“Core Stability” comprises of two major roles of muscles: global and local muscles. Global muscles are defined as the larger and more superficial muscle of the trunk (i.e. rectus abdominis, obliques, erector spinae.) They are designed more for force production and movement (i.e. lifting a box, vacuuming etc.). Local muscles, instead, are the deeper and smaller muscle of the spine designed for inter-vertebral support and stability.

The ‘local’ muscles are the transversus abdominis (TA), lumbar multifidus (LM), pelvic floor muscles (PFM), and the diaphragm. (Consideration of the internal obliques, posterior fibers of the psoas major, and medial fibers of the quadratus lumborum should also be taken for local muscle stability).

Although every trunk muscle contributes to stabilizing the lumbo-pelvic region, the local muscles are essential and required to improve a person’s intra-abdominal pressure (IAP), tension the thoracolumbar fascia, and provide inter-vertebral spinal support. This, then, allows the larger global muscle to produce the forces required to meet daily demands and higher level activities.

Research, however, has shown that patients with low back pain have a delayed onset or lack of local muscle recruitment. This suggests that in rehabilitation, recruitment of the local muscles is the priority in improving proper spinal function and core stabilization, rather than solely strengthening the larger global muscles that many people are accustomed to exercising.

The use of real-time ultrasound imaging has become an effective visual feedback tool to assess and recruit local trunk muscles. This is important as local muscle recruitment can be difficult to facilitate without proper visual feedback.

Studies have shown that the recruitment of local muscle dysfunctions in patients with low back pain (utilizing real-time ultrasound imaging for proper contraction or physical measurement) have better long term outcomes with decreased reports of recurrency of low back pain episodes, as well as improved quality of life outcome measures (O’Sullivan et al 1997, Hides et al 2001, Goldby et al 2006).

For further information on real-time ultrasound imaging for core stability and low back pain, please e-mail us at: admin@motionstability.com or call (404) 382-8702.
References


