Breathing is a great teacher, leading us to new experiences and telling us much about our current physical and psychological state. Any improvement in our alignment and movement patterns will improve our breathing patterns, and vice versa. We can survive without water for three days, and without food for much longer, but within minutes the brain will starve from lack of oxygen.

THE LUNGS

We absorb oxygen into the body through the inner surface of the lungs, an extremely large contact area between the air and the body surrounded by the airtight pleura. Oxygen molecules pass through the thin surface into the bloodstream where they are transported to the billions of cells contained within the body. This is where the actual breathing takes place, at the level of the cell. The “exhalation of the cells,” carbon dioxide, is then transported back to the lungs where it is expelled.

Such delicate organs as the lungs needs to be well protected. The trachea and bronchi, the large passageways that guide the air to the alveoli, small bubblelike structures where the exchange of gases takes place, are fairly sturdy. Their strength reinforces the primary tunnels. The basic shape of the lungs can be visualized as a hollow, upside-down tree. The trunk is the trachea in the upper chest; the first
large branches are the bronchi, subdividing further into smaller and smaller branches, which eventually reach the spherical leaves, the alveoli. The right, larger lung is divided into three lobes; the left, smaller lung is divided into two lobes (leaving additional space for the heart) (see chapter 11, figure 11.18).

If this inverted tree is distorted, the alveoli are compressed and the alignment of the upper body will suffer. Inefficient alignment hinders deep breathing. Try the following experiment: Bend over into a hunched position and try to take a few deep breaths. Your breathing will be shallow and forced, which increases tension throughout the body. On the other hand, elastic, well-aerated lungs support good alignment. The lungs need to fill the entire space allotted to them if they are to function optimally. Deep, calm, and rhythmic breathing creates balanced muscle tone which favors ease of motion and dynamic alignment.

Breathing patterns are greatly influenced by one’s psychological state. You breathe differently when you hear good news than when you hear bad news. You breathe differently when you watch a romantic movie as opposed to a comedy. Our breathing patterns, as well as our alignment, are always being influenced by the people around us. When we’re around a shallow breather, our breathing also tends to become shallow. If someone we’re with has hunched shoulders, we tend to hunch our shoulders. Around someone whose breathing is deep and rhythmic, we gravitate toward that pattern. Breathing, alignment, and psychological factors are interdependent.

**BREATHING EXERCISES**

1. **Breathing with partner:** Stand opposite a friend. Focus on each other’s breathing. As you exhale, descend into a plié. As you inhale, stretch your legs. Notice how long it takes for both of you to breathe in the same rhythm.

2. **Alignment:** Stand opposite a friend and repeat the above exercise. Then have your friend deliberately go into a slouched posture with shallow breathing. Notice how your friend’s breathing and posture affect your own breathing and alignment.

3. **Lungs and shoulder alignment:** The lungs extend from the diaphragm, which ranges from the bottom six ribs all the way up to the space within the topmost ribs. Often we do not let the lungs own this space; when we hunch our shoulders, the upper lung becomes cramped and is pushed downward.

Circle your right shoulder clockwise and imagine that the surrounding bones and muscles are massaging your lungs, especially the upper part. This massage allows the lungs to regain their flexibility and shape. Circle the shoulder in the opposite direction as you continue to think of this internal massage. Rest your shoulders for a moment and focus only on the lungs expanding. Imagine your breath being able to flow into this area. Think of a sponge that has been compressed and is now being released.

Now circle your left shoulder counterclockwise and visualize the surrounding bones and muscles massaging your lungs. Imagine that this massage allows the lungs to regain their flexibility and shape. Circle the shoulder in the opposite direction as you continue to think of the internal massage. Rest your shoulders for a moment and focus on the lungs expanding. Imag-
ine your breath flowing into this area. Again, think of a sponge that has been compressed and is now being released. Compare the sensation in your shoulders. This exercise can also be done with both shoulders simultaneously.

**EFFORTLESS BREATHE**

Nature designed breathing to be as effortless as possible. We do not need to suck air into the lungs. If you empty a bucket of water, you hear and see the water flowing out, but you don't notice the air flowing in to fill the vacuum. The motion of the ribcage and diaphragm and the lungs' encasing pleura create a vacuum that air flows in to fill. It could be said that the lungs are suspended within the ribcage through the negative atmospheric pressure of the vacuum. On inhalation, the air freely flows into the lungs through the nose or mouth, down the trachea, and into the bronchi and alveoli. If the airtight pleura is pierced, the lungs may collapse because the vacuum is impaired.

**THE DIAPHRAGM**

The most important muscle for breathing is the diaphragm (figure 16.1). Dividing the body into the abdominal and thoracic cavities, the diaphragm can be visualized as a lopsided mushroom with two small stems called crura. The right side of the mushroom is higher to accommodate the liver, which is significantly larger than the stomach, situated on the left side. The diaphragm's central tendon is fused to the pericardium, the covering of the heart. The heart can be visualized as riding up and down on the diaphragm during exhalation and inhalation, receiving continuous movement therapy.

Various muscular parts of the diaphragm radiate from its central tendon. The costal part of the diaphragm attaches to the inner surface of the xiphoïd process and to the lower six ribs and costal cartilage. The crural portion of the diaphragm attaches to the first, second, and third lumbar vertebrae. The crura extend downward from the diaphragm next to the psoas and the quadratus lumborum (a lower back muscle), suggesting an intimate connection between breathing and locomotion. As the psoas, together with the iliacus, is our most powerful hip flexor, restricted breathing adversely affects alignment and almost every movement.

**INHALATION**

As the diaphragm contracts on inhalation, its dome moves down relative to the ribs along the body’s central axis. In this sense, breathing is an axial (vertical) activity. Axial movement of the diaphragm improves alignment, whereas imbalanced use of the diaphragm is detrimental to alignment. Usually, diaphragm movement needs to be more fully experienced at the sides and back of the body. The diaphragm actually moves down very little but over a very large surface,
creating plenty of space within the lungs. This downward motion compresses the organs, which can be visualized as water-filled balls resisting the diaphragm’s descent. Because the diaphragm continues to contract for a moment without moving farther down, it helps pull the ribs out to the side and up. The crura can be visualized as muscular strings that help lower the dome of the diaphragm (figure 16.1). Expansion of the ribcage during inhalation does not take place in the same direction and at the same time throughout the ribcage. When the central tendon stops moving down, the lower ribs are pulled upward and outward along a curve, expanding the ribcage sideways like a bucket handle being lifted; the much smaller upper ribs rotate forward and lift the sternum (minimally in quiet breathing).

The diaphragm pushing down on the organs during inhalation increases intraabdominal pressure, displacing the organs downward. Since the lumbar spine blocks any path to the back, they move forward. The stomach muscles lengthen and the abdominal wall expands to afford them more room. Efficient breathing involves the abdominals and diaphragm in a constant interplay. Vehemently pulling in your stomach muscles prevents the organs from moving forward, impeding the diaphragm’s downward motion. In the first phase of breathing, a certain amount of abdominal tension may augment the pull of the diaphragm on the ribs, helping them elevate. Constant gripping of the abdominals creates compensatory ac-
tions such as lifting the shoulder girdle in an effort to increase the space within the lungs. This in turn raises the COG, making the body less stable and hindering balance and turns.

The way to keep the stomach from bulging is to create efficient interaction between diaphragm, stomach muscles, and iliopsoas. Although momentarily effective, holding in the stomach muscles may weaken them in the long run by reducing (axial) movement of the (antagonistic) diaphragm. Instead, practice releasing the stomach muscles toward the spine. Unrestricted breathing creates a certain natural hollowing of the abdominal area that is greatly supported by imagery.

EXHALATION

As you exhale, the stomach muscles shorten and help push the organs back against the upward-bound diaphragm. The elastic rebound of the organs helps push up the diaphragm. The ribs drop with the pull of gravity, expelling air from the lungs. Muscle release, gravity, and elasticity combine to make exhalation the easier of the two respiratory phases. The stomach muscles actively push the organs back so that the diaphragm can easily return to its original position. As mentioned earlier, the smaller the up-and-down motion of the diaphragm, the shallower the breathing. A complete exhalation stimulates a deep inhalation. Exhaling with a sibilant hiss between the teeth and tongue encourages the stomach muscles to push in the organs and close the angle of the ribs. Hissed breath, a type of forced exhalation, lengthens expiration, teaching the abdominals complete expiration. Generally, lengthening your expiration is calming and shortening it is exciting.

IMAGING BREATH

1. **Exhaling through a straw (sitting):** Exhale through a straw. Do not take an extra-deep breath before you exhale. Do not push the air through the straw beyond your normal exhalation, and do not keep the straw clenched between your teeth as you exhale. Practice for about five minutes and notice how you feel. Repeat the exercise with an imaginary straw.

2. **Axial movement of diaphragm (supine, sitting, standing):** Imagine the diaphragm moving up on inhalation and down on exhalation. Visualize this motion in line with your central axis.

3. **Diaphragmatic elevator (supine, sitting, standing):** Imagine the diaphragm to be an elevator moving up and down in its shaft (the ribs). As you inhale, the elevator moves down; as you exhale, it moves up.

4. **Downward reach of crura (supine, sitting, standing):** Visualize the left and right crura of the diaphragm as imaginary cords extending all the way down to the coccyx. Visualize someone pulling these cords as you inhale and releasing them as you exhale (figure 16.1).

5. **Diaphragmatic parachute (sitting, standing):** Imagine the diaphragm to be a parachute. As you inhale, the center of the parachute drops downward, the sides billow, and the strings loosen (figure 16.2a). As you exhale,
the parachute expands its dome upward as the strings become taut and stretch down toward the pelvic floor (figure 16.2b).

6. **The ribcage as an umbrella (supine, standing):** Visualize the ribcage as an umbrella. The handle of the umbrella is in the pelvis, and the point is the top of the spine. The shaft of the umbrella is aligned with the central axis. As you inhale, the umbrella opens and widens all around—front, back, up, down, and sideways. As you exhale, the umbrella closes toward the central axis. Practice this image three to four times, accompanying an exhalation with a sibilant hiss. (Adapted from Sweigard.)

7. **Pelvic balloon (supine):** Imagine a balloon situated in the pelvis. As you inhale, the balloon expands equally in all directions. The balloon pushes against the inner borders of the pelvis, spreading the arms of the pubic bones and somewhat releasing the pressure of the two arms pushing against each other at the pubic symphysis. As you exhale, the balloon collapses toward center. The arms of the pubic bones move inward and push more solidly against each other at the pubic symphysis. Visualize the balloon from the inside as well as the outside. Be sure to visualize all sides of the balloon expanding equally. Repeat the exercise 10 to 12 times, intermittently using a sibilant “sss” on exhalation (figure 16.3).

8. **Bellybutton flower petal (supine):** Imagine the bellybutton to be a pretty flower petal. As you exhale, visualize the flower petal falling through your body to the ground. As you inhale, rest your mind or create a new flower petal. Repeat the exercise three to four times.
9. **Belly water rings (supine):** As you inhale, imagine circular waves expanding away from your bellybutton. Watch these rings expand into space throughout the length of your inhalation. Rest your mind while you exhale.

10. **Body balloon (supine):** Picture your whole body as a large inflatable balloon. As you inhale, fill your body from the center outward, expanding the balloon. In the pause before you exhale, fill your arms and legs. As you exhale, watch the air flow out of the shrinking balloon. Pause in the collapsed position before the next inhalation. (Adapted from *Zen Imagery Exercises.*)

11. **Cell-lungs (supine):** Imagine each cell of your body to be a small lung in its own right. As you inhale, imagine millions of cells inhaling, taking in oxygen. As you exhale, visualize millions of cells exhaling.

12. **Exhaling tension (supine):** As you inhale, imagine your body releasing its tension into the incoming air. All tension leaves your body with your exhalation. Let your breath discover all the areas in your body that are tense. Think of your breath as an explorer, capable of discovering hidden tension. As soon as a tense spot is detected, breath flows into the area, collects the tension, and transports it out of your body with your next exhalation.

---

**THE SKIN**

The skin, the body's protective cover, is a large, delicate sensory organ. Lungs are a comparatively recent evolutionary development, so primitive animals breathed through their skin. Humans retain some of this primitive ability to ex-
change gases through the surface of the skin, which is able to absorb, excrete, and respire. Surprisingly, the skin is practically waterproof.

Varying in thickness from one millimeter on the eyelids to three or more millimeters on the palms of the hands and soles of the feet, the skin has many functions. Sweat glands and sensory nerves in the skin keep the mind informed of the relationship between the body and its immediate surroundings, tactile stimulation, temperature changes, and sources of pain. The skin can even perceive sound waves (Kükelhaus 1978). If you have ever been near a large gong when it was sounded, you have experienced this. The pressure changes in the air can be felt all over the body.

IMAGING WITH THE SKIN

1. **Sensing sound through the skin (improvisation):** Imagine that you are perceiving a sound such as music with the entire surface of your body. Feel the sound reaching remote parts of the skin—the back of the neck and knees, the soles of the feet, the space between the fingers, and the heels. Then imagine the music soaking into your skin. Absorb the music with the entire surface of your body.

2. **Breathing through the skin (supine):** Imagine yourself breathing through your skin. Concentrate on specific areas. Breathe in and out through the soles of your feet . . . through your knees . . . through the back of your neck . . . through your lower back . . . through your face . . . through your shoulders. Experiment with other body parts. Notice where it seems easy to breathe and where your pores seem to be constricted.