The 10 Profound Effects Breathing Has on Our Body

How we breathe affects almost every process in our body from digestion to memory to exercise recovery. This is because breathing has a profound impact on our nervous system, which communicates directly and indirectly with every cell in our body. The message our nervous system communicates to our bodies depends on the messages that it receives from our internal and external environments. This is why we play one of the most important roles in determining the quality of our health.

When we breathe more than once every 4 seconds, we tend to experience more anxiety, stress, and pain. As the anxiety, stress, and pain increases, so does our breathing rate. This creates a repetitive cycle of chronic stress in the body.

Luckily, there is something we can take to reverse this process – a deep breath. To do this we start by letting go of as much air from our lungs as we can, inhaling to expand our lower abdomen and rib cage while our shoulders remain relaxed. This and many other controlled breathing patterns can create 10 profound effects in the body.

1.) Exercise Recovery

How we breathe has a substantial impact on our ability to recover from exercise. But before we can explore how breathing impacts recovery, we must first understand how our bodies respond to exercise.

When we exercise, our sympathetic nervous system activates to increase our breath rate and mobilize energy stores. This allows us to continue exercising by increasing the delivery of oxygen and energy to our tissues.

This is extremely beneficial during exercise, but if the sympathetic nervous system remains activated after exercise, recovery will take much longer. Shallow chest breathing is one way to keep the sympathetic nervous system activated. This breathing pattern tells the brain that we are still in a state of stress even when we are trying to recover.

With the sympathetic nervous system activated, your parasympathetic nervous system will struggle to do its job. And its job is to initiate recovery. Throughout our lives, our nervous system is switching between the sympathetic nervous system and parasympathetic nervous system depending on the demands we put on our bodies. In times of danger or activity, our sympathetic nervous system activates to meet the demand. When we are no longer active or in danger, we switch over to our parasympathetic nervous system to rest and digest.

To activate the parasympathetic nervous system and improve recovery from exercise, we can take deep diaphragmatic breaths into our lower abdomen. This type of slow controlled breathing can even illicit better recovery than just sitting and breathing normally.

Whim Hof has used these breathing techniques to withstand freezing temperatures without shivering or getting sick.

2.) Pain Sensitivity

Pain is a sensation that our brain creates to protect us from threats. Our initial response to a threat is to increase our breathing rate and muscular tension to protect ourselves and/or run away. We even increase our sensitivity to pain in anticipation of a perceived threat. The body’s ability to increase pain sensitivity serves as a protection mechanism to keep you safe from danger.However, our brains cannot tell the difference between a perceived threat and an actual threat.

We may not be able to keep real threats from happening, but we

can control our body’s response to perceived threats. To do this we must activate our parasympathetic nervous system with slow controlled breaths. When we take slow controlled breaths, our bodies’ response to the perceived threat will decrease and our brain will reduce the amount of pain and tension in our bodies.

3.) Immune System Response

Although chronic shallow chest breathing can increase pain, stress, and tension, intermittent power breathing (Whim Hof breathing techniques) can be used to create an anti-inflammatory response.

Whim Hof has used these breathing techniques to withstand freezing temperatures without shivering or getting sick. He has even climbed Mount Everest while only wearing shorts. This doesn’t mean that we should sprint up a mountain naked, but it does exemplify the power that certain breathing techniques can have over our bodies.

These breathing techniques work by stimulating deep breathing in a controlled way that triggers the release of epinephrine and reduces our inflammatory response.

Two specific breathing techniques were studied that created these effects. The first technique is described as hyperventilation “…for an average of 30 breaths. Subsequently, the subjects exhaled and held their breath for 2–3 min (“retention phase”). The duration of breath retention was entirely at the discretion of the subject. Breath retention was followed by a deep inhalation breath, that was held for 10 s.”

The other breathing technique that was studied consisted of “deep inhalations and exhalations in which every inhalation and exhalation was followed by breath holding for 10 s, during which the subject tightened all his body muscles.”

4.) Memory

Stress stimulates the release of glucocorticoids that increase energy while they impair our ability to form memories and retrieve memories. This explains why we struggle to find the right answer when we are anxious during a test or a job interview.

Whether the stress is from a lion chasing us or a job interview, our bodies' react in the same way every time by releasing glucocorticoids. These hormones prepare the body to fight or run, not to come up with the right answer to a question.

This is when deep breathing can save the day. When we are anxious, we can improve our brain function and reduce our anxiety by slowing down our breath. This lets our brain know that we are safe and our body can relax. In this relaxed state, we can easily access the answers we need and form new memories.

5.) Meditation

Meditation provides a plethora of benefits including increased prefrontal cortex thickness and function. But it is hard for most of us to simply sit and meditate. Our minds are flooded with thoughts, emotions, and things to do. Ten minutes feels like 100 minutes, but there is a way to make that 10 minutes into the most blissful experience of our day. We can do this by starting our meditation with controlled breathing.

When we concentrate on deepening our breath, we create a relaxed state. In this relaxed state, we will be able to dissociate from our thoughts and emotions. This allows us to meditate easily and reap the benefits of meditation.

https://www.youtube.com/watch?v=67SeR3LxtdI

6.) Digestive System Function

In a stressed state, all of our digestive processes are reduced. This is because our body is focused on removing the threat or removing ourselves from the threat. Once there are no threats, our brain will allow us to rest and digest. This means that when we rush through our meals, we will make it harder for our bodies to digest food.

Rushing through meals can cause stomach aches, nausea, and diarrhea in the short term. If we have prolonged stress, we can aggravate chronic diseases like irritable bowel syndrome, ulcerative colitis, and heartburn.

To improve our digestive function, we must activate our parasympathetic nervous system. One way we can do this is by taking deep breaths. This will send the message to our brains that we are ready to rest and digest.

7.) Joint Mobility

Some of the muscles that we use to breathe are also used during other movements. This means that when we breathe rapidly into our chest, we can alter the function of our postural muscles. The primary purpose of these muscles is to provide strength and stability to the bones and joints. When the postural muscles are recruited to take on the task of breathing as well, they become stiff due to being overworked. This will restrict joint motion in the joints that the overworked muscle(s) effects.

For example, during a shallow chest breath, a muscle called the trapezius may try to help expand the ribcage. If this is our most common breathing pattern then our trapezius will be chronically tight and pull the shoulders up toward the ears. This can cause neck tension that limits neck mobility.

By taking deep diaphragmatic breaths for a couple minutes

before activity we can give the overworked muscles a chance to relax. This can decrease joint stiffness and improve function.

8.) Joint Stability

Many musculoskeletal injuries are caused by a lack of stability, especially in people with low back pain. Spinal instability is commonly the result of shallow chest breathing patterns. When we breathe into our chest, diaphragm, deep core muscles, and back muscles do not activate effectively. This creates instability of the spine that can lead to injury.

Ideally, our movements should be accompanied by diaphragmatic breaths. During inhalation, the diaphragm is designed to contract to bring air in, while it simultaneously creates spinal stability. During exhalation, the deep postural muscles of our back and core activate to create stability.

The stability we create with diaphragmatic breaths allows us to activate our postural muscles in the right way at the right times so that we can decrease the chance of injury and increase stability.

9.) Sensory acuity

The acuity of our senses changes throughout the day. One of the causes of the change in our sensory acuity is the state of our nervous system. When we are in a stressful state, we tend to overwhelm ourselves with past regrets and future concerns. This significantly reduces our sensory acuity.

Taking deep breaths will indirectly increase our sensory acuity by keeping our attention on the present moment. When we focus on something in the present moment like our breathing, we can bring ourselves back to what’s happening now instead of stressing about the past or future.

10.) Neck Issues

Neck pain is correlated with breathing dysfunction. It may seem strange to us at first, but with a deeper understanding of a dysfunctional breathing pattern we can easily find out why it correlates with neck pain.

Dysfunctional breathing is commonly characterized by a shallow inhale into the chest that causes the shoulders to raise toward the ears. During this type of breathing pattern, muscles around the neck, like the scalenes and sternocleidomastoid, activate to pull the shoulders up when these muscles would normally be relaxed.

According to the Cleveland Clinic, an average adult takes 12 to 20 breaths per minute. This equates to breathing between 17,280 and 28,800 times per day.

If our most common breathing pattern is to overuse our neck muscles, that means that these muscles are being used 17,000 or more times than they should be used throughout the day. Imagine all of the extra work that these muscles have to do. This is why dysfunctional breathing patterns are a major cause of chronic neck tension and pain.

When we take a breath, our lower abdomen should expand before the chest, and the shoulders should remain relaxed. This allows the neck muscles to take a break at the right time and function properly.

Related Reading:

- *How to Breathe*
- *Detox Cheap and Easy Without Fasting – Recipes Included*
- *Natural Remedies for Chronic Stress*
- *Insomnia – A Comprehensive Look with Natural Remedies*

Sources:

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- *The Science of Breathing* – University of New Mexico
- *Cell Communication* – Brain Facts
- *Diaphragmatic Breathing Reduces Exercise-Induced Oxidative Stress* – Hindawi
- *A pain neuromatrix approach to patients with chronic pain* – NCBI
- *The Effect of Deep and Slow Breathing on Pain Perception, Autonomic Activity, and Mood Processing–An Experimental Study* – Wiley Online Library
- *Voluntary activation of the sympathetic nervous system and attenuation of the innate immune response in humans* – NCBI
- *Stress and memory: opposing effects of glucocorticoids on memory consolidation and memory retrieval* – NCBI
- *Meditation experience is associated with increased cortical thickness* – NCBI
- *Neuroscience For Kids* – University of Washington
- *Muscles of Respiration* – Physio-pedia
- *Breathing evaluation and retraining as an adjunct to manual therapy* – Musculoskeletal Science & Practice
- *Introduction to Sensory Processing Concepts* – University of Kansas Medical Center
- *Respiratory dysfunction in chronic neck pain patients. A pilot study* – NCBI
- *The Respiration Connection* – Pain Science
- *Dutch father-of-five dubbed the Iceman because he can 'turn his own thermostat up' by using his mind sets world record for climbing Everest in just his shorts* – Daily Mail
  Stress and the Digestive System – HealthDay
- *Vital Signs* – Cleveland Clinic