

CLINICAL APPLICATION OF REHABILITATIVE ULTRASOUND IMAGING: LUMBO-PELVIC DYSFUNCTION

Continued research highlights that a primary impairment of the muscular system in individuals with lumbo-pelvic dysfunction is not one of strength, endurance or functional capacity, but rather of motor control. In particular there is a pattern of hyperactivity of the superficial, and hypoactivity of the deep muscles of the region. The clinical extrapolation of this is that the initial and pivotal focus in rehabilitation must address these motor control deficits by retraining a coordinated co-contraction of the deep trunk muscles, (segmental stabilization exercises), and restoring appropriate activation of the superficial muscles. Success hinges upon the ability to detect motor control deficits of the segmental stabilizing muscles. This requires a high level of clinical skill as these muscles are located deep and their desired contraction is sub-maximal. Consequently, the evaluation and the initial retraining phase can be augmented with the aid of **ULTRASOUND IMAGING (USI)** technology.

REHABILITATIVE ULTRASOUND IMAGING (RUSI) has been used by research driven clinicians as a safe and cost effective method to enhance both the assessment and treatment of patients with motor control deficits of their lumbo-pelvic 'core' muscles, (transversus abdominis, lumbar multifidus, the diaphragm and the pelvic floor muscles). The value of USI in a clinical setting is that it allows for real time study of these deep muscles as they contract. This allows both the patient and the therapist to view the contraction as it happens, leaving little room for supposition. Consequently USI can be used as both an assessment tool, and maybe more importantly as a form of biofeedback, providing patients with knowledge of performance, in the early stages of motor relearning.

This course is for therapists with access to USI and who want to acquire or perfect their imaging and interpretation skills with regards to the lumbo-pelvic region scanning applications.

OBJECTIVES

- Therapeutic vs. diagnostic ultrasound applications in Physical Therapy.
- Overview of the history, scope of practice and limitations of the use of ultrasound imaging by Physical Therapists.
- Safety and risk of harm issues associated with the use of USI.
- Indications for the use of USI by Physical Therapists with direct reference to the lumbo-pelvic region.
- USI imaging principles with direct reference to the Easote Aquila & Falco models.
- Detailed didactic and practical sessions in the generation, recognition and interpretation of USI imaging for the assessment of the abdominal fascia integrity as well as abdominal wall, pelvic floor and lumbar multifidus motor control.
- Detailed didactic and practical session in the use of USI for measuring muscles girth, length, cross-sectional area, abdominal diastasis width.
- Didactic and practical sessions in the use of USI in the treatment of lumbo-pelvic dysfunction including facilitation strategies for activation of TA, PFM and dMF.
- An introduction in the art of capturing still USI images and video clips for multi-media presentations.

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Jackie received her undergraduate degree with distinction from the University of Alberta in 1993. In 1997 she completed the requirements to become a Resident of the Canadian Academy of Manipulative Therapists, and in 1998 her Fellow designation with credit. She is a registered instructor with the Orthopaedic Division of the Canadian Physiotherapy Association. In 1998 she was certified in the application of Intramuscular Stimulation (a dry needling technique) by the Institute for the Study and Treatment of Pain (ISTOP), and in 1999 awarded a Certificate from the Acupuncture Foundation of Canada Institute (AFCI). She is currently an independent clinical consultant in White Rock B.C. Canada and is pursuing her PhD from the School of Health Sciences at the University of Southampton, UK.

Jackie has extensive clinical experience with the incorporation of ultrasound imaging in the assessment and treatment of individuals with spinal dysfunction. She has developed and taught specialized courses on the clinical application of ultrasound imaging in the management of low back and pelvic girdle pain for physiotherapists in Canada, the USA, Norway and the UK. In addition to her clinical and instructional pursuits she is a research consultant and associate investigator for the U.S. Army-Baylor University Doctoral Program in Physical Therapy, an associate editor for the Journal of Manual and Manipulative Therapy and a reviewer for the Journal of Orthopaedic and Sports Physical Therapy. Jackie has contributed to peer reviewed journals as well as a text on the topic of rehabilitative ultrasound imaging and is the author of a textbook entitled "Ultrasound Imaging for Rehabilitation of the Lumbopelvic Region; A Clinical Approach". Jackie was the chair of the Real Time Ultrasound Imaging ad hoc committee for the College of Physical Therapists of British Columbia as well as both a member of the organizing committee and an invited speaker for the first international symposium on rehabilitative ultrasound imaging held at Fort Sam Houston, Texas in 2006.

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