Men's Health

THE BENEFITS OF DIAPHRAGMATIC BREATHING

Change the Way You Breathe to Relieve Stress, Boost Energy, and Get Stronger

You're breathing all wrong. Here's why you should fix the way you suck wind

BY TREVOR THIEME, ILLUSTRATIONS BY PAUL BLOW, ILLUSTRATIONS BY ISM

The seminar looks like a faith healing.

Seated elbow-to-elbow at tables set amid squat racks and weight sleds, more than 30 trainers crane their necks to see the miracle unfolding at the front of the room. The lights are dimmed, save for one illuminating a massage table where a man lies faceup and shirtless. The healer—bald, bespectacled, and dressed in khakis and a crisp collared shirt—smiles reassuringly as he places his left hand on the man's chest and his right under his back.

"Excuse my cold fingers," says Ron Hruska, M.P.A., P.T., director of the Postural Restoration Institute, sending a ripple of chuckles through the room. "Now take a deep breath and let's see if we can fix that shoulder."

Hruska's subject, a 34-year-old trainer from Chicago, has suffered from shoulder impingement for years. Lifting anything with his right arm causes discomfort. Raising it above shoulder height triggers pain. And the look on his face suggests that he doesn't expect to feel any different a few minutes from now.

He realizes how wrong he is as soon as he begins to exhale. It's then that Hruska presses down firmly on the man's sternum and pulls back along his spine. "Again," says Hruska, pursing his lips with the effort. They repeat the cycle two more times. "Now relax," says Hruska, grasping the man's right arm and laying it next to his ear. "Remember how you couldn't raise your arm above your head?"

Eyes wide with astonishment, the man moves his arm up and down a few times. "Unbelievable," he says in a voice barely above a whisper.

"You want to know how I did it?" asks Hruska. Thirty heads nod in unison. "Let's start with what I *didn't* do. I didn't treat his shoulder, not directly," he says. "I helped his diaphragm do its job, and that released tension in all the muscles throughout his torso that were compensating for it. He doesn't have a shoulder problem; he has a breathing dysfunction."

In that, the man on Hruska's table is not alone.

Most of us take breathing for granted. We breathe about 14 times every minute, more than 20,000 times a day, and no fewer than 526 million times during the course of an average lifetime. Nearly all of those breaths are automatic; respiration generally requires about as much thought as pumping blood or digesting food. Yet despite all that practice, most of us suck at it.

"The reason is that almost no one uses their diaphragm as it's intended—as the body's primary breathing muscle," says Bill Hartman, C.S.C.S., co-owner of IFAST in Indianapolis and the host of this weekend's seminar.

It's a consequence of modern life. Chronic stress, repetitive habits, and skewed ergonomics cause your diaphragm to be misused. Instead of helping you breathe, it's redirected to shore up posture and stability. "The result is disastrous," says Hruska.

It doesn't matter whether you're an 80-year-old smoker, a 23-year-old Olympian, or a regular, fit guy-odds are the way you're breathing right now is flooding your body with stress hormones, compromising your joints and mobility, bottlenecking your energy, and undermining your performance in the gym and everyday life. Fourteen times a minute, you become a little weaker and a bit duller.

Hruska is on a mission to change that. Step one is understanding how your body is organized.

Outwardly, the human body appears symmetrical—we have two legs, two arms, two eyes, two ears. But below the surface that symmetry vanishes. We have a liver on our right and a spleen on our left. Our heart sits in our upper-left chest cavity and takes up so much room that to accommodate it, our left lung must be smaller than our right (two lobes versus three). Even the two halves (or leaflets) of the diaphragm are different in size and strength. "Every single system in your body—visual, digestive, muscular, respiratory, lymphatic, neurological—is

inherently asymmetrical," says Hruska.

That's not a bad thing; although organized asymmetrically, the body's structures are still more or less distributed evenly. "But that asymmetry does tend to make most of us shift our center of gravity to our right leg," says Hruska.

If you've ever stood in line, waited for baggage, mingled at a cocktail party, or spent more than a few minutes on your feet, you know what he's talking about. You put your weight on your right leg, move your left foot forward, rotate your pelvis down and right, drop your right shoulder, and raise the left side of your rib cage. The result is a stance much like that of Michelangelo's *David*.

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We assume this stance partly due to gravity (to offset the weight of the heart), partly to support the function of the diaphragm's larger right leaflet, and partly because that leaflet's stronger attachments tug us in that direction. "But it's also a consequence of being right-handed," says Hruska. "Even if you're a lefty, you shift right because nearly everything in society, from doorknobs to automobiles, is ergonomically designed for righties."

Eventually we get locked in that rightward posture. "Repeatedly assuming it creates neuroplastic changes in the brain that make it the norm," says Hartman. "And the norm can spell trouble for other areas of the body, especially the joints."

"There's a reason why I begin my seminars on the audience's left," says Hruska. He leaves his podium and walks across the room to our right to demonstrate. Immediately, a handful of us

begin fidgeting. “You’re more comfortable looking left because your upper body rotates that way to compensate for the rightward orientation of your lower body,” he says. “Until you’re able to realign yourselves and breathe effectively on both sides, you’ll be more attentive if I lecture on your left.”

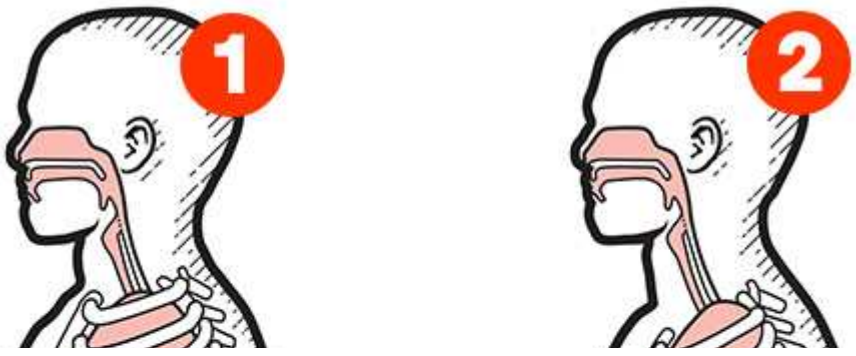
The human body, Hruska says, isn’t designed to remain fixed on one side—not comfortably. It’s designed for “reciprocal” movement. As we walk, run, climb, crawl, and otherwise travel through our world, we synchronize the movement of opposite limbs and alternately shift our center of gravity between our right and left legs. “At least that’s what’s supposed to happen,” says Hartman. “Most of us never achieve that.”

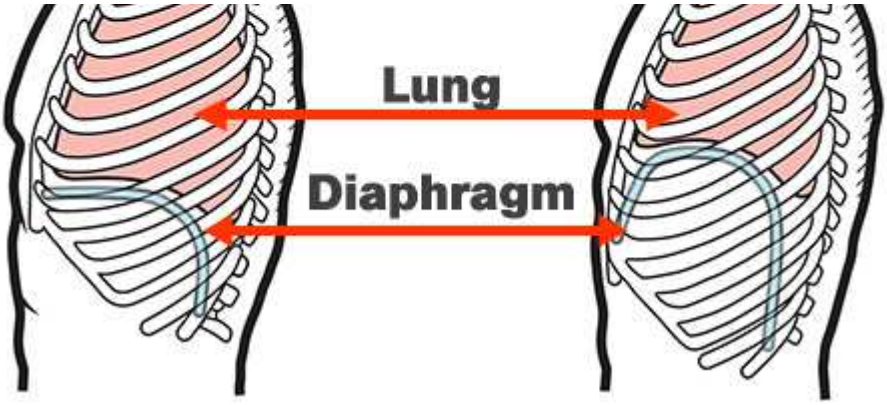
Sure, you put one foot in front of the other as you walk, but an x-ray would reveal that you still move with a Michelangelo twist. Your pelvis remains rotated to the right, your center of gravity doesn’t budge, and the left side of your rib cage remains flared. “It’s like driving with your alignment off,” says Neil Rampe, C.S.C.S., L.M.T., a manual and performance therapist for the Arizona Diamondbacks. “You can compensate by over-steering, but if you don’t correct it, your tires will wear out after 30,000 miles instead of 60,000.”

In the human body, that wear and tear most often manifests as back, neck, and joint pain. “If you constantly stress the same knee or load your back the same way, that area may have a breakdown,” says Hartman. But perhaps the most insidious consequence of being stuck on the right is the effect on respiration. “Without reciprocal movement, the diaphragm can’t do its job,” says Hartman. And then all hell breaks loose.

Behind the Curve

How the shape of your diaphragm determines how well you breathe.





1/ Optimal Breathing
To help you breathe, your diaphragm must be a dome. In that position it can press against your ribs, boosting stability, and draw air into your lungs as it contracts and flattens. “The area where it presses against your ribs is the zone of apposition, or ZOA,” says Bill Hartman, C.S.C.S.

2/ Typical Respiration
Postural habits and chronic stress cause most people’s ribs to flare and their diaphragm to remain contracted. “As a result, you lose your ZOA and your diaphragm stops being a respiratory muscle,” says Hartman. You become a chest breather, the most inefficient kind.

In its relaxed state, the diaphragm is shaped like the canopy of a parachute. When you inhale, it contracts, increasing the space in your chest cavity, into which your lungs expand. Your intercostals—accessory breathing muscles between your ribs—create more room by pulling your ribs up and out. As your chest expands, the pressure within it falls, causing air to enter the lungs. When you exhale, your diaphragm and intercostals relax, forcing air out. Exhalation requires no effort.

“That’s the textbook description,” says Louis Libby, M.D., a pulmonary physician and former chief medical officer at the Oregon Clinic. “But very few of us actually breathe that efficiently.”

Everything hinges on how much of your diaphragm butts up against your ribs, an area known as the zone of apposition (ZOA). “People think of the core as the abdominals, but really it’s the ZOA,” says Hartman. “The more of your diaphragm that apposes your ribs, the more efficiently you breathe and the more stable your pelvis, spine, and thorax are.”

With a good ZOA, your diaphragm can act like a plunger, drawing air into your lungs. It can also contract in coordination

with your abdominals and pelvic floor—a bowl-shaped sheet of muscle in the pelvis. “Together they form a tight canister that increases intra-abdominal pressure and stability,” says Hartman. This mechanism is powerful, having the ability to support more than 1,080 pounds-the current world record in the squat. “If you’ve ever wondered why powerlifters hold their breath, that’s the reason,” says Hartman.

For most of us, though, the diaphragm is never in a position to support optimal posture or breathing. Why? Our right-sided stance cracks the canister open. “Your pelvis and pelvic floor tilt down, and your ribs and diaphragm tilt up,” says Hartman. You lose your ZOA. And just like that, your primary breathing muscle flickers offline.

Other muscles pick up the slack. Your intercostals take over most of the work, and your scalenes and pecs chip in as well. “But the net effect is that we become chest breathers,” says Dr. Libby.

Such inefficient breathing won’t kill you. “You extract only 20 percent of the oxygen you breathe in,” says Peter Brown, Ph.D., head of performance knowledge at the English Institute of Sport. “That’s why you can resuscitate someone with exhaled air.” What’s more important is how your body perceives chest breathing. It assumes you’re in danger.

“In times offight-or-flight, your brain recruits the less-efficient respiration muscles first,” says Brown. It’s a sound survival strategy. “If you’re trying to outrun a grizzly, you don’t want to exhaust your most powerful breathing muscle if you don’t have to,” says Brown. “You want to keep it on standby in case things turn from bad to worse.”

But you don’t need to be in actual danger for your brain to switch into survival mode. It operates on generalizations, and chest breathing suggests life-or-death stakes. In response, your brain hits the panic button, flooding your body with stress hormones such as cortisol and adrenaline. “That’s a good thing if you need a burst of power and speed to escape a predator,” says Dr. Libby. “But if you can’t shut it off, which is what happens with chest breathing, you strain your entire cardiovascular system.”

Chronic tension in what should be accessory breathing muscles can lead to migraines, neck and shoulder pain, and backaches. It’s a vicious cycle. “Stress causes us to breathe inefficiently,

and inefficient breathing causes stress," says Dr. Libby.

To fully understand the destructive power of inefficient breathing, it helps to look at extreme examples. And no example is more extreme than a pro athlete. "If you think of the body as an automobile, athletes are race cars. They have the same alignment and breathing issues as everyone else, but they push themselves harder and have more power under the hood. So when things go wrong, they go really, really wrong," says Rampe.

We're standing in the weight room of the visiting clubhouse at Citizens Bank Park in Philadelphia, where the Diamondbacks are preparing to face the Phillies. Most of the players are warming up with light workouts or agility drills. But a handful are sprawled on the floor or leaning against walls blowing up balloons. "This isn't a birthday," says Rampe. "It's respiratory resistance training. The balloons train them to breathe in a new position—one that allows for optimal functioning of the diaphragm."

As they blow up the balloons, each player tilts his pelvis up and keeps his ribs down, sealing the canister. He also reaches forward with his right arm to rotate his torso left and open his lungs. (Try it yourself with the 90/90 hip lift **here**.) The result? "The diaphragm comes online," says Rampe. "It's like hitting the reset button, structurally realigning the body."

Or, as Hruska describes it, "You become neutral."

You can think of neutrality as being functionally symmetrical—the ability to shift your center of gravity from one side to the other, to breathe efficiently with both lungs, and to maintain the position of your true core. "Being neutral helps everything," says All-Star first baseman Paul Goldschmidt. "When I lift, I'm stronger. When I run, I'm faster. It allows me to fully express my power and speed."

It also helps him stay off the DL. "Paul and the rest of these guys tended to be overextension monsters when we started with them," says Rampe. "They had puffed chests, excessively arched backs, hunched shoulders—the typical 'gym posture.'"

Like many men, they took the advice of "Don't round your back when you lift" to the extreme. In so doing, they reinforced the right-dominant pattern they were stuck in and overloaded joints already suffering from overuse, says Rampe.

The problems with overextension, which is essentially an exaggerated chest-breathing posture, aren't limited to injury. "Your intercostals burn through energy quickly and produce a staggering amount of metabolic waste, such as lactate," says Brown. During exercise, that increases the perception of effort. The result: Most men never exercise as hard as they think they do—or come close to maximizing their gains. It's just one more reason to get neutral. And to do that, you need to change the way you move through your world.

"Everyone stand up," says Hruska in the seminar room. "Put on your jackets."

We all do as he says, right arm first. "Now put on your backpacks." Thirty bags go over 30 right shoulders. The exercise continues—we cross our legs (left over right), begin walking (left foot first), and relax in our chairs (slumping to the right), each time unwittingly adhering to right-side dominance. "Correcting postural patterns doesn't stop with blowing up balloons," says Hruska. "You need to remember you have a left side, and start using it."

At the most basic level, that means reaching for objects with your left hand, standing with your weight on your left leg, and sitting with your right knee ahead of your left. But Hruska encourages people to go deeper:

- "When you drive, press your left glute and lower back into the seat to take the demand off your right side and decompress your spine," Hruska says.
- Do the same when you're seated at your desk. If you're right-handed, also bend your torso to the left and place your left arm on your desk or armrest. (Lefty? Keep your torso centered.)
- At night, sleep on your left side, placing a pillow under your torso and another between your knees to move the right side of your pelvis forward.

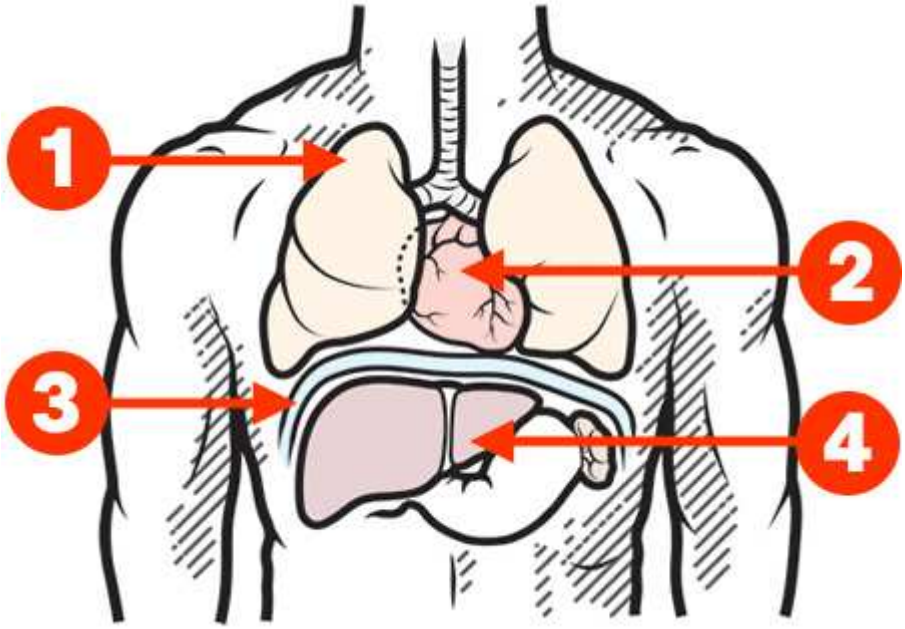
"Done consistently, these actions remap the representation of your body in your brain, making reciprocal movement not only normal but also automatic," says Hartman.

As repetitive wear patterns fade, so too will nagging aches and pains. "Once you take yourself out of a chronic, hyperventilated [chest-breathing] fight-or-flight state, many aspects of health improve," says Dr. Libby. "Your blood pressure goes down, you sleep better, your risk of stroke and heart attack decreases—even people who suffer from fibromyalgia and

chronic fatigue syndrome find that they're less symptomatic."

Your Asymmetrical Torso

The balance you see in the mirror isn't reflected in your internal structure.



1/ Lungs
They come as a pair, but the left Is smaller to accommodate the heart.

2/ Heart
We shift weight onto our right leg in part to counterbalance this organ.

3/ Diaphragm
It has two sides, but the right is thicker and stronger than the left.

4/ Liver
It also has two lobes, but the right is much larger (by a factor of six).

Hruska is aware that such claims can sound unbelievable, and that some jokingly refer to the "miracles" he performs as "voodoo." The thought makes him cringe. "I hate making this look like a dog-and-pony show, but I don't know how else to grab people's attention," he says. "The potential is huge—everything from orthopedic ailments to cardiopulmonary diseases can have roots in posture and breathing"

Hearing him talk, one gets the sense of a pending revolution. In

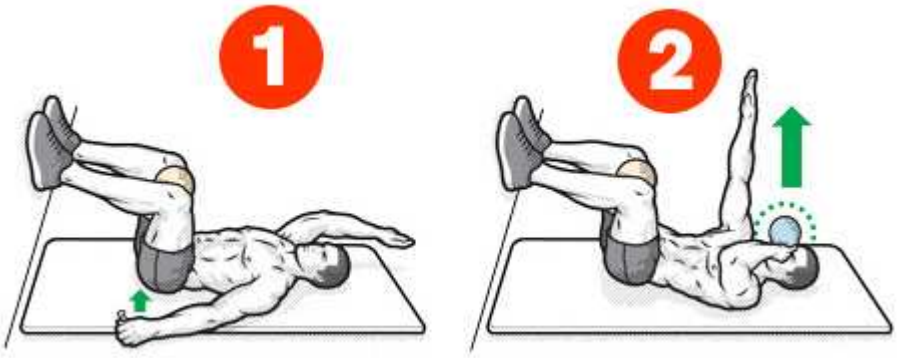
many respects, it has already begun. A growing number of physicians are attending his seminars. Terms like “pelvic tilt” and “zone of apposition” are becoming buzzwords among trainers. And the fitness blogosphere is exploding with discussions of neutrality and true diaphragmatic breathing.

But ultimately, Hruska sees his revolution as distinctly unrevolutionary. “It’s the future, but it’s also the past,” he says. “It’s a return to how things used to be, a time when we worked and played outside, when we didn’t sit at desks all day, and when neutrality and reciprocal movement weren’t things that we had to relearn.” And there he pauses, smiling. “It’s a return to a time before we became so damned right all the time.”

Breathe Right, Now

The one exercise every man must do to retrain his diaphragm, realign his body, and start breathing better instantly.

90/90 Hip Lift With Balloon



1 Lie faceup with your feet flat against a wall and your knees and hips bent 90 degrees. Place a 4- to 6-inch ball between your knees and extend your right arm above your head; hold an uninflated balloon in your left hand by your side. Inhale through your nose and exhale through your mouth, tilting your pelvis up so that your tail-bone rises off the floor (your lower back should remain on the ground).

2 Hold that pelvic position as you raise your right arm toward the ceiling. Put the balloon to your mouth with your left hand. Inhale through your nose, and then exhale into the balloon as you reach toward the ceiling with your right arm. Hold for three seconds (don’t let the air out of the balloon). Repeat the process two more times, then return to the starting position. That’s 1 round. Do 5 rounds up to three times a day.

http://www.menshealth.com/health/the-power-of-breathing