RECONCILING BIOMECHANICS WITH PAIN SCIENCE

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Brief Course Description
Significant research in the pain neurosciences and biomechanics field often appears to undermine the reasoning and justifications for many of the traditional therapeutic approaches and techniques of the many rehabilitation professions. By addressing both the weaknesses and strengths of the biomechanical approach we can see that treatment can be much simpler, congruent with the cognitive, neuroscience approach and best evidenced based practice.

This course provides a framework to utilize an alternative biomechanical approach that blends neuroscience pain education. This course teaches the therapist how to teach patients about pain science in a treatment framework that still utilizes specific/corrective exercise and manual therapy. Therapists are taught a model of treatment that **simplifies** the assessment process and the treatment.

LEARNING STYLE

This course is a mix of a discussion based lecture, case studies and practical components. The practical components are used with the case studies to “feel” the interventions. However, there no “specific” techniques. Rather, the point is to show that the framework helps the therapist use their own techniques but in a different way. Further, we can then share “techniques” from all participants in the class. Exercises are demonstrated and time is given to practice these exercises. When exploring how Key Messages relate to pain and changing behaviour the practical component helps the therapist use their own experiences and “stories” to fit with the Key Messages of pain and behaviour change.

OBJECTIVES

- up to date assessment techniques for partitioning the role of biomechanics and therapeutic neuroscience in the treatment of pain and injury
- demonstration of how biomechanical treatments and explanations can address the multidimensional nature of pain
- exercise prescription informed by biomechanics and therapeutic neuroscience
- simplified manual therapy techniques that are consistent with therapeutic neuroscience and the biomechanics of manual therapy
- immediate means of applying therapeutic neuroscience to a traditional biomedically based practice
- confidence in the leaving behind the traditional and outdated biomechanical model of care while learning how to integrate previously learned skills
- access to **any future** patient centred handouts and web-based tutorials that reinforce the teachings and approach of the therapist to their patient

LECTURES

Treatment Fundamentals Lecture (15-30 minute practical)

- An alternative to the kinesiopathological model of treatment is produced
- A case for simplicity is made
- A simplified framework to incorporate both biomechanical treatments with psychosocial treatments is outlined
- a 15 minute practical exercise break to introduce the concept of comprehensive capacity to training the ankle complex

The Point of Pain Science and Key Messages Workshop

- Pain science primer is taught but no TRIVIA
- Pain science is taught that can have direct clinical relevance
- How to deliver Key Messages is explored
- Interviewing techniques are illustrated to help change opinions and ultimately change behaviour
- case studies are presented by the class and solved with facilitation from the instructor and the group

Assessment Simplified

- a reconceptualization of common clinical tests is demonstrated to show that much of our current testing can be modified to still be useful
- Specific examples demonstrating how to begin meaningful treatment “when everything hurts” and all manual therapy and exercise therapy has failed

When Biomechanics Matters

- an exploration of the utility and limitations of the biomechanical model in pain and injury management
- introduction to how the current biomedical model can be simplified and modified to be consistent with the best evidence of both pain science and biomechanical science
- Exploration of spine stability theory, scapular dyskinesis and common kinesiopathology models of pain and dysfunction
- A framework for when movement quality is important for pain and injury
- The importance of habit interruption as a rationale for changing movement quality

Demystifying Manual Therapy

- simple research on manual therapy on physiology that should profoundly shape all manual therapy interventions

Just load it.

- A simplified approach to exercise prescription is shown
- The importance of comprehensive capacity and movement options is highlighted and illustrated when it is necessary

- an evidence based approach to understanding pain and rehabilitating common conditions
- an approach to understand the assessment of sensitivity in exercise prescription
- demonstrations of the exercise interventions
- case study autopsies are performed illustration common themes behind various treatment approaches and how a simplified intervention can be effective

The Tendon Loading Model of Rehabilitation

- A review of common themes in tendinopathy and how that research can guide much clinical practice

Graded Exposure and Three faces of flexion pain: Incorporating biomechanics into the biopsychosocial approach.

- biomechanics, load and stress are still important variables in injury management
- determining when biomechanics are important is evaluated during this section with a special emphasis on flexion related pain
- How to use graded exposure principles to decrease pain and change movement behaviour
- A guide to the concept of facilitating and not fixing

Symptom Modification Model of Injury/Pain Management

- the comprehensive capacity and graded exposure approach to injury and pain treatment will be detailed
- Techniques from various schools of thought (Mulligan, ART, myofascial release, McGill, Sahrmann, CFT, tendinopathy research) are demonstrated and reconceptualized to fit into a simpler clinical decision making framework
- We've distilled common biomechanical treatments to justify those treatments within an alternative model
- students will learn a framework and simplified clinical reasoning tool to help guide therapy
- Symptom modification as clinical reasoning to guide interventions as demonstrated through case studies
- simplifying both manual therapy, movement based interventions and exercise therapy via understanding the commonalities amongst our most popular interventions
- traditional manual therapy techniques will be reframed to be maximize a biopysychosocial intervention approach
- active and passive approaches to the symptom modification interventions and how these manual therapy approaches are supported by exercise interventions will be taught.