Movement Based Biomechanics

Knee & Hip Applied

Course Objectives

1. Understand and identify the five ways to create motion at a joint. Explain how to create internal rotation motion at the tibiofemoral joint and femoroacetabular joint.
2. Describe and understand the bone and joint motion that occurs in the lower extremity in both front leg and back leg of gait. Participants should be able to articulate specific biomechanics of the tibia, fibula, femur, pelvis, tibiofemoral joint, and femoroacetabular joint in all three planes of motion with both top down and bottom-up drivers.
3. Properly perform manual techniques in functional positions to improve joint mobility, restore normal biomechanics and improve motor patterns at the knee, hip and pelvis.
4. Understand muscle function, specifically related to eccentric and simultaneous eccentric/concentric muscle contractions at the knee and hip. Understand the role of the hamstrings, adductors, gluteus medius and maximus and quadriceps in functional movements such as walking, running and sports.
5. Describe the role of joint positioning in muscle inhibition and facilitation. Understand the importance of proprioceptor stimulation in function.
6. Compare and contrast functional treatment techniques with current clinical practice guidelines and traditional treatment methods for knee and hip dysfunction, specifically anterior knee pain, hamstrings strains, ACLR rehab and hip impingement.
7. Create and design plan of care to address knee and hip dysfunction using both tissue and movement diagnoses and the Movement Diagnosis System.
8. Understand connections between hip and knee dysfunction with foot/ankle and/or lumbar spine dysfunction through consideration of the biomechanical kinetic chain.
9. Understand the importance of observational movement analysis in the treatment of the knee and hip pain/dysfunction.
10. Understand the importance of exercise prescription for knee and hip dysfunction and demonstrate sound reasoning for sequencing, frequency, and duration of loading exercises at the knee and hip, dependent on goals for strength, endurance and/or motor control.