

Box Breathing

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- Box breathing is a form of breath control that triggers the parasympathetic nervous system to help manage stress and improve relaxation so you can take control of your health
- This technique, also called square breathing or four-square breathing, is used by Navy SEALs to help reduce stress in high-pressure situations
- It involves nose breathing to slow over-breathing and raise CO2 levels to balance oxygenation.

Breathing is habitual and nearly always automatic. When you get stressed, your breathing pattern and rate change. This often results in more chest breathing in response to a "fight or flight" situation, a response triggered by the autonomic nervous system.¹

In April 2019, a headline in The New York Times announced, "Americans Are Among the Most Stressed People in the World ..."² This was slightly less than one year before the COVID-19 pandemic raised stress levels even further.

Americans are no strangers to stress. A poll was conducted in 2007 by the American Psychological Association (APA). In a press release they noted that one-third reported they were living with "extreme stress" and 48% thought their stress had "increased over the past five years."³

"Stress in America continues to escalate and is affecting every aspect of people's lives – from work to personal relationships to sleep patterns and eating habits, as well as their health.

We know that stress is a fact of life, and some stress can have a positive impact, however, the high stress levels that many Americans report experiencing can have long-term health consequences, ranging from fatigue to obesity and heart disease."

Fortunately, your breathing is not completely automatic. Controlled breathing is one strategy that has proven effective in reducing physiological stress indicators and improving feelings of being calm.

This means you can control your breath to help manage stress, improve relaxation and make greater strides to take control of your health.

Functions of the Sympathetic and Parasympathetic Systems

Stress, and your body's reactions to environmental stimuli that cause stress, are survival mechanisms. However, chronic activation of the system causes the consistent release of hormones that produce harmful physiological changes.

While the fight-or-flight response is critical if you're facing down a bear or running from an assailant, ongoing exposure to societal stress can raise your risk of chronic disease and death.⁵

Your response to a stressful situation begins in the amygdala of your brain, which plays a role in how you handle the emotions associated with stress, joy and other scenarios.⁶

The amygdala sends a signal to the hypothalamus, which communicates to the body through the autonomic nervous system. This system controls functions in the body that happen automatically, such as your heart rate, blood pressure and breathing.

The autonomic nervous system has two parts, one that raises the alarm and another that helps calm you down. The sympathetic nervous system signals the fight-or-flight response to begin. This gives you the energy and focus you need to flee from a risky situation.

Once the danger has passed, the parasympathetic nervous system helps apply the brakes to the release of hormones so that the body can rest.

Each of these changes happens quickly and without any input from you. This is why you can jump out of the way of a snake in the grass before you fully recognize there's anything in your path.

Keeping the sympathetic nervous system revved up and ready has a detrimental effect on your health.

By using controlled breathing, you can calm yourself and create real physiological changes, including:⁷

- Lowering your heart rate and blood pressure
- Lowering levels of stress hormones
- Balancing carbon dioxide and oxygen blood levels
- Improving immune functioning and energy levels
- Increasing feeling of being calm

Box Breathing Reduces Stress and Promotes Health

The technique of box breathing is what SEALs use. For those of us not in combat situations, this type of stress might happen in the boardroom, during an athletic competition or while taking a test.

"Stress and anxiety trigger neurocircuitry that was designed to be used sparingly to deal with life-or-death threats, not on a daily basis as a response to jammed traffic, a toxic boss, or work overload.

*Chronic stress has a corrosive effect on the brain that has been linked to degeneration of the hippocampus (the brain's memory center) and impaired functioning of the prefrontal cortex that can manifest in our lives as depression, dementia and impaired executive function."*⁹

To begin practicing box breathing, get in a quiet place where you can concentrate and maintain good posture. Ideally, you'll want to measure how many cycles or minutes you can do the technique and work up to five minutes.¹⁰ Breathing affects how you think and feel.⁸

There are four steps and each is done for the same amount of time:

Step 1 – Begin by exhaling the air out of your lungs to a slow count of four. Some recommend exhaling through your mouth.

Step 2 – Hold your breath for a slow count of four.

Step 3 – Inhale slowly to a slow count of four through your nose, keeping your back straight and breathing through your abdomen so your shoulders do not rise.

Step 4 – Hold your breath for a slow count of four and return to step 1.

Nose Breathing Offers Many Advantages

Breathing through your nose offers specific health benefits. Researchers have found that people who usually breathe through their mouth have a higher risk of sleep problems and attention deficit disorders.¹¹

One theory for this is the difference in brain oxygenation. Individuals who mouth breathe tend to hyperventilate or get more oxygen than is needed.¹² This lowers the level of CO₂ in the body, which is important since you need a balance of oxygen and CO₂ to function optimally. Nose breathing helps accomplish this.

Your vagus nerve is the major part of the parasympathetic nervous system.¹³

Diaphragmatic breathing, which you may have heard as slow abdominal breathing, triggers the vagus nerve and stimulates the parasympathetic nervous system.

Since the 1970s, deep breathing has become a central part of helping reduce stress and anxiety, widely accepted by Western clinicians.¹⁴

By stimulating the vagus nerve and thus the parasympathetic nervous system, nose breathing can help reduce stress, anxiety and the release of stress hormones.

Breathing through your nose helps you to breathe less. This might sound like a bad recommendation, yet many people chronically over-breathe and deplete their carbon dioxide reserves.

Chronic mouth breathing has been associated with several health problems, including:

- Sleep apnea¹⁵
- Bronchoconstriction with exercised-induced asthma^{16,17}
- Abnormal facial development^{18,19}
- Poor dental health²⁰
- Hyperventilation, resulting reduced oxygen to your brain and heart^{21,22}

More Breathing Techniques to Improve Health

Another is to improve your breathing technique by expanding your abdomen rather than lifting your shoulders. When your shoulders lift during inhalation, it's called **vertical breathing**. This can make you feel taller and it does not involve extending your stomach.

However, correct breathing causes your midsection to widen and is called **horizontal breathing**. **This engages your diaphragm, which allows you to take a more complete breath and stimulate your vagus nerve.**

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