

Lumbar Stabilization Aquatic Management of Low Back Pain

It has been estimated that three out of four adults in the United States will miss a day of work sometime in their adult life due to low back pain. At an annual estimated cost of over \$20 billion/year, low back pain has become the number one reason for medical office visits and the number one cause of disability in the population 45 years and older. While this condition has many real and perceived contributing factors, much of our pain is due to the body's core muscles not adequately managing our movements. Coupled with the fact that many of us utilize poor body mechanics for our daily activities, it is no wonder our sedentary lifestyles predispose us to chronic low back pain.

Our core – or trunk, or simply the area from our shoulders to the start of our legs – is comprised of an intricate system of muscle, bone and ligaments which must work synchronously to provide stability for our every move. In addition, this system affords us a means to transfer loads when we pick up an object, effectively adding its weight to our body and move it, all without disrupting or deforming our own structure. When we cannot perform such a task, or when we pick up things that are too heavy, or when we lift objects improperly we disrupt this delicate balance and place these structures at increased risk to be damaged. Coupled with our stomach and back muscles, weakened by disuse, not responding in a timely fashion or with enough strength to manage the loads, we are constantly placing our low back at increased risk for injury. In addition, the fact that our stomach and back muscles which might be weakened by disuse, do not respond to such demands with enough strength or efficiently enough to manage the loads imposed on the back. Over time, these poor mechanics which have compromised the low back do take their toll, with the end result being achiness and structure damage to the low back.

There has been a push within the fitness and rehabilitation communities to adequately address this lack of trunk strength. While the resurgence of such exercise programs as Pilates is an indication of our effort to combat weak core muscles, using water exercise has been largely overlooked except in the rehabilitation setting. Water, however, affords maximum trunk involvement without gravitational loading which can account for some of

our low back pain. Thus, one can sufficiently improve core strength without loading the spine, thereby improving one's response to the physical stresses imposed by daily life.

Consider water's unique physical properties – buoyancy, viscosity (or thickness) and hydrostatic pressure –each one an important contributor to the acquisition of trunk strength. Using the resistance of the water one can accommodate most normal daily movements into an exercise format, providing resistance that is easily managed by the participant, all without undue axial stress on weight-bearing joints. Additionally, without complex equipment, the aquatic exercise program can facilitate increasingly challenging workouts just by increasing the speed of movements. As with all activities, appropriate posture remains a focal piece of the exercise progression and can enhance one's upright position as one exercises. The benefit of trunk strength acquisition, using good body mechanics with adequate resistance, is the essence of a good lumbar stabilization program.

Dependent on one's pain status at the time, water work combines the features of being unloaded with resistance that is regulated by one's motion speed. Therefore, increasing the speed of an arm activity through the water forces increased activation of trunk muscles to keep you upright for as long as your arms are moving. As soon as you slow down or stop, the water's resistance decreases proportionate to your speed.

Additionally working with functional involvements which are usually multi-planar, you can strengthen to accommodate for activities of daily living. Because there are precise tasks for the various muscles of the trunk – to maintain stability of spinal segments or load transference and posture – it is imperative to train the trunk musculature sufficiently to manage the different responsibilities. In the water, this can be easily accomplished with proper cueing, posture, equipment usage and speed of movement.

While aquatic lumbar stabilization is not a panacea to resolve all low back pain, it can facilitate strength acquisition with good posture and with decreased pain. As with any exercise, there are limitations, the water can enhance movement due to pain reduction, thereby affording you an excellent opportunity to reduce/eliminate low back pain and acquire/maintain a healthy back.

