

Learning to Breathe

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By Dr. Derek Conte

Of course we all can breathe. But are we breathing correctly? There is a right and a wrong way to breathe. If we breathe correctly we remain relaxed and can achieve deep relaxation and focus. If we breathe incorrectly we will not easily relax and actually add to our daily tension.

Normal breathing is instigated by a “ramp-signal” that comes from the medulla in the brain stem in response to oxygen and carbon dioxide levels in the blood, activating the diaphragm and external intercostal muscles. The “ramp-signal” starts weakly and grows stronger (inhalation) and then drops off quickly (exhalation). Normal breathing should be effortless and unconscious, but for many it is not and should be re-learned.

Here’s a test for you that I do with patients in the office. Simply stand up or sit straight-up in a firm chair and relax. Place one hand on your chest and one on your belly and just breathe naturally. Notice which hand moves.

If the belly hand is moving you are breathing correctly because the main muscle involved in breathing is the diaphragm. The diaphragm is dome-shaped and, between breaths, sits at the bottom of the ribcage like an open parachute. When the breath is taken the diaphragm tightens and flattens, pushing the belly below “out”, stretching the ribcage and pulling down on the bottom of the lungs. The negative pressure created drafts air into the lungs. When the breath is released the diaphragm relaxes and the ribs and lungs recoil from their stretch, pushing air out. ALL OF THIS SHOULD BE AN UNCONSCIOUS CYCLE OF EVENTS.

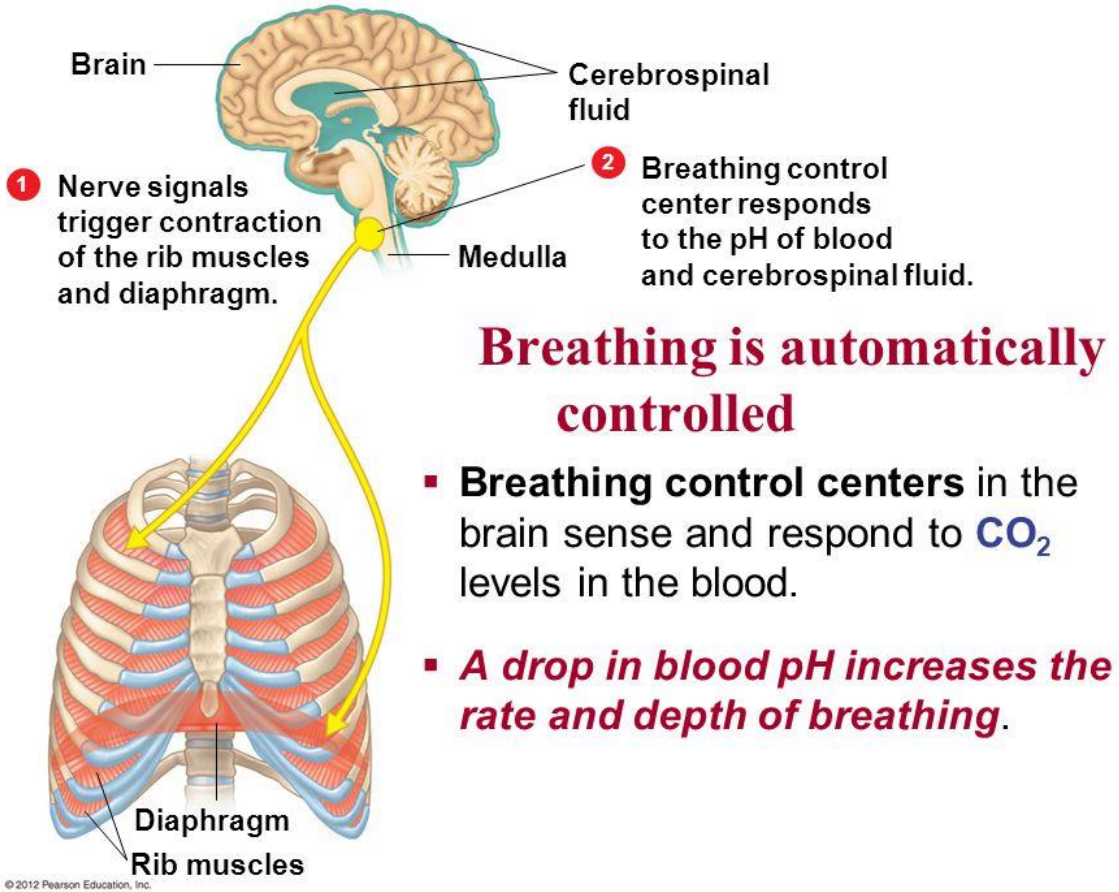
If the chest hand is moving when you breathe you are NOT fully relaxed and are using the many accessory breathing muscles normally employed during hard work or exercise: the muscles of the neck, shoulders, back, chest and torso. You are using these muscles unnecessarily, lifting and tensing your shoulders and ribcage like people do when they walk through a fright house on Halloween. Many people do this unconsciously. They tend to be high-strung, distracted, have higher blood pressures (yes, we do take blood pressure measurements) and have to remind themselves to breathe. If you find yourself reminding yourself to breathe, something is wrong!

But you can do something about this. Remain seated or standing, relax and try to ALLOW the diaphragm to move the belly hand ONLY. It may surprise you at first at the difficulty of it, but after a few tries the belly hand will move and the chest hand will not. You are now beginning to re-wire your nervous system. Stay with it for a few minutes. ALLOW the body to take the breath! Not you! ALLOW the body to take fewer and fewer breaths as is comfortable and time them based on one minute intervals.

Research has shown that if we can slow our breathing down to about nine breaths or less per minute and keep it there for 15 minutes several times per week, we can PERMANENTLY lower our blood pressure. Below is a nifty musical device to help, but you can do it as explained above.

<https://www.resperate.com/science> and <https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/expert-answers/resperate/faq-20057998>

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Breathing is automatically controlled

- **Breathing control centers** in the brain sense and respond to CO_2 levels in the blood.
- **A drop in blood pH increases the rate and depth of breathing.**