

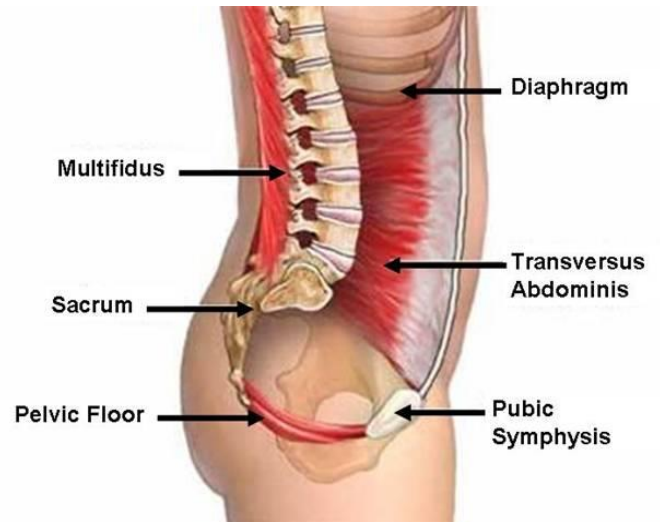
# Real-time Ultrasound Imaging of the Lumbar Spine Stabilising Muscles

## The Deep Muscles of the Lumbar Spine and Pelvis

Over the last few years research published in various medical and physiotherapy journals (including "SPINE") has investigated the role of the deep muscles of the lumbar spine and pelvis (Transversus Abdominis, Multifidus, the diaphragm, Pelvic Floor, iliopsoas, gluteus minimus and medius, quadratus femoris) in low back and pelvic pain. The research demonstrates that following lumbar/pelvic/hip injury, the deep muscles can become inhibited. The loss of control of these muscles often leads to poor or incomplete recovery from the injury and the development of chronic or recurrent low back or pelvic pain.

## Exercises for the Stabilising Muscles

Since the stabilising muscles of the lumbar spine do not usually recover spontaneously, specific exercises are often required to stimulate their redevelopment. Research shows that **stabilising muscle function is unlikely to be improved through global exercises** (i.e. general gym programs) and the most effective exercises for the stabilising muscles are often very specific and determined by the patient's condition. Accurate assessment of the stabilising muscles with normal palpation is difficult because the muscles are very deep and their contraction is specific and subtle. In addition, patients with low back pain are often unable to contract the stabilising muscles correctly and have difficulty learning appropriate exercises for these muscles.



## Real-time Ultrasound Imaging of the Stabilising Muscles

Real-time ultrasound imaging allows the physiotherapist and the patient to view the stabilising muscle contraction as it occurs and can provide an accurate assessment of the quality, timing and endurance of the stabilising muscle contraction. This allows the physiotherapist to quantify the degree of stabilising muscle dysfunction and may provide an insight into the severity of the condition through the degree of inhibition of the muscles. Since the patient may also view the video image of the muscle contraction as it occurs, ultrasound imaging can be an effective method of teaching the correct exercise techniques. Actually seeing the muscle as it contracts and lets go and feeling what the correct contraction feels like is a powerful form of biofeedback and can speed up the rehabilitation of these important lumbar spine muscles. Sometimes the patient must learn how to "detrain" muscle function first if there is a lot of muscle spasm present, before they are able to start learning how to turn these muscle on again.

## The Real-time Ultrasound Imaging Service

Move Well Physiotherapy currently offers real-time ultrasound imaging of the stabilising muscles of the lumbar spine for the purposes of assessment and treatment of low back pain at most of the clinics within our network. Belridge Physiotherapy has several therapists trained and experienced in the use of RTUI for patient assessment and rehabilitation.

RTUI can also be used to effectively assess and retrain the important strength and stabilising muscles around the hip, including the gluteus medius and minimus (essential for correct walking biomechanics), iliopsoas (strength and stability for the front of the hip and the SIJ) and the deep lateral rotators. Training these muscles effectively is important in the rehabilitation of low back, hip and pelvic pain, as well as for the rehabilitation of athletes returning to sport following low back, hip, leg or pelvic injury

