

PT from head (motor learning, pain psychology) to toe (foot & ankle mechanics): CSM 2019

Title: PT from head (motor learning, pain psychology) to toe (foot & ankle mechanics)

Conference information

Combined Sections Meeting 2019; Washington, DC, January 23-26, 2019

Speakers

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Disclosure

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Learning objectives

- 1) Describe factors that would be used in a movement-based approach to foot and ankle pain
- 2) Recognize how pain psychological factors can contribute to prolonged pain and disability
- 3) Identify the relationship between manipulation of motor learning practice variables and central nervous system modulation
- 4) Explain how case examples of examination and treatment integrate information about tissue-specific pathology, movement system impairment, pain psychological factors, and motor learning principles

Summary

Foot and ankle pain is commonly treated by physical therapists. However, pain is a multidimensional problem that is processed and interpreted within the central nervous system. A complete examination considers tissue pathology, movement impairments and psychological factors. The effectiveness of an intervention can be maximized by utilizing motor learning principles when giving patient specific instructions to address tissue, movement and psychological factors. This session will integrate findings from 3 unique fields of research to inform care for patients with foot and ankle pain. Dr. Hastings will discuss principles of a movement-based approach to foot and ankle physical therapy treatment. This biomechanical approach focuses on restoring appropriate tissue specific stresses. Dr. Chimenti will discuss underlying mechanisms for how kinesiophobia and pain catastrophizing can increase, or decrease, pain and motor function. This biopsychosocial approach individualizes care by evaluating and treating pain psychological factors. Dr. Fisher will review research on the brain-behavior effects of patient instruction to promote motor learning. This neurophysiological approach recognizes the motivational and attentional effects on brain processing and motor learning for achieving optimal treatment outcomes. Case studies on a variety of foot and ankle conditions will be used to translate theoretical implications of these 3 approaches to clinical scenarios.

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Content Outline

Speaker: Mary K. Hastings

Title: Biomechanical examination and treatment of the foot and ankle

- 1) Movement a source of health and injury
- 2) Physical stress theory
 - a. Threshold of tissue injury
 - b. Factors that modify tissue injury threshold
- 3) Injury: movement and alignment factors:
 - a. Low to moderate stress, high repetition
 - i. Normal ankle and foot kinematics walking
 - ii. Pronation
 - iii. Supination
 - iv. Dorsiflexion
 - b. High stress, low repetition
- 4) Treatment:
 - a. Movement specific intervention focused on contributing factors
 - i. Plantarflexor and intrinsic muscle strength
 - ii. Range of motion
 - iii. Tendon specific
 - iv. Balance/proprioception
 - v. Use of footwear, taping, and inserts to reduce or shift load

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Speaker: Ruth L. Chimenti

Title: Implementing a pain mechanism based approach to care

1. Biomedical vs. Biopsychosocial model
 - a. Biomedical model: Pain mechanisms are biological
 - b. Biomechanical model: Biological pain mechanisms interact with the movement system
 - c. Biopsychosocial model: Biological pain mechanisms interact with the movement system within a psychosocial context
2. What are psychosocial factors?
 - a. Psychosocial factors, such as fear of movement and pain self-efficacy, have been shown to predict ankle function after PT
3. What is psychologically-informed PT?
 - a. Use of a biopsychosocial model to inform PT evaluation and treatment
 - b. Has been shown to result in greater short-term improvement in pain and disability for patients with LBP. More research needed on long-term effects and impact on care for patients with foot/ankle pain.
4. Using a biopsychosocial approach to evaluate and treat Achilles tendinopathy
 - a. Two out of three patients with Achilles tendinopathy have high kinesiphobia
 - b. High fear of movement may be linked to deficits in motor performance

References- Chimenti RL

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PT from head (motor learning, pain psychology) to toe (foot & ankle mechanics): CSM 2019

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Speaker: Beth E. Fisher

Title: Achieving optimal patient outcomes utilizing motor learning principles

1. Importance of physical therapists treating foot and ankle pain utilizing neuroplasticity-induced intervention
 - a. Brain changes associated with common PT foot/ankle practice: evidence for PT intervention to 'prime' the brain prior to movement re-education
2. Brain-Behavior relationships and motor learning practice variables
 - a. Attentional focus instructions
 - i. External versus internal focus of attention
 - b. Motivational principles
 - i. Competence: belief and expectations about one's capabilities
 - ii. Autonomy: Need to determine or feel in control of one's own actions
 1. Self-control (Choice)

References- Fisher BE

1. Wulf G & Lewthwaite R (2016). Optimizing performance through intrinsic motivation and attention for learning: The OPTIMAL theory of motor learning. *Psychonomic Bulletin & Review.* 23(5):1382-1414.
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Speakers: All

Case studies for discussion of differential diagnosis, evaluation strategies, and treatment priorities

1. Achilles tendinopathy
2. Ankle sprain