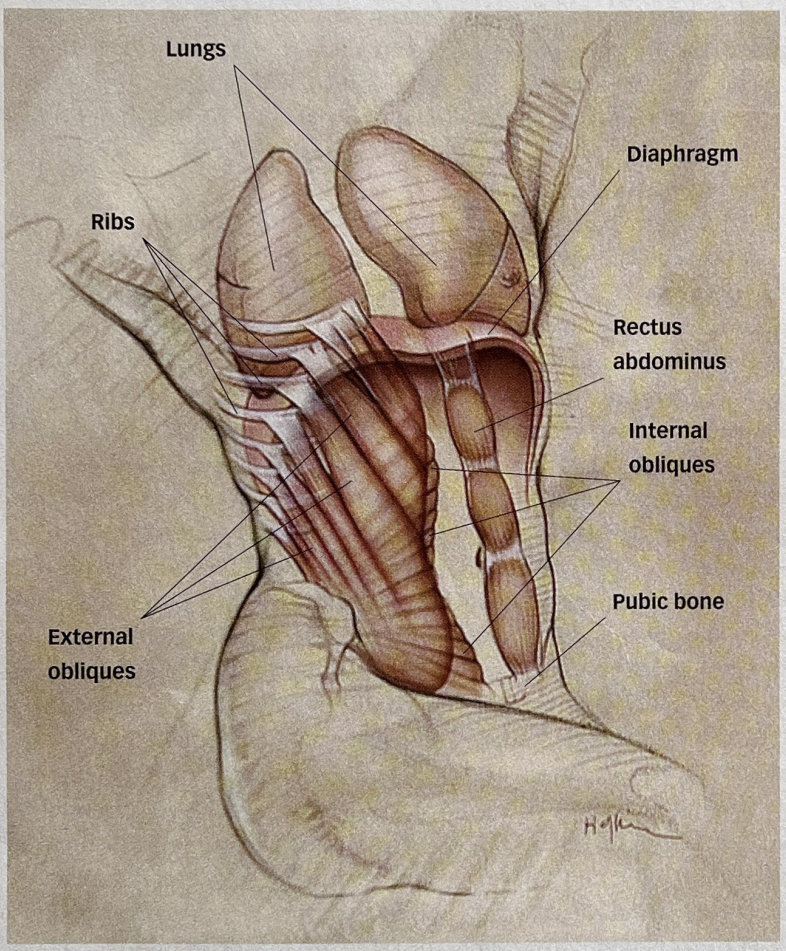
Take a Deep Breath

Tight pants, tight abs, and poor posture all can constrict your diaphragm—but yoga can set your breath free.



BONNIE HOFKIN

WITH EACH BREATH you take, a symphony of muscular activity occurs. As you inhale, some muscles contract while others relax. The result is an expanded space for the lungs, and thus for the breath. As you exhale, the breathing space shrinks—again, through a complex set of muscular actions. For smooth and effective breathing to take place, the muscles involved in the breath symphony must be fine-tuned and coordinated, just like the instruments of an orchestra.

The lungs don't have the power to expand and contract on their own: They are inflated by air pressure to the size of their container, the rib cage. The rib cage in turn is expanded or compressed by the surrounding muscles. The breath orchestra includes many different muscles in the chest, back, neck, and abdomen, but none are as important as the diaphragm, which plays a primary role in expanding the breathing space during inhalation and helping control the shrinkage during exhalation.

You can visualize the diaphragm as half a basketball that attaches all the way around the lower ribs. When the diaphragm relaxes, it arches up toward the heart. When it contracts, it becomes flatter, pushing down toward the abdomen. Most of the sensation you feel when you inhale comes from the outward expansion of the belly and lower ribs, a movement created by the contraction of the diaphragm. This contraction lengthens the space available for the lungs and expands the rib cage to the front, the back, and the sides, causing air to be drawn into the lungs. When you exhale, the reverse happens: The diaphragm relaxes, arching up again; your belly becomes flatter; and the rib cage shrinks, pushing the air back out.

Tight Belly, Tight Breath

ANYTHING THAT RESTRICTS the movement of the diaphragm restricts the breath, especially limiting the ability to inhale fully. There are many conditions that can constrict the diaphragm, including wearing overly tight clothes or a belt cinched too snugly around the waist. Another common cause is slumped posture. Sit up tall and notice how the lower ribs lift up off the abdomen and the adjacent upper belly becomes spacious. Now slump forward, letting your spine round back and your head jut forward. In this position, you'll feel the lower ribs dig back and in toward the spine, compressing the diaphragm and the upper belly.

Retaining the space your diaphragm needs to move freely is only one of the many reasons it's a good idea to work on your everyday posture; it's also a good reason to be conscious of your spinal alignment in seated forward bends. If you work too aggressively to get your head toward the floor in these poses, your spine will round backward and your diaphragm will become compressed.

The movement of the diaphragm can also be restricted by tightness in the abdominal muscles. Pain or fear

can lead to gripping in this area; combine that with holding your breath—another common habitual response to anxiety—and you have a recipe for an all-but-immobilized diaphragm. The abdominals can also become overly tight and short through too much focus on abdominal strengthening exercises like curl-ups and crunches. Each time you curl your head and chest off the floor, you re-create a slumped position and train the abdominals to pull the lower ribs down toward the navel and back toward the spine. If the abs are never given a counterbalancing stretch, they will constantly hold the ribs in that constricted position.

Now don't get me wrong. I absolutely believe that the ab muscles must be kept strong and conditioned. Their strength is important in supporting the abdominal organs and lower back. It's also needed to compress the abdomen, assisting in exhalation, and for such forceful exhalations as coughing, sneezing, and fast breathing during exercise.

So the abdominal muscles need to be strong enough to perform their jobs, but they should not be so short, tight, and rigid that they restrict lung expansion and limit inhalation. The upper abdominals, which are strengthened during curl-ups and crunches, are the guilty gang that can put the squeeze on the diaphragm. These upper abdominals include the upper fibers of the rectus abdominus, which sits lengthwise in the center of the abdomen, running between the pubic bone below and the lower sternum and the rib cartilage above. The external and internal obliques, which cross the abdomen diagonally like a supporting girdle, also have upper fibers that attach to the lower ribs and can restrict rib cage movement.

To return to the musical analogy, rigid and short abdominals can overpower the rest of the breath orchestra and limit the contribution that other muscles—especially the diaphragm—can make to the symphony of the breath. Besides disturbing the proper balance between the different muscles involved in breathing, and thus disturbing the breath's rhythm, tight upper abdominals can contribute to chronic neck pain and headaches. When the expansion of the lower lung space is restricted, we tend to compensate by overexpanding the upper lung space. In this situation, the muscles that lift the rib cage and expand the space between the upper ribs—including the sternocleidomastoid muscles (on the front of the neck) and the upper trapezius muscles (on the back of the neck)—have to do much more than their usual share of the work during inhalation. Neck strain and chronic neck tension are often the result. And the most common cause of headaches is neck tension, especially the excessive pull on the base of the skull where the upper trapezius attaches.

Freeing the Diaphragm

TO KEEP YOUR obliques and rectus abdominus in optimal working order, you must train them to relax and lengthen as well as to contract and shorten. You can begin this process simply by taking a few moments after abdominal strengthening exercises or poses to invite the abs to relax. Lying on your back, place your hands on your belly, with your fingers spreading out below your navel. When you inhale, your diaphragm will contract and push down on your belly, which will expand under your hands. This upward and outward expansion indicates that the abdominals have released and are lengthening.

The abdominal muscles will lengthen even more if you recline over a bolster. With your hips on the floor, lie back on the bolster so your torso and head are supported, your arms are relaxed out to the sides, and your chest is open. If you position the end of the bolster just at the bottom of your ribs, you'll lengthen the upper abdominals and create space for the diaphragm. Now take a few minutes to breathe slowly and steadily, feeling the expansion of each inhalation as it gets drawn down into the lower rib cage and upper belly.

Along with this exercise, many backbends can help stretch the abs, including Ustrasana (Camel Pose), Urdhva Dhanurasana (Upward-Facing Bow Pose), and Setu Bandha Sarvangasana (Bridge Pose).

If your diaphragm has been limited for years by snug waistbands, tight ab muscles, slumped posture, or habitual breath-holding, it may be too out of condition to contribute much to the breathing process. You can strengthen the diaphragm by providing some resistance to its work. Lying on your back, place some weight on your belly. The appropriate weight will vary according to your size and ability, from one to two pounds (perhaps a bag of rice) to eight to 10 pounds (a yoga sandbag) or even more. But it should always be something that is soft and can spread, so it will sit comfortably in place. As your belly expands each time you inhale, the diaphragm will have to work harder to lift the extra weight. Breathe slowly for a few minutes, working for a smooth breath pattern.

With practice, you can create an appropriate balance in the muscles of your belly—a balance that allows them to relax as your diaphragm contracts during inhalation yet keeps them strong enough to support the lower back and assist in exhalation. As your awareness of the diaphragm increases, you may find yourself opting for looser clothes and for seated and standing positions that don't compress your belly. You may also begin to notice when you respond to stress, anger, and other emotions by holding your breath and tightening your abdomen—and realize that your tension melts away when you release your grip, allowing your diaphragm to move and your breath to flow. After all, the smooth, beautiful music of the breath is not just an important focus in yoga and meditation; it can help you stay centered and calm even as the storms of life rage around you. ■

Tension melts away when the belly relaxes, allowing the diaphragm to move and the breath to flow.

A licensed physical therapist and certified Iyengar Yoga instructor, Julie Gudmestad runs a private physical therapy practice and yoga studio in Portland, Oregon. She regrets that she cannot respond to inquiries regarding personal health advice.

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