

Module I: Differential Diagnosis and Biomechanical Assessment of the Lumbar Spine

Format: 3 day onsite lecture/lab, 6 week online learning module including discussion board, videos of technique, power point presentations on relevant topics, course manual, descriptive anatomy text.

Moderators: Jim Meadows BSCPT, MCPA, FCMT, lecturer; moderator; Gail Molloy PT, OCS, COMT Moderator/Lecturer, Fred Stoot PT, COMT, MCPA, Scott Gallant, PT, FAAOMPT

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Duration: 8 weeks

Course syllabi, course description, educational objectives, requirements for successful completion, and teaching methods.

Description: This course is designed prepare the therapist in advanced differential diagnosis and examination of the lumbar spine. Attention will be given to selected manual therapy interventions including indications and contraindications for selected treatments. The student will complete a 6-week online component designed to complement the lab portion of the curriculum.

Education methods: will include: 24hrs classroom didactic training and lab, review and online testing of course material, course manual, supplemental videos and 25hrs of online guided learning.

Objectives and Requirements for Completion: Upon completion of the course the therapist will be able to identify the common condition scripts for lumbar spine and pelvis, pass a clinical skills evaluation, and online testing covering the didactic and course manual material.

Syllabi:

Module I:

Module I manual:

1. Clinical Reasoning in Pathoanatomical Diagnosis and Treatment
2. Illness (Condition) Scripts
3. Making the Diagnosis
4. Cognitive Bias and Errors
5. Reducing Bias and Error
6. Clinical Reasoning Methods
7. Condition Scripts,

8. Algorithms
9. The Objective Examination
10. Positive and Negative Examinations.
11. Basis of the Cyriax Examination
12. Inappropriate Conditions
13. Systems Examination
14. General Neuro-musculoskeletal Examination Outline
15. The Scan Examination
16. The Subjective Examination

Onsite intensive: 24 didactic/Lab hours. 25 hrs independent study.

Module 1 Lumbar *in class	Topics
Anatomy, biomechanics and pathomechanics <ul style="list-style-type: none"> • Descriptive • Surface* • Applied* 	<ul style="list-style-type: none"> • Lumbar vertebrae • Pelvis • Hip
Conditions (Incidence/ prevalence, and presentation*)	<ul style="list-style-type: none"> • Lumbar disc herniation • Lateral stenosis • Central stenosis • Acute cauda equine syndrome • Spondylolisthesis • Claudication • Segmental dysfunction • Systemic arthropathies (AKS, RA, reactive arthritis) • Sacroiliitis (systemic, traumatic, microtraumatic) • Neoplastic disease • Radiculopathy • Peripheral neuropathy • Myelopathy • Osteoporosis • Whiplash
Clinical reasoning*	<ul style="list-style-type: none"> • Pattern recognition • Hypothetic-deduction • Illness scripts • SFD • Bias correction • DDx • Diagnosis specific treatment • Prognosis
Assessment techniques Medical diagnostic * Segmental*	<ul style="list-style-type: none"> • Scan examination • Neurophysiological (multifidus, quadrants) • Biomechanical (PPIVMs, translation)

Module 1 Lumbar *in class	Topics
Treatment and management techniques*	<ul style="list-style-type: none"> • Specific exercise prescription for above conditions • Mechanical and manual traction • Pain modulation treatments <ul style="list-style-type: none"> ○ Low grade mobilizations ○ Electrical stimulation ○ Exercises ○ Cryo-thermal • Rest and back supports • Referral out for medical treatment and investigation • Lumbar regional manipulation • Rotational specific manipulation • Hip manipulation • Stabilization therapy • Movement rehabilitation therapy
Medical management and investigations for above conditions	<ul style="list-style-type: none"> • X-ray • MRI • CAT • Radio-uptake scans • Blood work • EEG and nerve conduction studies • EKG

SPECIFIC COURSE OBJECTIVES:

Module one objectives

1. Clinical applications and interpretation of Cyriax clinical exam.
 - a. Interpreting active passive, and resistive testing
 - b. Performing and interpreting Passive physiological intervertebral motion testing
 - c. Stability testing of the spine
 - d. Neurologic testing
 - e. Red and yellow flag recognitions and interpretation.
 - f. Selected intervention for Condition scripts.
2. Condition Scripts
 - a. Identification of typical presentation of selected pathology for the Lumbar Spine and Pelvis.
 - b. Hypothesis testing for specific illness scripts
 - i. Spinal stenosis
 - ii. HNP
 - iii. Segmental dysfunction
 - iv. Spinal instability
 - v. Visceral, cancers
3. Selected Interventions based on clinical evidence:
 - a. Appropriate application of Stabilization techniques
 - b. Appropriate application of Therapeutic exercise and PNF

- c. Selected manipulation
 - i. Lumbar
 - ii. Pelvis
- 4. Online Course Learning Objectives
 - a. Understand the application of selective tissue tension testing system to the spine and extremity joints and recognize, interpret and appraise the test results of the following:
 - i. contractile and inert tissues lesions
 - ii. dural and neural mobility problems
 - iii. spinal cord, spinal nerve and nerve root compression/compromise signs and symptoms
 - iv. normal and abnormal end feels to motion
 - v. capsular and non-capsular patterns of restriction
 - vi. tendonitis, tendonosis, tenosynovitis and bursitis
 - vii. resisted/resistive tests
 - viii. Scanning examinations of the lumbo/sacral spine
 - a. A complete and detailed history and systems review
 - b. Active, passive & resisted (resistive) tests to determine status of tissues
 - c. Routine neuromeningeal tension/mobility tests
 - d. Neurological tests of function spinal nerve, nerve root, peripheral nerve
 - e. Neurological tests for function of CNS including dynamic stretch reflexes (deep tendon, clonus), nociceptive reflexes (Babinski, Hoffman etc.)
 - f. General stress tests (including compression, traction, postero/anterior pressures, general lumbar torsion, sacroiliac, peripheral ligamentous)
 - g. Special tests: vertebral artery insufficiency screening, neuromeningeal tests etc.
 - ix. Recognize the presence of serious or worsening neurological signs
 - x. Recognize red and yellow flags
 - xi. Develop a provisional hypothesis/diagnosis and apply deductive reasoning to rule in or out the hypothesis
 - xii. Identify and categorize the musculoskeletal structures or functions that require intervention or further examination, including: posture, articular & soft tissue, neurological, dural, vascular and adjacent joints
 - xiii. Apply theories of inflammation and wound repair/healing to deep transverse friction application
 - xiv. Apply the principles of the effect and application of basic spinal exercise principles.