

Brain Health Challenge 2023

Day 3

Breathe

Breathing is THE most important thing we must do to live, and it is critical for brain health. Normal saturation of oxygen in the blood is 95 to 100%, below 80%, brain damage will occur. Without breath, without air, we would experience permanent brain damage within about 4 minutes and brain death after about 6 minutes. In other words, your brain is super sensitive to oxygen levels.

How we breathe can have a big impact on our physiology. Although most of our autonomic functions (heart rate, blood pressure, digestion, etc.) occur outside our conscious control, respiration or breathing is very much under our control. We can control our autonomic nervous system through our breath rate. Rapid, shallow breathing stimulates the fight or flight or sympathetic nervous system. Slow, deep breathing stimulates the rest or restoration or parasympathetic nervous system.

When the parasympathetic nervous system is more dominant, stress responses are lowered in the body. Cortisol levels drop, circulation to the brain and especially to the frontal parts of the brain improves bringing more nutrients and oxygen to the brain, inflammation levels drop, and focus, memory, mood, cognition, and other brain functions improve, and healing is facilitated.

Since breathing is so vital to brain health and life in general, let's learn to do it properly and efficiently and harness it to improve our health. Doing breathwork regularly helps to make this a habit. Breathwork is when you intentionally become aware of your breath and use it to improve your physical and mental health and performance, and emotional well-being.

Now let's break down how to breathe correctly. What is the main muscle that drives your breathing? Is it your abs or abdominal muscles? No, it is your diaphragm. This is a dome shaped, fibrous muscle that separates your chest and abdominal cavities. When the nervous system stimulates the diaphragm to contract and descend, this creates a negative pressure in the chest cavity, drawing air into the lungs. The greater the distance the diaphragm travels downward, the greater the volume of air that gets drawn into the lungs.

Imagine there are three phases to an inhalation. The first is when you drop the diaphragm and gently extend the belly as if you are drawing air deep down to the bottom lobes of your lungs. Second, expand your ribs, feeling them move outward as the breath continues to be drawn inward. In the third phase, feel your chest expand and the air moving all the way up to your collar bones.

This three-phase breath is like a wave moving up your trunk, first the lower parts of your lungs fill, next the middle part fills, and finally the top fills. The phases blend into each other so it is one smooth continuous breath, rather than three choppy parts.

When you exhale, allow the air to leave lungs by letting the chest fall and gently drawing in the abs.

If you are wondering if it is better to breathe through your mouth or your nose, hands down it is better to breathe through your nose. As you inhale through your nose, air is warmed up, humidified, and filtered before it reaches your lungs. Nose breathing creates a sense of calm in your body. Also, nose breathing generates high amounts of nitric oxide, a gas with antibacterial and antiviral properties and is a potent vasodilator, opening your blood vessels so you can deliver more blood, oxygen, and nutrients to your tissues and lowers blood pressure.

Take a moment to practise a half a dozen diaphragmatic breaths. Put your full awareness into the breathing and feel the movement of the different parts of your body as you inhale and exhale. Even put one hand over your belly button and the other over your chest. As you inhale, feel the lower hand rise first, followed by your upper hand. Then feel both hands drop as you exhale.

Now I want to share three of my favourite breathwork techniques that are simple but profound.

The first one I call coherent breathing. Use diaphragmatic breathing, inhaling over four seconds and exhaling over four seconds. Do a dozen of these and see how you feel. Do you feel calmer? Excellent. Over time you can try laddering up the length of time you are inhaling and exhaling (5 seconds in, 5 seconds out, 6 and 6, 7 and 7, etc.). Just don't allow this to become forced so you are gasping as you inhale.

The next two come from pranayama, breathing techniques that originated from Ayurvedic medicine and used by the US Navy Seals to calm themselves during stressful situations.

One is called box breathing. It is done by inhaling over four seconds, holding for four seconds, exhaling over four seconds, and holding for four seconds. Each of the parts is like the four sides of a box. Do this a dozen times.

The last technique, the Seals call tactical breathing and have heard it called "twice the calm breathing". Inhale over four seconds and exhale over 8 seconds. The longer exhalation does a better job of stimulating the parasympathetic nervous system. That is why the Seals added tactical breathing to de-stress.

I encourage you to explore and learn other breathing techniques if you choose or just practise these three and you will still reap tremendous benefits for your physical and brain health. The key is to do some every day, a minimum of 5 minutes. You must breathe anyway so do it well and make it work for you!