

Mara Pacyga MS PT, Pilates Instructor

What is My 'Core'?

You may think it's your six-pack...you may think your waist size is determinant of its fitness...you may think it takes 100 sit-ups a day to make it strong...you may think it will never be what it used to be!!! Here is the truth...

Your core is your muscular and fascial (connective tissue) system which creates your supportive mid-section for your spine. Your core connects you from your sternum to your knees! Think of the inner part of your core as a cylinder: the *diaphragm* is the top, the *pelvic floor* muscles are the bottom, the *transversus abdominus* wraps circumferentially around, and the little *multifidus* muscles run up and down the spine in the middle. By contracting these muscles, we are able to increase stiffness to our spine in the center. Studies show that we can even up-train the *pelvic floor* and *transversus abdominus* to contract before we actually move in anticipation of the movement.

This stiffness to the lumbar spine produced by contraction of these local stabilizers has numerous benefits. Engaging your core decreases excessive spine movement. When a joint in your back moves too much, the joint wears down from the excessive compression and shear forces. This leads to an arthritic joint. From an athletic standpoint, excessive spine movement wastes energy which could be utilized to increase force production in the upper or lower extremities to enhance your performance. You gain endurance for sustained positions with good core stability as in sitting and biking, and filter energy to your extremities for moving activities such as walking and tennis.

Your core is also comprised of our global movement musculature. The *Rectus abdominus* (six-pack), *External obliques*, *Internal obliques* (thought to be both local and global), *Erector spinae* (long back muscles), *Latissimus dorsi*, *Quadratus lumborum*, and *hip musculature* are all movers of the spine, hip and/or shoulder. Engaging these muscles not only creates movement, but also produces stiffness in your lumbar spine through connections into the *thoracolumbar fascia*. Strength and endurance in these muscles, coupled with your cylinder of local stabilizers, further plays a role in dynamic balance during movement and performance. The stronger your core, the better your balance reactions and, once again, the decrease in consumption of energy by excessive movement to help you balance! Stand on one leg. Are you moving? Probably only at the foot and ankle. Now close your eyes. Now, do you find yourself moving at the knee, hip, spine, shoulders, and/or head? This is an example of excessive body movement that utilizes energy to perform a simple task.

So how do you work your core? Specificity of core exercise for each individual is extremely important based on structural challenges you may have ( i.e. a difference in leg length or rounded mid spine), areas of relative flexibility ( i.e. your hips are inflexible so your back moves too much to perform a task), and lack of proprioception (the ability to feel movement in your body). Do you know how to find your neutral spine in which to

use your core to stabilize? Can you produce a transversus abdominus contraction without overworking your six-pack? Are you utilizing your global movement system without being able to engage the intrinsic local stabilizers? A physical therapist can introduce you to these concepts, teach you appropriate exercises, and give you the knowledge to work your core efficiently and effectively. Pilates-based exercise or rehabilitation can further help you create new motor programs for core stability and strength, address asymmetry in your body, and make your entire body stronger and more flexible. And you will be much more successful at strengthening your core than doing 100 sit-ups a day!!!