The iliopsoas is the primary muscle of integration in the body. It connects the legs to the pelvis and to the spine. It attaches to the lumbar spine, with the crus of the diaphragm, and is affected by breathing.

The iliopsoas is composed of three muscles, each with a different function. The psoas major attaches at T 12 (the twelfth thoracic vertebra) and along the bodies of the five lumbar vertebrae; it then travels forward over the rim of each pubic bone and down to the legs where it inserts at the lesser trochanter of each femur, your inner thighs. Thus it spans a long distance and integrates the spine with the legs. It is involved in flexion of the hip when the spine is stable as in lifting the knee in standing posture; and in flexion of the spine when the legs are stable, as in a sit-up. The psoas minor originates at T 12 and attaches on the rim of each pubic bone, integrating the spine with the pelvis. It is involved in maintaining horizontal alignment of the bowl of the pelvis in standing, which keeps the organs from spilling forward against the abdominal wall. The iliacus attaches on the iliac crest and the inner surfaces of each ilium, travels forward over the pubic bones, and inserts on the lesser trochanter of each femur. Thus, it integrates the pelvis with the legs, providing force and endurance to flexion at the hip, such as in the kick of a football, or long distance running. All three muscles, working together, integrate the central zone of the body.

The iliopsoas spans a long, diagonal path from T 12, forward over the rims of the pubic bones, and back to the inner legs, like a sideways V or the prow of a ship. The forward thrust of the pubic bones creates a pulley.

Finding Center

In anatomy class, I studied the sequencing of the abdominal muscles. The transversus, the interior and exterior obliques, and the rectus abdominis work collectively for front surface support. The transversus, the innermost abdominal muscle, wraps like a cummerbund around the internal organs, and initiates the sequencing for efficient movement. "Because it is so deep, you can locate it by laughing, coughing, or throwing up," my teacher said. "Take your choice."

At a summer dance workshop in Aspen, Colorado, my teacher Denz Madole demonstrated the epitome of precise, effortless movement. She had performed with the Erick Hawkins Dance Company, and she emphasized a soft, subtle spine. She insisted patiently that we initiate our movement from the pelvis—the center of our body, and referred to a muscle group called the iliopsoas. For hours each day she would reverently guide us through rocking movements of the pelvis and legs to release the grip of the thigh and abdominal muscles. "Because the iliopsoas spans from the front of the spine and the pelvis to the legs," she said, "you can let your legs dangle like tassels from your hips." She also spoke about measured energy. Facing a group of aspiring performers one evening she commented, "What I am interested in is what you do with the energy that is left when a performance is over."

Sculpture: Michael Singer
"Lily Pond Ritual Series"
I took a workshop with Chungliang Al Huang, a tai chi master and author of the book, Embrace Tiger, Return to Mountain. He focused our dance movements around a mobile center. It felt great. Years later, I studied with him in China. Let the pelvis be free. Don’t stand with your spine rigid like a pole, he encouraged his aspiring but tense tai chi students. Your center is the source of your energy, your t’ai’ien.

I was teaching a student skilled in the martial arts. Working with centering was part of his basic training, but his tight, bulky muscles restricted his movement. He became obsessed with learning about his iliopsoas. First his tight lower back and gluteal muscles released as he began initiating movement from his front surface. Eventually his abdominal and thigh muscles began to relax as the deeper iliopsoas muscles integrated his spine and legs. His body shape changed. What remained consistent was the wide-eyed grin on his face. He was an architecture major. “This makes sense,” he said.

giving added leverage to this important muscle. If we connect the span of the iliopsoas to the energy of our plumb line, our vertical axis, we have a triangle of support.

The iliopsoas works with the abdominal muscles for front surface support of the body. The iliopsoas, however, attaches along the front of the spine, allowing maximum efficiency in bone movement as well as articulation of each vertebra. The iliopsoas is important for movement initiation. The abdominals connect to the sternum, ribs and pubic bone in front of the organs, providing secondary support for the spine as well as protection and support for the organs. (The primary support for the organs should come from the stable position of the pelvic bowl through the psoas minor.) The abdominals are necessary for strength and endurance once a movement has been efficiently initiated. They also add mobility of the trunk due to their three-dimensional weaving of fibers. Thus, an efficient sit-up initiates from the psoas first, the muscle closest to the spine, then sequentially adds the layers of abdominal muscles: the transversus, rectus abdominis, and the obliques. The rectus abdominis is divided into quadrants. It is the muscle builder’s rippling belly which you see displayed at the beach and is well known from emphasis in physical fitness. Our culture has invested considerable attention to the more visible abdominal muscles at the expense of the deep and highly important iliopsoas. Efficient sequencing of muscle contraction allows mobility as well as strength in the spine.

How can you tell if you are using the iliopsoas? The belly will hollow, rather than bulge forward as you contract; the iliopsoas pulls towards the spine rather than away. You will also be able to move sequentially through each vertebra rather than the spine moving stiffly or in blocks. Sit-ups initiated from the powerful and visible rectus abdominis, can cause rigidity of the back resulting in lower back pain.
Sit backs
15 minutes

Seated on the floor, relaxed spine, knees bent in front of your chest:
Ο Place your hands under your thighs for support. Looking at your belly, relax the muscles and feel the center hollow, knees bent, feet flat on the floor. Image that you are lying in a hammock to facilitate the release; or that there is a cat in your lap, gently pawing at your belly. Gradually scoop the pelvis, as though someone is pulling your tail up between your legs. Image energy circling down the back and up the front of your body. As you do this, feel the fifth lumbar vertebra touch the floor. Gradually lower each vertebra to the ground by articulating the pelvis rather than by lowering your ribs. Continue to watch your belly and to breathe freely with each movement. If the rectus abdominis bulges forward, pause in your movement and try to relax your center so the deep iliopsoas can do the work. Sway the torso side to side gently to encourage release. You must use your arms for support; too much weight necessitates abdominal assistance.
Ο Lay the entire spine out on the floor, including the cervical vertebrae, like a bicycle chain. Release the weight of the skull into the earth.
Ο Take a few deep breaths, feeling the belly move. Begin the sit-up portion of the exercise by curling the skull forward (the first body weight). Then roll through each thoracic vertebra using your arms on the floor beside you. Rest in “beach-lying position,” propping yourself up by resting on your forearms and elbows, legs slightly bent as you observe your abdominal muscles. Continue the sit-up, pausing whenever the rectus abdominis pops forward. Use your hands on the back of the thighs and sway slightly side to side to encourage abdominal release in this “hammock” posture. Articulate the entire spine as you roll forward, then open the knees slightly and hang the torso between the legs. Place your hands on your breathing spot (on your lower back). Feel your breath massaging these often tight muscles. Repeat, moving as slowly as you can. This exercise often takes several weeks to accomplish effectively.

Be patient. Muscle sequencing requires letting go and relearning a pathway in your body. It is like being shown a shortcut home from school. You might have walked one route for years, but once you learn the new one, it is there for your use.

Abdominal muscles, fiber directions:
A. Internal and external obliques
B. Rectus abdominis
C. Transversus abdominis (innermost, next to organs)
**Sit backs, with partner**

*10 minutes each person*

One person standing, the other seated on the floor facing each other:
- Standing person places his/her feet outside the feet of the seated person; both have slightly bent knees. Clasp wrists firmly.
- Standing person curve your lower back for support.
- Take the full weight of the seated person through your skeletal structure. Begin lowering your partner vertebra by vertebra to the floor, as your partner curves their pelvis forward.
- Seated person allow yourself to “be lowered” without using the rectus abdominis.
- Standing person, observe your partner’s belly as you lower him/her to the floor. When the rectus abdominis pops out, pause or gently jiggle the body through your arms to encourage release.*
- Don’t judge or command; you are encouraging release, not tension!
- Lay the entire spine slowly on the floor, bending your legs more deeply as you do so for counterbalance and protection of your spine. Breathe.
- The person lying on the floor begin curving the skull forward to initiate the roll up; allow the rest of the body weight to be supported by your partner. Concentrate on articulating through the spine with the deep iliopsoas muscle, releasing the outer abdominals.
- In seated position, standing person stretch your partner’s torso forward over their legs. Repeat.
- Talk about your experience. Change partners.

* The abdominal muscles are important for strength, endurance and directional mobility of the torso. We are working to locate the deeper iliopsoas for movement initiation and strengthen it for spinal articulation. Then we can add the abdominals.

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Rectus abdominis and iliopsoas in balanced alignment with three body weights
Front surface alignment: “bellital” alignment*  
15 minutes

* Lying on the floor, belly down:
  ○ Be aware of your forehead on the floor. Let your brain, throat and neck relax towards gravity.
  ○ Be aware of your sternum on the floor. Let the weight of your lungs and heart rest on the sternum and ribs.
  ○ Feel the pubic bones and belly on the floor. Allow the organs to rest supported by the abdominal sheath and the pubic bones.
  ○ Connect your entire front surface: Trace from the pubic bone, to the rectus abdominis, the bottom of the ribs and the sternum, to the hyoid bone, the mouth and the forehead.
  ○ Be aware of the knees and toes on the floor. Allow the muscles of the legs to relax.
  ○ Flex the toes and begin gently rocking through the front surface supports of the body. Constructive rest brings awareness to back surface support; bellital alignment brings awareness to front surface support.

* Image a line painted down your forehead, nose, chin, front of your throat, sternum, to belly button and pubic bone. Sequentially peel this painted line off of the floor. Use your forearms and hands as needed for support. Feel the connection from forehead to pubic bone. Return the torso to the floor, elongating the spine.

* Standing: Image a forearm on the front of your body, the elbow on the pubic bone and the palm of the hand on your sternum. Image a forearm on the back of your body, the elbow on your sacrum and the hand behind the heart, connecting the body weights. See these forearms as two parallel supports. Feel the diaphragm free to move up and down inside. Image the diaphragm as a piston inside a cylinder.

* Term developed by Caryn McHose
Bench: Kristina Madsen