Course Name: C-516 Cervical Spine I

Faculty: All credentialed faculty
Clock Hours: Twenty-one (21) contact hours

Audience:
This course is designed for licensed physical therapists (copy of physical therapy or other professional license required) and final year physical therapist interns (school verification required) who are beginning to intermediate learners in the field of orthopedic manual physical therapy.

Pre-requisites:
None.

Course Description:
This course will utilize case-based instruction to illustrate select cervical spine conditions and their biomechanical and neurophysiological assessment. Participants will identify an all-source evidence-informed approach to evaluation and management through consideration of normal, abnormal and applied cervical spine anatomy, physiology, biomechanics, and pathology. Coursework will focus on reason-based development of individualized examination sequences aimed at patient/client classification into - management of an initial diagnosis, progression to a specific biomechanical and neurophysiological examination, symptom/intervention/rule-based classification groupings, or referral to another health-care provider. Participants will identify the concepts of health, functioning, pain behaviors and their manifestations, and their role in total patient/client management. Procedural interventions will include education, manual therapy techniques, and individualized neuromuscular rehabilitation prescription, with the goal of restoring normal function and preventing disability. Joint manipulation/mobilization for the middle-lower cervical spine will be reviewed.

Teaching methods/learning experiences:
A variety of active learning methods will be incorporated into the case-based presentation of course material, including lecture, laboratory, independent problem assignments, group-based activities, and role-playing.

Overall Course Objectives:
Upon completion of this 21-hour module, the participant should be expected to:
1. Correctly apply an initial patho-anatomical diagnosis to an orthopedic manual physical therapy patient/client presenting with cervical spine pathology.
2. Accurately assess the patient/client utilizing reason-based, individualized examination sequences and classify the patient appropriately.
3. Complete one evaluation of a cervical spine patient and develop a detailed, individualized prognosis.
4. Correctly outline an all-source evidence-informed management plan including education, manual therapy, and individually dosed neuromuscular rehabilitation techniques.
5. Safely demonstrate joint manipulation/mobilization techniques for the middle-lower cervical spine and the cervico-thoracic junction.

Specific Course Objectives:
Affective Domain:
Upon completion of this 21-hour module, participants should be expected to:
1. Accept that a strong understanding of the basic sciences of normal, abnormal and applied anatomy, physiology, biomechanics, and pathology are essential to the practice of orthopedic manual physical therapy.
2. Recognize the vital role that all-source evidence-informed clinical reasoning plays in the evaluation and management of orthopedic manual physical therapy patients/clients.
3. Realize that all orthopedic manual physical therapy patients/clients present with certain unique signs and symptoms that require an individualized approach to the evaluation.
4. Accept the concept of patho-anatomical diagnosis as the important goal in the evaluation of the orthopedic manual physical therapy patient/client.
5. Accept the importance of Selective Tissue Tension Testing (STTT) to the evaluation and management of the orthopedic manual physical therapy patient/client.
6. Identify patients who are more appropriately classified using other criteria (Clinical Prediction Rules, Symptom/Intervention based systems).
7. Internalize the importance of prognosis as a central factor in the evaluation and management of orthopedic manual physical therapy patients/clients.
8. Display the judgment required to make decisions that take into account, and are in the best interests of, the overall health and function of the individual.
9. Recognize the importance of all-source evidence-informed practice and balance all sources (clinical experience, literature, and patient preference) in search of best practices.

**Cognitive Domain:**
Upon completion of this 21-hour module, participants should be expected to:

1. Describe and discuss the current understanding of the normal, abnormal and applied anatomy, physiology, and biomechanics of the cervical spine
2. Identify condition (illness) scripts for specific cervical spine and headache pain presentations:
   a. Systemic disease (cardiovascular, pulmonary, neurological, gastro-intestinal, endocrine, vascular, gynecological, musculoskeletal, integumentary, cancers)
   b. Fracture/Dislocation
   c. Arthritis (degenerative/systemic/traumatic)
   d. Spondylolisthesis (congenital/acquired)
   e. Disc pathology
   f. Radiculopathy
   g. Stenosis (central/lateral canal)
   h. Segmental dysfunction (hypomobility, hypermobility, instability)
   i. Contractile tissue lesions
   j. Non-Contractile tissue (i.e. dizziness, headache and cervicogenic headache).
3. Recognize common orthopedic conditions based on patient age, gender and pain chart information and apply an initial patho-anatomical hypothesis.
4. Question the initial hypothesis through targeted subjective questioning.
5. Recognize red and yellow flag presentations including central sensitization and neural mobility sensitivity and discuss the decisions that need to be made about the management of these patients.
6. Recognize the unique 'cervical scanning examination' (the scan), and differentiate the relative worth of its potential components as applied to cervical spine presentations:
   a. Observation
   b. Range of motion (functional, active, passive, combined, overpressure)
   c. Resisted testing
   d. Compression and distraction
   e. Dural testing
   f. Neurological [CNS/PNS – Tests of motor and sensory function]
   g. Vascular
   h. Stability
   i. Palpation
7. Identify all-source evidence-informed tests and measures that are relevant to the diagnosis.
8. Sequence all-source evidence-informed, reasoned, and individualized examinations specific to cervical spine condition (illness) scripts.
9. Modify individual examination sequences to take into consideration the varying levels of severity and irritability in patient/client presentation.
10. Apply an initial patho-anatomical diagnosis to various patient/client presentations.
11. Outline a detailed and individual prognosis for select patient/client presentations.
12. Utilize case examples to discuss specific, all-source evidence-informed, individualized management plans, taking into account the overall health and function of the individual.
13. Discuss relevant clinical prediction rules (diagnostic and prognostic) applicable to the cervical spine.
14. Discuss various symptom and intervention-based classification systems applicable to the cervical spine.
15. Discuss specific indications and contraindications for orthopedic manual physical therapy intervention.
16. Outline principles of individualized neuromuscular rehabilitation prescription to the cervical spine region.
17. Outline principles of cervical stabilization strategies.

**Psychomotor Domain**
Upon completion of this 21-hour module, participants should be expected to:

1. Demonstrate a cervical scan examination:
   a. Observation
   b. Range of motion (functional, active, passive, combined, overpressure)
c. Resisted testing
d. Compression and distraction
e. Dural testing
f. Neurological [CNS/PNS – Tests of motor and sensory function]
g. Stability
h. Palpation and pain provocative tests
i. Vascular
j. Demonstrate an appropriate screening of the cervical arterial system

2. Demonstrate an appropriate physical therapy screening for causes of dizziness and headache, including cervicogenic headache.

3. Demonstrate an appropriate scan examination for the temporo-mandibular joint.

4. Demonstrate a modified examination sequence to take into consideration the varying levels of severity and irritability in patient/client presentation.

5. Demonstrate the ability to provide education to a patient/client, including prognosis, activity modification, and postural adaptation.

6. Demonstrate Orthopedic manual physical therapy intervention techniques:
   a. Manual therapy techniques
      i. General cervical spine manual traction [Upper/middle-lower]
      ii. General cervical spine mobilization [Middle/lower]
      iii. Cervicothoracic junction thrust joint manipulation
      iv. Soft-tissue techniques
   b. Rehabilitation techniques
      i. Neuromuscular rehabilitation of the cervical spine
      ii. Strength, mobility, and endurance training
   c. Stabilization strategies (including external tape, body mechanics training)

7. Demonstrate modified variations of the above interventions to take into consideration the varying levels of patient/client severity, irritability, and patient/client/therapist body type.

* Please note that specific course content will vary according to faculty assessment of the specific skill levels and needs of the course participants, as well as to remain in full compliance with individual state physical therapy practice acts.