
- Evaluate the functional state of the patient, considering the physical, psychological and social aspects.

- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Solve problems.
- 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. Communicate using language that is not sexist.
3. Consider how gender stereotypes and roles impinge on the exercise of the profession.
4. Critically analyse the principles, values and procedures that govern the exercise of the profession.
5. Describe and apply physiotherapy assessment procedures to the disorders that affect muscle chains, the movement of the nervous system in relation to itself and to its surroundings, and the joints as seen from an osteopathic perspective, with the aim of determining the degree of damage to the musculoskeletal system and its possible functional repercussions.
6. Display critical reasoning skills.
7. Enumerate the different types of of material and apparatus used in physiotherapy treatment, according to the specific methods of muscle chains, neurodynamics and osteopathic manual therapy applied to the treatment of the musculoskeletal system.
8. Explain the physiopathological mechanisms of the disorders that affect the muscle chains, the movement of the nervous system in relation to itself and to its surroundings, and the joints as seen from an osteopathic perspective.
9. Identify situations in which a change or improvement is needed.
10. Identify the social, economic and environmental implications of academic and professional activities within one?s own area of knowledge.
11. Propose new methods or well-founded alternative solutions.
12. Propose new ways to measure success or failure when implementing innovative proposals or ideas.
13. Propose projects and actions that incorporate the gender perspective.
14. Solve problems.
15. 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.
16. Weigh up the risks and opportunities of suggestions for improvement: one's own and those of others.
17. Work in teams.

Content

The course aims to enable the student to be able to make global and not so analytical approaches to any one pathology presented to him, based on the concept of muscle chains, understood as circuits anatomical, through which forces are propagated responsible for stabilizing and mobilizing the human body (Leopold Busquet).

Unit 1

Introduction.

Organization of muscle strings.

Unit 2

The static chain:

- The later static chain.

- The deep static chain.

- The previous static chain.

The antigravity system.

Unit 3

The straight systems of the trunk:

- The anterior straight trunk system.

- The rear rectus system of the trunk.

- Complement the straight system.

Unit 4

The crossed systems of the trunk.

- The previous crossed trunk system.

- The rear trunk system of the trunk.

- Links of the crossed chains.

The movements of the trunk.

Unit 5.

The static chain of the neck.

Straight neck systems.

- The right anterior neck system.

-The rectum posterior system of the neck.

Unit 6

Cross-neck systems.

Active axial self-extension.

Unit 7

The muscular chains of the EESS.

Unit 8

The muscle chains of the EEII.

Pubalgia.

Unit 9

Constriction diaphragm.

-Anatomy and physiology.

Relationship with vital functions.

- Breathing.

- Digestion.

- Circulation.

Unit 10

-Integration

Unit 11

-Introduction to the TMJ (temporomandibular joint)

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
LABORATORY PRACTICALS (PLAB)	7	0.28	5, 7
THEORY (TE)	38	1.52	5, 7, 8
Type: Supervised			
ORAL PRESENTATION/EXPOSITION OF WORKS	10.5	0.42	5, 7, 8
Type: Autonomous			
READING ARTICLES /REPORTS OF INTEREST	20	0.8	
SELF-STUDY	40	1.6	7
works delivery	27	1.08	7

The subject is based on theoretical classes and laboratory practices.

The interaction and / or participation of the student will be important as a continuous evaluation.

Students must practice with each other after explanation and demonstration by teachers.

It is essential to bring comfortable clothes and a towel for the stretcher.

Note: 15 minutes of a class will be reserved, within the calendar established by the center or degree to fill in the students, the evaluation surveys of the performance of the teaching staff and the evaluation of the subject.

Attendance at laboratory practices is mandatory

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.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Practical evaluations	30%	5.5	0.22	4, 1, 2, 5, 7, 8, 10, 9, 16, 11, 12, 13, 6, 14, 17, 3, 15
Written assessments: objective tests	70%	2	0.08	4, 1, 2, 5, 7, 8, 10, 9, 16, 11, 12, 13, 6, 14, 17, 3, 15

70% of the final mark will consist of two partial written tests of multi-answer test type on each question correctly answered will be assessed with 0.25 points.

The wrong questions will be 0.1 points, and instead they will not answered, neither will they add or subtract.

The fact of suspending one of the exams will oblige you to appear in the recovery test which will include the content of the entire subject.

The minimum score to pass the exam is 5. The recovery exam will be made according to the calendar a end of first semester. And the maximum mark would be a 6

The remaining 30% will consist of the realization and exhibition of a work that will be developed after them knowledge acquired in practical seminars.

Attendance to laboratory practices is mandatory if this is not the case, the student will only be able to choose how maximum to 5 of the note of the work.

"Not evaluable" will be considered as not presenting and exposing the work of Static-dynamic global assessment VEDG

and / or not present at the final exam of the subject.

Bibliography

§ Busquet, Léopold (1995-2006). Las Cadenas musculares . Barcelona: Paidotribo.

§ BUSQUET, L (2009). Las cadenas musculares. (Tomo I). Tronco y columna cervical .Ed. Paidotribo .

§ BUSQUET, L (2010). Las cadenas musculares.(Tomo II). Lordosis, cifosis, escoliosis y deformaciones . Ed. Paidotribo .

§ BUSQUET, L (2011). Las cadenas musculares.(Tomo III). La Pubalgia. Ed. Paidotribo .

§ BUSQUET, L. (2011). Las cadenas musculares. (Tomo IV). Miembros inferiores . Ed. Paidotribo .

§ BUSQUET-VANDERHEYDEN, MICHÈLE.BUSQUET, LÉOPOLD. (2010). Cadenas fisiológicas, las (tomo VII). La cadena visceral Tórax - Garganta - Boca. Ed. Paidotribo.

§ Souchart, Philippe-Emmanuel (cop.2005). PRG: principios de reeducación postural global. Barcelona: Paidotribo

§ Souchart, Philippe-Emmanuel (2000). Streching global activo. Ed. Paidotribo

Wilke, J., & Krause, F. (2019). Myofascial chains of the upper limb: A systematic review of anatomical studies. *Clinical anatomy (New York, N.Y.)*, *32*(7), 934-940. https://doi.org/10.1002/ca.23424

Lin, Y., Xu, Y., Hong, F., Li, J., Ye, W., & Korivi, M. (2022). Effects of Variable-Resistance Training Versus Constant-Resistance Training on Maximum Strength: A Systematic Review and Meta-Analysis. *International journal of environmental research and public health*, *19*(14), 8559. https://doi.org/10.3390/ijerph19148559

Adeel, M., Lin, B. S., Chaudhary, M. A., Chen, H. C., & Peng, C. W. (2024). Effects of Strengthening Exercises on Human Kinetic Chains Based on a Systematic Review. *Journal of functional morphology and kinesiology*, *9* (1), 22. https://doi.org/10.3390/jfmk9010022

Zapparoli, F. Y., & Riberto, M. (2017). Isokinetic Evaluation of the Hip Flexor and Extensor Muscles: A Systematic Review. *Journal of sport rehabilitation*, *26*(6), 556-566. https://doi.org/10.1123/jsr.2016-0036

Burk, C., Perry, J., Lis, S., Dischiavi, S., & Bleakley, C. (2019). Can Myofascial Interventions Have a Remote Effect on ROM? A Systematic Review and Meta-Analysis. *Journal of sport rehabilitation*, *29*(5), 650-656. https://doi.org/10.1123/jsr.2019-0074

Wilke, J., Krause, F., Vogt, L., & Banzer, W. (2016). What Is Evidence-Based About Myofascial Chains: A Systematic Review. *Archives of physical medicine and rehabilitation*, *97*(3), 454-461. https://doi.org/10.1016/j.apmr.2015.07.023

Tataryn, N., Simas, V., Catterall, T., Furness, J., & Keogh, J. W. L. (2021). Posterior-Chain Resistance Training Compared to General Exercise and Walking Programmes for the Treatment of Chronic Low Back Pain in the General Population: A Systematic Review and Meta-Analysis. *Sports medicine - open*, *7*(1), 17. https://doi.org/10.1186/s40798-021-00306-w

Krause, F., Wilke, J., Vogt, L., & Banzer, W. (2016). Intermuscular force transmission along myofascial chains: a systematic review. *Journal of anatomy*, *228*(6), 910-918. https://doi.org/10.1111/joa.12464

Glattke, K. E., Tummala, S. V., & Chhabra, A. (2022). Anterior Cruciate Ligament Reconstruction Recovery and Rehabilitation: A Systematic Review. *The Journal of bone and joint surgery. Americanvolume*, *104*(8), 739-754. https://doi.org/10.2106/JBJS.21.00688

Software

No specific software required

Language list

Name	Group	Language	Semester	Turn
(PLAB) Practical laboratories	301	Catalan	first semester	afternoon
(PLAB) Practical laboratories	302	Catalan	first semester	afternoon
(TE) Theory	301	Catalan	first semester	afternoon