

COURSE OUTLINE
REHABILITATION OF FUNCTIONAL PATHOLOGY OF THE MOTOR SYSTEM (MP22)

1. GENERAL

SCHOOL	School of Health Sciences		
DEPARTMENT	Physiotherapy		
LEVEL OF EDUCATION	Postgraduate		
COURSE CODE	MP22	SEMESTER OF STUDY	B
COURSE TITLE	Rehabilitation of Functional Pathology of the Motor System		
SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS	
<i>Theory + Exercise tutorials</i>	2	6	
<i>Laboratory</i>	2	2	
COURSE TYPE	Special Background		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek/English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
ECLASS COURSE CODE	PHYSIO_P_106		
COURSE RESPONSIBLE	Dr. Trigkas Panagiotis, Lecturer		
PHONE/ EMAIL	2231060222/ trigkas@uth.gr		

2. LEARNING OUTCOMES

Learning results	
Upon successful completion of the course, the student will be able to:	
<ol style="list-style-type: none"> 1) To distinguish the structural from the functional pathology of the motor system. 2) To understand the role of nervous control (CNS & PNS) in the etiology & treatment of functional pathology of the motor system. 3) To assess & treat joint dysfunction of peripheral & spinal joints. 4) To know the classification of chain reactions & to understand their role in causing functional dysfunctions of the motor system. 5) To understand the role of muscles in the etiopathogenesis of painful musculoskeletal syndromes, to know the clinical models of movement pattern disorders, classification & muscle activation strategies of the trunk & limbs. 6) To understand and use in clinical reasoning, both individually and in combination, the structural as well as the functional approach for the evaluation and therapeutic intervention of functional dysfunctions of the motor system by designing, implementing & supervising scientifically documented physical therapy programs. 	
General & Special Skills	
The course aims to develop the following general skills:	The course aims to develop the following specific skills: <ul style="list-style-type: none"> ● Prioritization, use & interaction of assessment

- Detection of the etiopathogenesis of functional pathology.
- Understanding the role & classification of chain reactions.
- Recognizing the clinical models of movement pattern disorder classification.
- Assessment, prioritization & treatment of motor system adaptations & maladaptations.
- Ability to apply trunk & limb muscle activation strategies.
- Motor control retraining according to modern scientific evidence-based practice.
- findings to design the purpose-goals-means/techniques of the therapeutic intervention program.
- Promotion & improvement of short-medium-long-term prognosis regarding the outcome of motor dysfunction-disorder.
- Ability to plan-implement-supervise & progress scientifically proven physical therapy programs for movement disorders.
- Improving the ability to train, assign responsibility & control the patient's compliance index in the context of self-treatment.

3. COURSE CONTENT

Theoretical part:

1. Basic Principles of Functional Pathology of the Motor System: Structural vs Functional Approach.
2. Distinction of Intrinsic & Extrinsic Function. Distinguishing Normal & Pathological Function.
3. Approaches to Muscle Imbalance: biomechanical approach & neurological approach.
4. Definition, role, goals & modern trends of the restoration of motor control in painful musculoskeletal syndromes.
5. The Sensory-Motor System.
6. Remote task guidance
7. Neuromuscular Control of Postural & Joint Stability: Global & Local Mechanisms (Static Stability & Functional Joint Stability).
8. The Role & Function of Muscles in Painful Musculoskeletal Syndromes.
9. Basic Principles of Assessment & Treatment according to the Functional Approach. Electromyographic (EMG) & Clinical techniques.
10. Diaphragm and Lumbopelvic Motor Control: The effect of the static & stabilizing function of the diaphragm on Lumbopelvic Motor Control.
11. Back Pain & Functional Pathology: Fundamentals & interaction of motor control disorders & back pain induction. Therapeutic approaches to motor control.
12. Joint Mobilization Techniques: joint dysfunction of peripheral & spinal joints.
13. Kinesiotherapeutic training in Musculoskeletal Disorders.

Laboratory part:

1. Basic principles of assessment. Subjective evaluation.
2. Basic Assessment Principles: Observation of posture, muscle outline & morphology.
3. Basic Assessment Principles: Key points, observation, possible causes, frequent clinical findings, verification tests.
4. Basic Assessment Principles: balance & gait assessment.
5. Basic Assessment Principles: assessment of functional activities & respiratory pattern.
6. Evaluation of Motor Patterns & motor tests. Electromyographic (EMG) & Clinical techniques.
7. Assessment of muscle tension & soft tissues.
8. Assessment of Muscle and Joint Functional Chains.
9. Treatment: Normalization of peripheral structures. Local direct techniques.
10. Treatment: Normalization of muscle imbalance, retraining of motor patterns & sensorimotor stimulation.

11. Treatment: improvement of functional range (FR) & predominant functional pathology (FP).
12. Treatment: Joint Mobilization Techniques & therapeutic choice of degrees of mobilization.
13. Principles of Physiotherapy (Kinesiotherapy) Training: Variables, Design, Structure & Guidance of a Physiotherapy Program & Session.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

METHOD OF TEACHING	Face-to-face, Hybrid education, Distance education at 20%												
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of PC, projector, video, and ICT (eclass, email, MS Teams, google docs) in teaching and communicating with students												
TEACHING ORGANIZATION	<table border="1"> <thead> <tr> <th><i>Activity</i></th> <th><i>Semester Workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures / Workshop / Interactive teaching</td> <td>52</td> </tr> <tr> <td>Independent Study & article analysis</td> <td>80</td> </tr> <tr> <td>Elaboration of work study</td> <td>30</td> </tr> <tr> <td>Writing assignments</td> <td>38</td> </tr> <tr> <td>Total Course (25 workload hours per credit unit)</td> <td>200</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester Workload</i>	Lectures / Workshop / Interactive teaching	52	Independent Study & article analysis	80	Elaboration of work study	30	Writing assignments	38	Total Course (25 workload hours per credit unit)	200
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STUDENT EVALUATION	<p>The evaluation of the students in the theoretical part of the course is carried out in accordance with the regulation of the P.M.S. and the relevant decisions of the Department Assembly as a weighting of their grade in the written exams (65%) and their performance in the individual work (35%). Written exams include Multiple Choice Tests, and Analytical/Combined Answer Questions. The laboratory part of the course is evaluated by the average of the three (3) assignments (individual). Each assignment must have at least a grade of five (5) on the ten -point scale to be considered successful.</p> <p>Tasks include:</p> <p>Theory: one (1) individual or group (2 students) paper of approximately 5000 words. The topic of the paper is selected from a bank of topics related to the course material available in the e- class. The assignment is submitted through e-class at a predetermined time & checked for plagiarism by Turnitin plagiarism software. Grading is done according to known predetermined criteria & feedback is given to the students with justification of the rating according to the criteria.</p> <p>Laboratory: three small-scale (3) individual case-studies (clinical-laboratory content from a subject bank related to the laboratory material of the course present in the e- class), submitted through the e-class in a predetermined period of time, so that they can be checked for plagiarism from Turnitin. There is student feedback.</p>												

5. RECOMMENDED BIBLIOGRAPHY

- Proposed Bibliography:

1. Ancillao , A. (2018). *Modern Functional Evaluation Methods for Muscle Strength and Gait Analysis*. Verlag Berlin Heidelberg, Springer.
2. Durward, BR, Baer, GD & Rowe, PJ (1999). *Functional human movement: Measurements & analysis*. Oxford, Butterworth & Heineman .
3. Cook, G., Burton, L., Kiesel , K., Rose, G. & Bryant, M . (2010) *Movement: Functional Movement Systems: Screening, Assessment, Corrective Strategies*. Aptos, CA, On Target Publications.
4. Janda , V. (1983). *Muscle function testing*. Londo . Butterworths.
5. Lewitt , K., (2009). *Manipulative Therapy: Musculoskeletal Medicine*, London, Churchill Livingstone.
6. Mense , S. & Gerwin , RD (2010). *Muscle Pain: Diagnosis and Treatment*. Heidelberg, Dordrecht, London , New York , Springer .
7. Page, P., Frank, CC & Lardner, R. (2009). *Assessment and Treatment of Muscle Imbalance: The Janda Approach*. Champaign, IL, Human Kinetics.
8. Richardson, C., Hodges, P. & Hides, J. (2004). *Therapeutic exercise for lumbopelvic stabilization: A motor control approach for the treatment and prevention of low back pain (2nd ed.)* Edinburgh, Churchill & Livingstone.
9. Sahrman , S. (2002). *Diagnosis and Treatment of Movement Impairment Syndromes*. St Louis, Mosby.
10. Sugi, H. (2018). *Mysteries in Muscle Contraction: Evidence against Current Dogmas*. Singapore, Pan Stanford Publishing.

- Related scientific journals:

1. *Journal of Electromyography and Kinesiology* <https://www.journals.elsevier.com/journal-of-electromyography-and-kinesiology>
2. *Journal of Orthopedic & Sports Physical Therapy*, <https://www.jospt.org/>
3. *Human Movement Science* <https://www.sciencedirect.com/journal/human-movement-science>