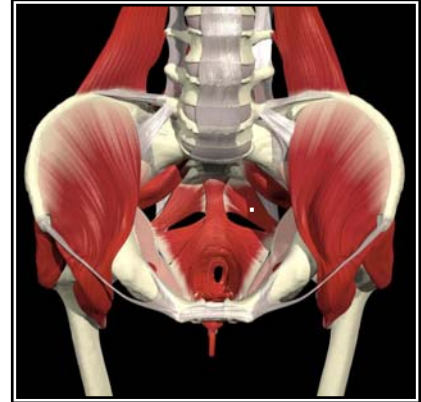


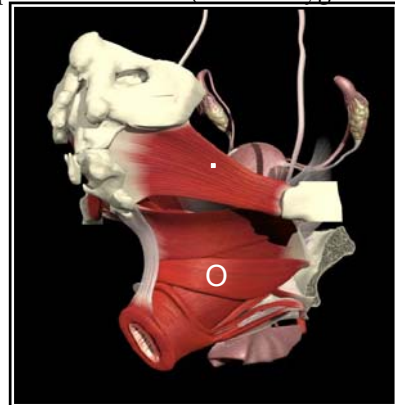
## *Pelvic Floor Muscles*

### *Pelvis Floor Location, Function & Dysfunction*

The pelvic floor (PFM) is a hammock of muscles that connect the pubis bone at the front to the tailbone (coccyx) and "sitz" bones (ischial tuberosities) at the back. The pelvic floor supports the bladder as well as the reproductive organs and connects the inferior aspect of the innominate (hip bones) and the sacrum. The urethra, vagina and rectum pass through these muscles and are affected by their function. The tension in these muscles must be balanced in the front (beneath the pubis) and the back (at the sacrum). They must also work in cooperation with the multifidus (a deep back muscle) and transversus abdominis for your lumbar spine, sacroiliac joints, bladder and uterus to be stabilized properly.



Changes in recruitment of the PFM's can occur as a result of pain, poor movement patterns, trauma, surgery or childbirth. This altered recruitment often results in overactivation of the deep posterior muscles (ischiococcygeus (small square) and piriformis muscles just above the small square) and underactivation of the anterior pelvic floor sling (O) (pubococcygeus). This imbalance will not spontaneously recover as pain in the region subsides and can lead to low back, pelvis and/or hip pain or urinary incontinence. The solution; relax or turn off the posterior pelvic muscles and fire up or increase your connection to the entire pelvic floor sling.



### *Retraining the Pelvic Floor*

Retraining the stabilizing muscles of the core, which includes the PFM's, is different than most exercise you have done in the past. The first step is to learn to produce an isolated contraction of these muscles. Unfortunately, 65% of people that *think* that they know how to contract their PFM's are doing it incorrectly. The second step is to learn to co-contract the PFM's in conjunction with the other muscles of the core. The final step; co-contract the entire core (connect simultaneously to the PFM's, transversus abdominis & multifidus) in coordination with the larger superficial muscle during functional activities, which include nose blowing, coughing, sneezing, walking, jumping and lifting.

### *Step 1: Isolation of the Pelvic Floor Muscles*

- Lie on your back or side or sit with the spine in a neutral posture.
- Firmly palpate your abdomen 1-2 inches inside of your hip bones.
- If you and your therapist have found an image that works for you to connect/contract your pelvic floor muscles then focus on it. BEST IMAGE
- If you are not sure what image to use try one of the following:
  - Think about the muscles around your urethra / vagina or the muscles that draw your testicles up and then gently and slowly lifting the urethra, vagina or testicles up and forward into your abdomen.
  - Think about the muscles around your anus and think about closing them (same motion you do after completing a bowel movement).
  - Think about a guy wire or line from the anus up to the back of your pubic bone and connect along this line.

If the connection is successful you will feel a response in the deep abdominal wall and the contraction should feel symmetrical.

When performing core exercises follow these guidelines; slowly generate force in the target muscle, contract the muscle at about one quarter the force of your maximal ability, continue to breathe, and strive to breathe by expanding the lower rib cage rather than the upper rib cage or abdomen. It is not uncommon for other muscles to want to co-contract in an attempt to compensate for a dysfunctional core. It is critical that you take the time to focus on your technique and achieve a correct pelvic floor contraction BEFORE moving on to any loading through the arms or legs. When you isolate your pelvic floor muscles you should feel a deep tension in your abdomen (under your fingers), you should **NOT** feel your buttocks tighten, legs rotate out or movement of your spine or pelvis. If you feel a muscle pushing your fingers out of your abdomen, butt gripping or spinal movement then you are not being successful in connecting to your pelvic floor muscles or you are overcontracting for this part of the program. A correct contraction should result in a very gentle tension deep in the abdomen (often very hard to feel initially).

### *Rehabilitative Ultrasound Imaging*

If you are having trouble connecting to your pelvic floor muscles consider the following options. Rehabilitative Ultrasound Imaging will allow you to watch the impact the pelvic floor muscles have on the bladder as you attempt to produce an isolated contraction. The absolute best view is a perineal view (translabial but not intravaginal). This will allow you and your therapist to explore various strategies and find one that works for you. Using the ultrasound to show you what you are doing when you contract (biofeedback) will solidify your understanding of a proper contraction. It may help you shortcut any frustration you are feeling to “get that connection” happening. Your bladder needs to be moderately full (1 cup / 500 ml) during the assessment so don't ‘pee’ before your appointment.

### *The Educator*

In addition to rehabilitative ultrasound imaging, the Educator can be used at home. Retraining the core muscles takes mental focus and practice. If you are interested in having greater knowledge of performance (i.e. did I do it right, or did I do it wrong) when you are practicing at home then you should ask your therapist about the Educator which is a useful tool to use to assist the retraining the anterior pelvic floor.



### *Step 2: Learning to Co-contrast the Pelvic Floor with Transversus Abdominis and Relax the Deep Posterior Pelvic Muscles*

Once you can maintain a 10 second contraction of the pelvic floor you need to learn to co-contrast the floor with your deep abdominal muscle, transversus abdominis, while relaxing the deep posterior pelvic muscles (ischiooccygeus and piriformis). Begin by sitting on a firm chair. Find your neutral spine position – you should feel your body weight directly over your ‘sitz’ bones. Squeeze the muscles in your buttock and turn your hips out (butt grip) and feel the muscles in the deep posterior pelvis contract and draw your ‘sitz’ bones together. Now complete relax these muscles and maintain the relaxation as you gently and slowly contract the pelvic floor muscles (squeeze the muscles around the vagina, urethra and anus as you did in step #1). Repeat this a few times and then palpate the transversus abdominis just inside your anterior hip bones. As you contract your anterior pelvic floor you should feel a light, deep tensioning in the lower abdomen. Keep your buttocks relaxed, maintain your neutral spine position and repeat this gentle contraction a few times while focusing on relaxed breathing.

Things to avoid:

1. Gripping with the deep buttock muscles
2. Breath holding
3. Contracting the upper abdominals or lifting the rib cage