Are you sitting down? Good. Now, take a deep breath. No, I’m not preparing you for bad news—I’m inviting you to explore the movement of your own diaphragm (Image 1).

First, slouch down and lean forward a little (Image 2), as if you’re furiously typing away on a laptop (maybe writing an article for Massage & Bodywork?). Do you feel how that position can immobilize your diaphragm, crowd your solar plexus, compress your abdomen, and make your breath shallower?

Then, try the opposite: sit up, with your pelvis under you, and your feet on the floor. Let your shoulders relax, and breathe into your entire torso. Compare those sensations to breathing with a crowded midsection. When our diaphragm is free to move, our unrestricted breath billows in and out, rising and falling like gentle ocean waves.

Now, put your hands on your costal arch for your next few breaths. Feel how the rib cage expands and contracts. Imagine the diaphragm, attached all around the lower rim of the bell-like rib cage, moving up and down inside. The diaphragm opens and closes like a slow-motion umbrella (Images 3 and 4). As you inhale and the diaphragm contracts, the umbrella flattens, widens, and moves downward; as you exhale and the diaphragm relaxes, the umbrella narrows and moves upward into a high dome. Feel this for a few breaths: diaphragm contracting downward with inhalation; relaxing upward with exhalation.

Lastly, compare the front and back of your diaphragm. If you allow your belly to move while you inhale, you’ll feel more activity in the front of your diaphragm. Can you do the same with your back? Imagine the back of your diaphragm expanding in the same way. As Ashtanga yoga teacher Richard Freeman says, let your kidneys be like miniature lungs, expanding and contracting with the breath. If it’s hard to feel your breath in this area, put one hand behind you.
Besides its central role in breathing, the diaphragm can contribute to lumbar and low-back pain (Image 5), particularly when there is a tendency toward lumbar lordosis. Teaching your clients to find and use the posterior part of the diaphragm when breathing helps refine interoception and proprioception in an area that is often stiff, immobile, and troublesome. As the largest spinal muscle, the diaphragm attaches to the anterior side of the upper three lumbars through its tendinous crura (or “legs”), and along the shafts of the 12th ribs in the small of the back. We addressed working with this region in last issue’s column (“Working with the Lumbars, Part 2: The Iliolumbar Ligament and the 12th Rib,” Massage & Bodywork, November/December 2014, page 106). Because the diaphragm acts as an antagonist to the downward pull of the quadratus lumborum on the 12th ribs, the work with the anterior diaphragm described in this column is a perfect complement to the posterior approach described last time.

COSTAL ARCH/ DIAPHRAGM TECHNIQUE

The respiratory diaphragm’s attachments are deep inside the costal arch. Since the diaphragm wraps around the liver, stomach, pancreas, and spleen, its close relationship with these delicate structures makes direct manipulation of the diaphragm inadvisable without specialized in-person training. The liver in particular is vulnerable to bruising or tissue damage; its tissues are so delicate that surgeons removing a lobe of the liver can simply pinch portions off with their fingers. Instead of digging under the ribs for the diaphragm, you can safely use the bony edge of the costal arch to open the umbrella of the diaphragm in a very effective way, without ever endangering the fragile viscera that the diaphragm surrounds.

Begin the technique by standing at your supine client’s side, at the level of her hips. Palpate the edge of the costal arch on the opposite side of the body (Image 6). Don’t attempt to go under the edge of the costal arch where the
In the Costal Arch/Diaphragm Technique, we avoid endangering the delicate viscera by working solely with the bony rim of the costal arch, rather than trying to touch the diaphragm’s attachments inside the rib cage. Work across the body, following the costal arch as it widens during inhalation, then maintaining that width with gentle pressure as exhaling stretches the diaphragm. Images courtesy Advanced-Trainings.com.

diaphragm’s actual attachments are. Instead, stay on the bony lower (inferomedial) edge of the costal arch, using a broad, firm, but soft touch to gently apply outward (superolateral) pressure to the very rim of the rib cage. Some people’s costal arch is very narrow here; if this is the case, use caution around the sensitive xiphoid process at the end of the sternum.

By reaching across to work the opposite side of your client’s body, the angle of your pressure encourages the lower ribs to widen laterally. Wait for your client’s breath; on her inhalation, follow the natural widening of the rib cage in order to open and slightly flatten the dome-shaped diaphragm.

Then, when exhalation begins, use your soft but firm touch to hold the costal arch in this widened position, against the pull of the diaphragm from inside. This gently stretches the diaphragm wider as you resist the attempted narrowing of the lower rib cage with exhalation. Feel for the stretch of the diaphragm pulling back at you from inside. By sensitively and softly resisting the diaphragm’s narrowing on the exhale, we show the diaphragm what it’s like to open a little more with each breath. Repeat this in several places along the costal arch, making sure your touch is comfortable to the client. Any nausea or discomfort is a sign that you need to use a different depth or placement. Repeat on the opposite side (Image 7).

Working the diaphragm in this way is an extremely effective way to increase both mobility and proprioception, while being noninvasive and comfortable.

**DOES THE DIAPHRAGM STABILIZE THE CORE?**

Do we want the diaphragm to relax or tighten? Doesn’t a soft core contribute to back pain? Contraction of the diaphragm does contribute, at least temporarily, to lumbar stability by acting as a lid on the “core” abdominal space. An example of this is the Valsalva maneuver, where forced exhalation is pressed against a closed airway. This technique is used (both intentionally and unintentionally) by weightlifters to add additional support during a heavy lift by increasing intra-abdominal pressure, which temporarily stiffens the lumbar segment. Electromyographic studies show the diaphragm also contracts to support shoulder movements, and because of its central position in the body, it likely acts as a stabilizer in many other motions as well.

However, since we can’t hold our breath all the time, some writers argue that asking the diaphragm to constantly act as a core stabilizer inhibits the responsiveness and flexibility needed in its role as a continually expanding and contracting structure. A diaphragm that lacks movement flexibility is not an asset—think of hiccups, or, even worse, the immobility of having the wind knocked out of you. Both are examples of the diaphragm in a spasm of contraction. By contrast, a flexible, responsive diaphragm is what allows
the breath to move freely and fully. Increased mobility and proprioception (our twin goals of the Myofascial Techniques approach) allow the diaphragm to more fully respond to the changing demands placed on it: stability and strength at those moments when they are needed, and flexibility and adaptability at its resting state.

**OTHER DIAPHRAGMS**

The structure we have been discussing is more accurately called the respiratory diaphragm, and it is only one of the diaphragms of the body. The word diaphragm comes to us directly from the ancient Greek word διάφραγμα meaning “partition.” Some of the other anatomical structures conventionally considered to be diaphragms include the urogenital diaphragm (between the pelvic rami) and the pelvic diaphragm (or pelvic floor), which supports the pelvic organs and forms the lower end of the abdominal space bounded by the respiratory diaphragm at its upper end.

Rolfing structural integration (and osteopathic traditions) refers to several other horizontal myofascial structures as diaphragms. The soles of the feet, the menisci, the perineum, the thoracic outlet, the roof of the mouth, and the cranial tentorium are all described as having diaphragm-like qualities or motion potential. In structural integration, the functional and anatomical interrelationships of these structures are thought to play a part in balanced alignment and whole-body integration. One example: imagine the soles of your feet “breathing” like your respiratory diaphragm does, opening and closing to receive the weight transfer of each step.

**SUMMARY**

The respiratory diaphragm plays many roles in the body—breathing, containing, stabilizing, supporting the low back, and more. It cycles through expansion and contraction in all dimensions, with every breath. Helping our clients increase their felt sense of diaphragmatic spaciousness, freedom, and openness will be appreciated, and will help support your goals in other parts of the body.

We began by paying attention to the movements of our own diaphragm, contrasting what it does when slumping with the felt sense of sitting up straight. Return to your own diaphragm now, feeling the slow, tidal movements of the gentle expansion and contraction of each breath. When it’s free, the diaphragm moves much like a jellyfish does—floating in its fluid environment, changing its shape within its 360 degrees of movement possibility (Image 8). This rhythmic opening and closing of the diaphragm causes the organs around it to undulate and drift with the breath, like other nearby jellyfish moving with the swells. Why not take some time now to just enjoy the waves?

**Notes**

4. Ibid.

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