

'MUSCULOSKELETAL PHYSIOTHERAPY' MODULE OUTLINE

SEMESTER: 2nd

Credits - ECTS: 8 Module Code: MП6

HOURS: 2 Theory/1 Exercise Practice

Type: Mandatory Module

Module aim: The aim of this module is to provide postgraduate students specialized knowledge that will allow them to identify the most evidence-based but also the most current physiotherapy methods and techniques to effectively manage patients with less or more complex musculoskeletal (MSK) problems and pathologies. New methods in physiotherapy, previous techniques with more current technical applications as well as more pioneering therapeutic protocol combinations are analysed within the module's curriculum. The aim is to develop the critical abilities of students in order to be able to select with the best available criteria the most appropriate methods regarding patients and their pathologies, as well as to be able to support the selected methods (evidence-based approach).

Learning outcomes: After successful completion of the module students will be able to:

- 1) Assess complex neuromusculoskeletal pathologies.
- 2) Comprehend and interpret the theoretical background-action mechanisms of current, scientifically validated methods and techniques of MSK physiotherapy and recognize their application fields.
- 3) Perceive and critically select and apply the most indicated methods and techniques of MSK physiotherapy, on the basis of clinical reasoning but also on scientific evidence.
- 4) Perceive and predict any contraindication for the application of protocols, depending on the stage of the MSK pathology under treatment.
- 5) Comprehend the usefulness of exercise and movement methods, special manual therapy techniques (joint, soft tissue and neural tissue) and to be able to integrate them, if necessary, in current physiotherapy protocols.
- 6) Be able to set targets, perceive, assess and understand the usefulness of updated methods in physiotherapy (ie. extracorporeal shockwave therapy (ESWT), Tecar therapy, instrument-assisted soft-tissue mobilization (IASTM), blood flow restriction (BFR) training etc.)
- 7) Realize the role and potential of physiotherapy within the interdisciplinary framework of management of complex MSK pathologies.
- 8) Realize the role and potential of physiotherapy in the prevention of MSK pathologies.

Course content:

The following thematic units will be analyzed:

- The categorization of patients with MSK pathology as a basis for their physiotherapy management.
- The integration of biopsychosocial parameters within physiotherapy assessment.
- Presentation of the evolution of assessment and classification protocols of MSK pathologies (low back pain, anterior knee pain, shoulder).
- Clinical therapeutic algorithms in the management of MSK pathologies.
- Treatment effectiveness in patients with peripheral neurological signs (peripheral nerves entrapment/compression syndromes).
- Current viewpoints in the application of physiotherapy protocols after surgical management of MSK pathologies (spine and peripheral joints).
- The role of physiotherapists in the interdisciplinary management of chronic pain: current methods and techniques.
- Pain neuroscience education as a mean of assessment and treatment of MSK pathologies.
- Current applications of assessment techniques in physiotherapy (surface electromyography, diagnostic ultrasound).
- Effectiveness, theory and application of modern physiotherapy methods (EMG-Biofeedback, Instrument-Assisted Soft Tissue Mobilisation-IASTM, Blood Flow Restriction-BFR, Tecar therapy, Extracorporeal Shockwave Therapy-ESWT).
- Risk factors in the development of MSK pathologies in occupational environments and the role of physiotherapy in their identification, prevention and management.

Methods and teaching means: 13 weeks X 2 hours of theory & 1 hour of exercise practice

Evaluation methods: The evaluation of students will be carried out in accordance with the regulation of the Post Graduate Program and the relevant decisions of the Assembly of the Department of Physiotherapy, as a weighting of their grade in mid-evaluation (20%), in the individual essay (30%) and the final examination (50%) of the module.

Indicative Bibliography:

1. Apeldoorn AT, Den Arend MC, Schuitemaker R, Egmond D, Hekman K, Van Der Ploeg T, et al. Interrater agreement and reliability of clinical tests for assessment of patients with shoulder pain in primary care. *Physiotherapy theory and practice*. 2019;1-20.
2. Arribas-Romano A, Fernandez-Carnero J, Molina-Rueda F, Angulo-Diaz-Parreno S, Navarro-Santana MJ. Efficacy of Physical Therapy on Nociceptive Pain Processing Alterations in Patients with Chronic Musculoskeletal Pain: A Systematic Review and Meta-analysis. *Pain medicine (Malden, Mass)*. 2020.
3. Basson A, Olivier B, Ellis R, Coppieters M, Stewart A, Mudzi W. The Effectiveness of Neural Mobilization for Neuromusculoskeletal Conditions: A Systematic Review and Meta-analysis. *The Journal of orthopaedic and sports physical therapy*. 2017;47(9):593-615.
4. Berckmans K, Castelein B, Borms D, Palmans T, Parlevliet T, Cools A. Analysis of Scapular

- Kinematics and Muscle Activity by Use of Fine-Wire Electrodes During Shoulder Exercises. *The American journal of sports medicine*. 2020:363546520908604.
5. Borms D, Maenhout A, Cools A. Incorporation of the Kinetic Chain Into Shoulder-Elevation Exercises: Does It Affect Scapular Muscle Activity? *Journal of athletic training*. 2020.
 6. Brotzman S., Manske R. "Ορθοπαιδική Αποκατάσταση στην Κλινική Πράξη" (Clinical Orthopaedic Rehabilitation: An evidence-based approach), 1η Ελληνική έκδοση, Αθήνα, Εκδόσεις Κωνσταντάρας, 2015.
 7. Doebl S, Macfarlane GJ, Hollick RJ. 'No one wants to look after the fibro patient'. Understanding models, and patient perspectives, of care for fibromyalgia: reviews of current evidence. *Pain*. 2020.
 8. Dunabeitia I, Arrieta H, Torres-Unda J, Gil J, Santos-Concejero J, Gil SM, et al. Effects of a capacitive-resistive electric transfer therapy on physiological and biomechanical parameters in recreational runners: A randomized controlled crossover trial. *Physical therapy in sport*. 2018;32:227-34.
 9. Franco ESB, Puga M, Imoto AM, Almeida J, Mata VD, Peccin S. What do Cochrane Systematic Reviews say about conservative and surgical therapeutic interventions for treating rotator cuff disease? Synthesis of evidence. *Sao Paulo medical journal = Revista paulista de medicina*. 2019;137(6):543-9.
 10. Hoogenboom B, Voight M, Prentice W. Φυσικοθεραπευτικές Παρεμβάσεις στο Μυοσκελετικό Σύστημα: Τεχνικές για Θεραπευτικές Ασκήσεις. (Musculoskeletal Interventions: Techniques for therapeutic exercise.) 1^η Ελληνική Έκδοση, Εκδόσεις Κωνσταντάρας, 2014
 11. Jones KC, Tocco EC, Marshall AN, Valovich McLeod TC, Welch Bacon CE. Pain Education With Therapeutic Exercise in Chronic Nonspecific Low Back Pain Rehabilitation: A Critically Appraised Topic. *Journal of sport rehabilitation*. 2020:1-6.
 12. Keir PJ, Farias Zuniga A, Mulla DM, Somasundram KG. Relationships and Mechanisms Between Occupational Risk Factors and Distal Upper Extremity Disorders. *Human factors*. 2019:18720819860683.
 13. Knox GM, Snodgrass SJ, Southgate E, Rivett DA. A Delphi study to establish consensus on an educational package of musculoskeletal clinical prediction rules for physiotherapy clinical educators. *Musculoskeletal science & practice*. 2019;44:102053.
 14. Korakakis V, Whiteley R, Tzavara A, Malliaropoulos N. The effectiveness of extracorporeal shockwave therapy in common lower limb conditions: a systematic review including quantification of patient-rated pain reduction. *British journal of sports medicine*. 2018;52(6):387-407.
 15. Koumantakis GA, Samios D, Philippou A. Painful shoulder: The effect of corrective therapeutic exercise alone or in combination with manual therapy or electrotherapy *Archives of Hellenic Medicine*. 2020;37(1):42-52.
 16. Longo UG, Risi Ambrogioni L, Berton A, Candela V, Carnevale A, Schena E, et al. Physical therapy and precision rehabilitation in shoulder rotator cuff disease. *International orthopaedics*. 2020.
 17. Louw A, Zimney K, Puentedura EJ, Diener I. The efficacy of pain neuroscience education on musculoskeletal pain: A systematic review of the literature. *Physiotherapy theory and practice*. 2016;32(5):332-55.
 18. Moutzouri M, Gleeson N, Billis E, Panoutsopoulou I, Gliatis J. What is the effect of sensori-

- motor training on functional outcome and balance performance of patients' undergoing TKR? A systematic review. *Physiotherapy*. 2016;102(2):136-44.
19. Pieters L, Lewis J, Kuppens K, Jochems J, Bruijstens T, Joossens L, et al. An Update of Systematic Reviews Examining the Effectiveness of Conservative Physical Therapy Interventions for Subacromial Shoulder Pain. *The Journal of orthopaedic and sports physical therapy*. 2020;50(3):131-41.
 20. Plaza-Manzano G, Cancela-Cilleruelo I, Fernandez-de-Las-Penas C, Cleland JA, Arias-Buria JL, Thoomes-de Graaf M, et al. Effects of Adding a Neurodynamic Mobilization to Motor Control Training in Patients with Lumbar Radiculopathy due to Disc Herniation: A Randomized Clinical Trial. *American journal of physical medicine & rehabilitation*. 2019.
 21. Puentedura EJ, Flynn T. Combining manual therapy with pain neuroscience education in the treatment of chronic low back pain: A narrative review of the literature. *Physiotherapy theory and practice*. 2016;32(5):408-14.
 22. Rushton A, Zoulas K, Powell A, Staal JB. Physical prognostic factors predicting outcome following lumbar discectomy surgery: systematic review and narrative synthesis. *BMC musculoskeletal disorders*. 2018;19(1):326.
 23. ShahAli S, Shanbehzadeh S, ShahAli S, Ebrahimi Takamjani I. Application of Ultrasonography in the Assessment of Abdominal and Lumbar Trunk Muscle Activity in Participants With and Without Low Back Pain: A Systematic Review. *Journal of manipulative and physiological therapeutics*. 2019;42(7):541-50.