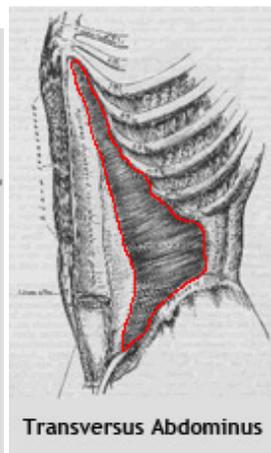
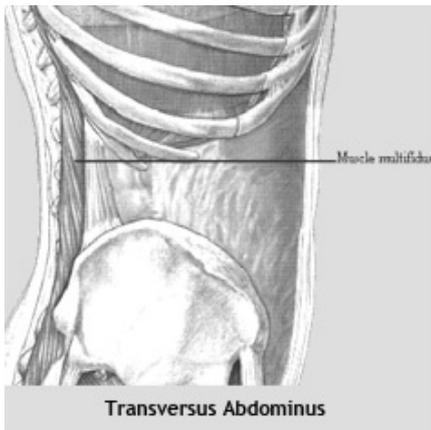


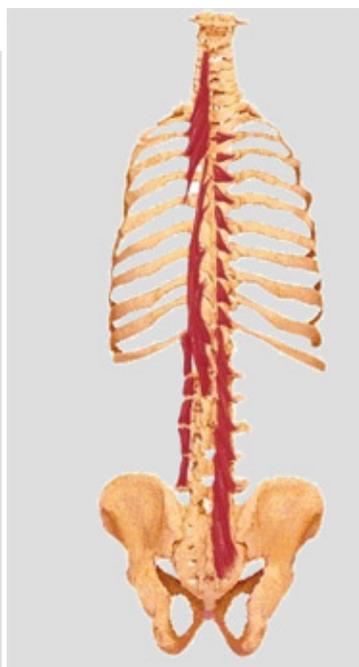
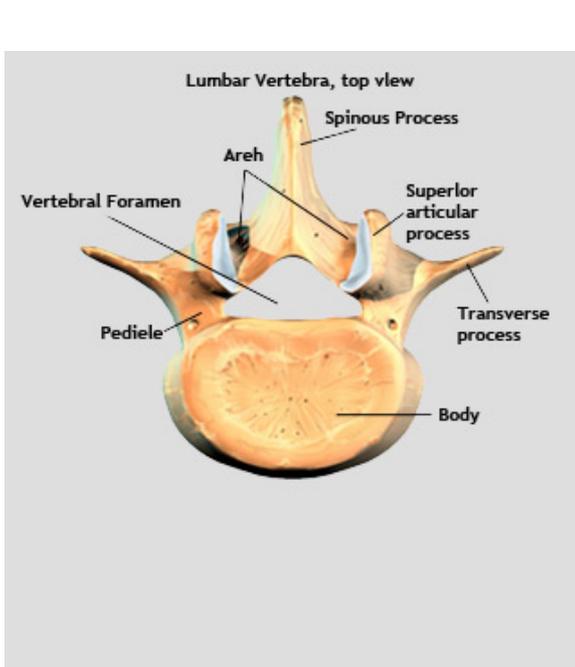
Low Back Pain and Lumbar Stabilization Exercises

It has been estimated that approximately 80% of people in Western countries have experienced low back pain (LBP) at some point in their lives. Most cases resolve within 2-4 weeks without any medical intervention. However, within 1 year following the first episode of LBP, 60-80% of patients will have recurring pain. Current research has reported that in most cases of LBP, certain muscles of the back that stabilize the spine are reflexively inhibited (shutdown) after injury. These muscles do not spontaneously recover even if patients are pain free with a return to normal activity levels. These specific muscles work together to support and stabilize the spine to help prevent LBP. These muscles include the lumbar multifidi and the transversus abdominus:



What Are the Lumbar Multifidi and Transversus Abdominus?

The lumbar multifidi are the deepest layer of muscles of the the back. They attach from the vertebral arches to the spinous processes. Each multifidi connects 1-3 vertebrae, (the vertebrae are the bones of the spine) controlling movement between the vertebrae.



The transversus abdominus is the deepest of the abdominal muscles and is also a stabilizer of the spine. Support by this muscle is considered to be the most important of the abdominal muscle and has also been found to be in a weakened state in those who have chronic back pain or problems. Its normal action along with the action of the lumbar multifidus muscles function together to form a deep internal corset that acts to stabilize the spine during movement. This pattern of protection is disrupted in patients with low back pain.

It is uncertain why these muscles become dysfunctional after a low back injury, but specific exercises focusing on the contraction of these two muscles together will improve the protective stabilizing ability of the spinal muscles, reduce pain intensity, and improve activities of daily living as well as improve body awareness and posture.

How Is Low Back Pain Treated?

Physical therapy treatment for LBP often involves a wide range of techniques including heat therapy, ultrasound, massage, mobilization, exercise, and education about posture and body mechanics. Stabilizing and strengthening the lumbar spine (specifically lumbar multifidi and transverse abdominus) through a lumbar stabilization program is also an important part of a rehabilitation program for the patient with low back pain.

What Does a Lumbar Stabilization Program Involve?

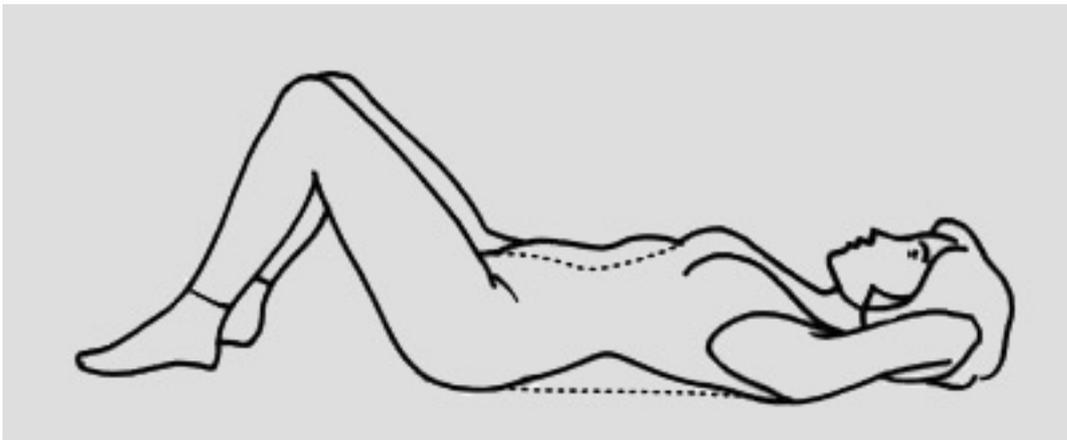
The lumbar stabilization program is a program of back exercises designed to teach patients strengthening and flexibility in a pain-free range. It not only improves the patient's physical condition and symptoms but also helps the patient with efficient movement. It provides the patient with movement awareness, knowledge of safe postures, and functional strength and coordination that promotes management of LBP.

Prior to starting a lumbar stabilization program, the patient should first be evaluated by his/her primary care physician and physical therapist. Together the MD and PT will design a comprehensive rehabilitation program with the above mentioned techniques along with a lumbar stabilization program specified to the patient. Since every patient is an individual and presents with different conditions, a physical therapist is needed to design and monitor the rehabilitation program.

Spinal Stabilization

The initial phase of stabilization training begins with isolated muscle contractions. Stabilization

training is initiated with the patient being instructed in the neutral spine position. The neutral spine position is where the spine is in ideal alignment and is found by envisioning the face of a clock on the abdomen, with 12:00 at the belly button and 6:00 at the pubic bone. The pelvis is then alternately tilted so that 12:00 rocks toward the floor and then 6:00 rocks toward the floor. This is done repeatedly 10 times in each direction gently and slowly. The neutral position within that range is the point where you identify is the most comfortable. This position is emphasized and should be maintained for all movements performed during stabilization activities as well as all daily activities.



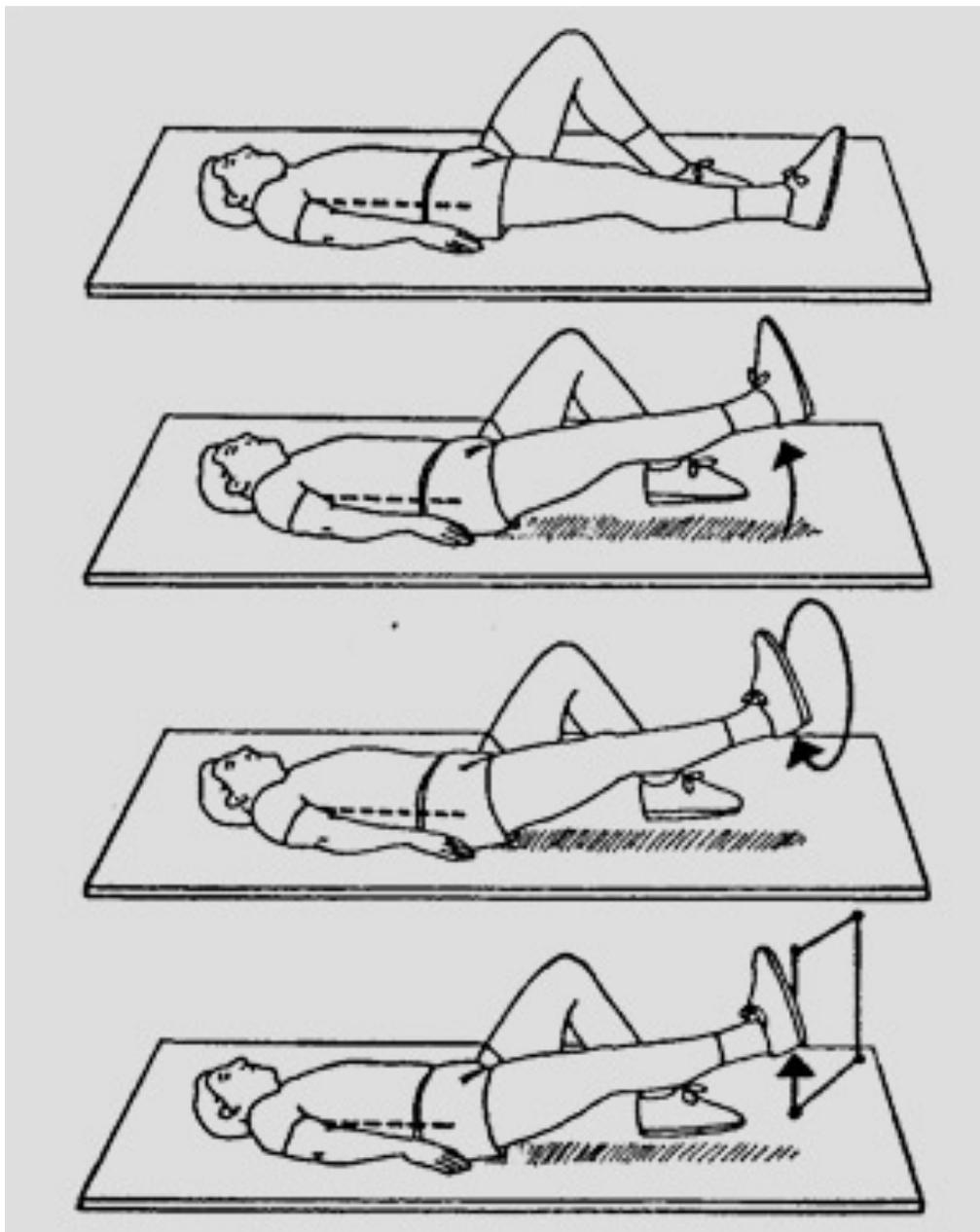
As awareness of the neutral position is demonstrated, isolated transversus abdominus contraction is then initiated. This muscle is trained by simply pulling your navel into your spine, and/or exhaling thoroughly, while maintaining the neutral spine position.

Once these 2 exercises are learned, the following exercises can then be initiated:

Back Stabilization Exercise 1

Lie on back, left knee bent. Tighten abdominals and buttocks, keeping back in neutral position. Raise right leg 12 inches, knee straight.

- * Hold 3 counts
- * Lower leg. Repeat 10 times.
- * Repeat with left leg.
- * Progress to making circles and squares with raised leg.



Back Stabilization Exercise 2

- Start in kneeling position. Tighten abdominals and buttocks, keeping back in neutral position.
 - * Hands on hips.
 - * Raise right foot and place on floor in front of you, kneeling on left knee.
 - * Lunge forward, moving at hips.
 - * Hold 3 counts.
 - * Return to kneeling.
 - * Repeat 10 times.
 - * Repeat with the opposite side.

