

## Core Ideas from Three Teachers

### Core Stability by Maryanne Haggerty

**Core stability** is the ability to stabilize the trunk proximally to allow for skilled movement distally. Specific muscle groups are recruited to balance the coordination of the movement through stabilization and mobilization. A skill, whether spot related or an every day activity requires a dynamic balance between these muscle groups. With injury, however the muscle recruitment between the two categories is changed.

**LBP:** Often when low back pain becomes more frequent, it can indicate that the core stability mechanisms are deficient. With pain, stabilization muscles are more easily inhibited.

**Force Couples:** Core stability requires dynamic co-contraction of the following “force couples” (two muscle groups working simultaneously), to maintain optimal postural alignment while performing a skill. Should these couples become out of balance, the body becomes predisposed to injury.

AREA:	FORCE COUPLES	
Pelvic	Abdominals	Lower Gluteal (Pelvic Floor) Multifidus
Lumbar Scapular	Abdominals Serratus Anterior	Lower Trapezius (Mid trapezius)
Cervico-Thoracic	Abdominals	Scapular Stabilizers

**Review:** Learning to address core stability is not easy. Once taught, it needs to be incorporated into every day routines, as well as, in fitness and sport specific training. Research and clinical data both indicate that with good core stability, the frequency of recurring pain can be lessened.

### True Core Integration by Jill Miller

Core: Focus on the diaphragm for improved abdominal strength and power.

The definition of core work varies from format to format and means different things to different people. Of all the core muscles, the respiratory diaphragm seems to be the most underutilized. While the value of spinal muscles, abdominal layers and back muscles are acknowledged and incorporated into formats like Pilates, CET and even kettlebell training, deep diaphragmatic exercises are relegated to rare yoga techniques and progressive vocal training. This is a major oversight.

#### Diaphragm

Your primary breathing muscle is a lead player in maintaining whole-body health from the inside out. The diaphragm is not just designed to help you breathe; it tethers into the psoas and quadratus lumborum; lines the lower six ribs; serves as a soft-tissue platform for the heart; *and* is seamed together in the same fascial layer as the transverse abdominals. The respiratory diaphragm is a barometer for the sympathetic and parasympathetic nervous

systems; is the governing muscle of breath; and is a physiological key for the nervous system. Shallow diaphragmatic breathing excites the body; deep diaphragmatic breathing relaxes and sedates the body. The diaphragm (and the nervous system) needs to be able to do both for health, restoration and optimal performance.

If the diaphragm's attachments to the ribs, psoas and quadratus lumborum aren't regularly stretched and relaxed, it can knock the wind out of your performance. The land exercises that follow unkink this innermost layer from the inside out. Your spine will feel more supported, and you'll have a better chance to improve abdominal power.

### Balls on Upper Back

Lie on back and place two rubber balls (tennis balls are okay) along one side of spine in upper-back region. Breathe slowly into ribs, rock from side to side and allow balls to massage rib joints. Spend 1–2 minutes on left side of spine, switch sides, move balls into lower thoracic spine and ribs, and repeat.

This exercise frees up intercostal tension; mobilizes the rib joints and posterior diaphragm rib connections; and massages the deep back musculature.

### Abdominal Massage with Sponge Ball

Place *soft*, inflatable sponge ball directly underneath navel. Using diaphragmatic breathing, breathe directly into ball while relaxing entire body. For 3–5 minutes, slowly shift from side to side to massage multiple abdominal layers.

This exercise familiarizes you with abdominal muscle tension, aids in stretching scar tissue and encourages the tough rectus sheath fascia to stretch. It also promotes core elasticity rather than rigidity and can alleviate low-back pain by encouraging length in the transverse abdominals and obliques. *Caution: People who have inguinal hernias should not try this exercise.*

### Bridge Lifts With Abdominal Vacuum

**Step 1.** Lie on back with feet about 18 inches apart, knees bent, toes pointing forward, palms flat on ground; inhale.

**Step 2.** Continue to inhale slowly as hips and spine float off floor. Arms synchronize with breath and slowly arc overhead to touch floor when lungs are completely full.

**Step 3.** Rapidly exhale through nose until there is no breath left. *Do not breathe in!* Soften gut area and allow it to cave inward and upward, “sticking” to bottom of lungs.

**Step 4 (the vacuum).** *Without breathing in*, lower spine slowly to ground and feel suction of dome-shaped diaphragm creating internal plunger-like action in guts. If you do this correctly, you'll feel suction in your throat, too.

**Step 5 (the reset).** Once pelvis is back on floor, reset arms and repeat steps 1–5; do 10–15 rounds.

This exercise helps you differentiate the specific stretch of the respiratory diaphragm and feel its relationship to its bony and myofascial attachments. Over time the exercise progressively and deeply stretches the diaphragm so that it becomes more functionally accessible. Bridge lifts also help create traction in the lower back, lengthening the individual vertebrae away from one another and decompressing the disks and spine.

Take care of your diaphragm, and it will take care of you!

## **Unusual Core Exercises by Adam Wilson**

Before you teach core conditioning, remember that in order to maintain stability and support, the core is activated milliseconds before *any* movement occurs in the body, so don't limit your thinking of core exercises to the abdominals or lower back. Even small movements in the periphery of the body are sufficient to recruit and condition the core musculature. Here are two exercises that seem not to involve core but do.

### **Ankle Rotations**

Poor ankle mobility affects the ability to walk with a safe and confident gait. It also reduces sensory input to the brain and disrupts balance, potentially causing falls. Building better flexibility in the ankle is simple--just move it! Ankle rotations in each direction are a great way to go, because they result in triplanar motion and increased neural drive to this important joint.

- Seated on flotation, sit as tall as possible with back in least supported position in order to best recruit core musculature.
- Lift right foot off the pool bottom (while maintaining upright alignment), and perform 10 slow clockwise rotations of foot. Repeat with 10 slow counterclockwise rotations.
- Extend the lower leg forward and look at foot while moving it. Drawing attention and concentration to the movement will usually increase range of motion.
- If capable, perform this movement standing up with only one hand (or even just one finger!) on a noodle or the wall for balance assistance.

### **Side Steps**

Most clients walk in one direction only--straight forward. At some point during life, we tend to "forget" how to move in different directions, even though a bump from a person walking past in a crowded mall may lead to a nasty sideways spill. Practicing side steps helps develop comfort with a movement strategy that may come in handy in a situation such as this. Additionally, alternating between the narrow and wide foot positions requires recruitment of the core musculature for these large lower-body movements.

- Place fingertips of one or both hands on a noodle (or other stabilizing object) for balance control. Do not lean excessively into hands.

- Start with feet together, or as close together as is safe. Then, lift right foot up, as if stepping over low curb, and take full step directly right. This will result in wide stance.
- Next, lift left foot at same height and bring it back to being directly next to right foot. Return to original position by stepping left foot left, followed by right foot.
- Build up to several steps in each direction, then try without the noodle and with varied hand positions.