



## What's Holding You Up?

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It's been an exciting few years in the area of spine therapy. The knowledge of how the spine works and what the muscles do is becoming more and more refined.

One area that has been particularly helpful is the notion of stability. You've probably heard about stabilizing spine exercises. Exercises such as Pilates often talk about stability but what is stability?

The easiest way to understand the concept of stability is to look at the way a baby develops. The baby must learn to support its head before it can look around. It must also balance itself on hands and knees before it ever reaches an arm forward to crawl.

The body first develops the muscles that hold the body in a stationary posture and then movement can begin.

The muscles that hold the stationary posture (stabilization) are different than the muscles that create the movement. The most important difference is in the endurance of these muscles. They must work for hours without taking a break.

To understand the differences try the following. Carry a grocery bag home from the store but keep your elbow bent to 90 degrees using your biceps muscle. You will likely fatigue before you make it home. Then repeat the same activity with your arm at your side. You will find you can go a lot further without fatigue. This second activity uses muscles designed for endurance rather than your biceps which are designed for short term power activities.

When it comes to the spine there are stabilizing muscles and muscles that make you move. In other words, there are muscles that support you as you stand and they are different from the muscles used to make you walk.

I want to focus on the abdominal aspect of trunk support. There are four abdominal muscle groups: Rectus abdominis (the six pack muscle) that bends you forward or does a sit-up. The two oblique abdominals (internal and external) that do diagonal sit-ups or allow you to twist to produce that great tennis forehand or golf swing. Finally there is little known transversus abdominis (TA). TA is the abdominal muscle that supports your spine and makes it stable enough for the other muscles to produce a movement. TA also holds your abdominal organs in.

If your transverse abdominis is weak then the other abdominal muscles try to do both the function of movement and the function of stabilizing. This is inefficient but also does not produce enough protection for the spine. Even people who are strong and fit can injure their back if this muscle is not functioning properly. It is important to restore all the abdominal muscles to their proper function.

How do you determine if your TA is functioning? For women part of the function is tied into their ability to do Kegel exercises. If you can't do your Kegels your transverse ab's are probably not doing their job. Another test is to lie on your back with your legs straight. Place your hands on the front part of your hip bones where they stick out. Slowly bend your leg into the air bringing the hip and knee to 90 degree angles. There should be almost no side to side rocking of your pelvis during this motion.

What should you do if you find you are weak or are having recurrent episodes of undeserved back pain? See a physiotherapist to teach you how to access these muscles. Then practice this everywhere. Practice it in lying, when driving, when grocery shopping etc. You must restore the endurance component of this muscle and you can't do that just through a few sit-ups. It will take you a bit of time to ensure you are accessing the muscle correctly but it is worth it to be rewarded with less back pain and more effective abdominal exercises so that maybe you can finally get those beautiful, flat abdominal muscles.