Jonathan Schmid Training
Category: Nourishment
22nd March 2021

Breathing

The automatic, and usually unconscious process that keeps us alive

Do you know common phrases like the breath stops, the air gets away from you, you breathe a sigh of relief or you take a breath?
When we observe our speech, we notice that we very often talk about our breath or breathing - but this usually happens just as unconsciously as breathing itself. If these sentences were not only used as a figure of speech, but also questioned, it would be noticeable that the importance of breathing is implied in them and also the direct connection between breath and emotion is noticeable.

ABOUT BREATHING

Breathing - what a basic thing to do you might think. But most of us are underestimating the importance of breathing in our everyday lives. Various organs are involved in the breathing process: We notice this, for example, when we have a cold and have to breathe through our mouth because our nose is blocked. The organs involved in breathing are the so-called "airways" through which the air reaches the lungs. With the help of breathing, we supply our organism with oxygen, which it needs to function (well). In addition, this is how we remove toxins that we produce from the body. According to Andrew Huberman, a reputable neuroscientist from Stanford University, specific patterns of breathing impact brain states, sleep and all sorts of parameters such as hormone levels, etc.[1]

The physiologically most important task of breathing is to supply our cells with sufficient oxygen. This becomes clear at the latest when you try not to breathe for two minutes. The average adult breathes about 15 times per minute and with each inhalation we take in about 0.5 liters of air. Breathing requires different areas in the body to work together smoothly: The diaphragm provides 60-80 percent of the muscle power necessary for the breathing process. At the same time, the abdominal and chest muscles are also involved in breathing. Most important, of course, is the lung. By the way did you know that this organ looks like an upside-down tree and extends from the lower rib arches to the collarbones? During the breathing process, the two most important cavities in our body change: the abdominal and thoracic cavities. Both carry vital organs and these get a wonderful massage with deep, steady breathing.

[1]The Science of Stress, Sleep and Calm with Andrew Huberman - YouTube

Our diaphragm, the thoracic pump that lifts and drops during exhalations and inhalations moves up to 50,000 times a day. Adults are only using 10% of the diaphragm range when breathing which often comes along with an elevated blood pressure and stress level. - BUT extending this to 50% or even 70% can ease cardiovascular stress, increase the immune system and allows the body to work more efficiently.[2]

"The mind is the king of the senses. The breath is the king of the mind."
- B.K.S. Iyengar

Furthermore with breathing, we have an immediate, powerful tool in our hands that can give us a more balanced basic attitude, as we can directly influence our emotional states with our breathing, an alert, sharp mind as well as a better ability to concentrate. Why then not paying more attention to it?

STRESS AND OUR NERVOUS SYSTEM

There are mechanisms build into the body both to induce stress and to turn it off, both to create calm and to prevent calm. The system that connects the brain and the body in a bidirectional fashion is our nervous system. It creates sensations, perception, feelings, thoughts and action, alongside this also controls our „housekeeping" functions such as heart beat, respiration and digestion. Furthermore, it regulates our level of arousal, our level of alertness vs. our level of calmness.
I assume that most of you heard of the term „Autonomic Nervous System" already. This system controls our level of arousal and it is divided into two systems which work in a dynamic balance.

The first, called the parasympathetic nervous system, stimulates relaxation and restoration. The mellow buzz you get during a long massage or the sleepiness you feel after a big meal happens because the parasympathetic nervous systems sends signals to your stomach do digest and to the brain to pump feel-good hormones such as serotonin and oxytocin into your bloodstream. Parasympathetic stimulation opens the floodgates in our eyes and makes tears flow at weddings. It prompts salivation before meals, loosens the bowels to eliminate waste, and stimulates the genitals before sex. For these reasons, it's sometimes called the "feed and breed" system.
The lungs are covered with nerves that extend to both sides of the autonomic nervous system, and many of the nerves connecting to the parasympathetic nervous system are located in the lower lobes, which is one reason why long and slow breaths are so relaxing. As molecules of breath descend deeper, they switch on parasympathetic nerves, which send more messages for the organs to rest and digest. As air ascends through the lungs during exhalation, the molecules stimulate an even more powerful parasympathetic response. The deeper and more softly we breathe in, and the longer we exhale, the more slowly the heart beats and the calmer we become. People have evolved to sped the majority of waking hours - and all of our sleeping hours - in this state of recovery and relaxation. Chilling out helped make us human.
The second half of the autonomic nervous system, the sympathetic, has an opposite role. It sends stimulating signals to our organs, telling them to get ready for action. A profusion of the nerves to this system are spread out at the top of the lungs. When we take short, hasty breaths, the molecules of air switch on the sympathetic nerves. These work like 911 calls. The more messages the system gets, the

[2] Book „Breath" by James Nestor

bigger the emergency. That negative energy you feel when someone cuts you off in traffic or wrongs you at work is the sympathetic system ramping up. In these states, the body redirects blood flow from less-vital organs like the stomach and bladder and sends it to the muscles and brain. Heart rate increases, adrenaline kicks in, blood vessels constrict, pupils dilate, palms sweat, the mind sharpens. Sympathetic states help ease pain and keep blood from draining out if we get injured. They make us meaner and leaner, so we can fight harder or run faster when confronted with danger.[3]

BREATHING AND HEART RATE

How we breathe controls our heart rate and with the help of our breathing we can control our heart rate variability (HRV), which can be an indicator for a well-functioning heart and an adaptable body that is confronted with environmental stressors.

The diaphragm, as briefly mentioned in the About Breathing paragraph, is a muscle that sits beneath the heart. When we inhale the diaphragm moves down, the space for the heart increases, the blood flows slower and therefore the brain sends a signal to speed up the heart rate. In contrast, when we exhale, the space for the heart decreases, blood flows faster and the brain sends a signal to slow down the heart rate.

AWARENESS AND BREATHING

Breathing is an autonomic function we can consciously control. While we can't simply decide when to slow down or speed up our heart or digestion, or to move blood from one organ to another, we can choose how and when to breathe. Willing ourselves to breathe slowly will open up communication along the vagal network and relax us into a parasympathetic state.

„Pulmonauts“, people who study breathing fully and properly, discovered that the optimum amount of air we should take in at rest per minute is 5.5 liters. The optimum breathing rate is about 5.5 breaths per minute. That's 5.5-second inhales and 5.5-second exhales. This is the perfect breath.

But before talking about the perfect breath, it's important to first realize that and how you breathe in the first place. Maybe you have just become aware of your breathing for the first time today? Most of the time, our autonomic nervous system takes care of breathing for us, and fortunately we don't have to worry about it. But as we have shown, conscious breathing is of great importance to our health and well-being. Because of this we would like to invite you to give breathing more awareness and attention in your everyday life. Do you really know your breathing? How do you breathe during the day? How does your organism feel when you breathe? How does your breath change depending on the things that happen to you/that you do?

There are also some things that you can observe as well that can hinder good breathing if necessary:

- **Incorrect posture**

Breathing is closely related to our posture. For example, if we spend much of the day "hunched over" in front of a computer or in a car, our lungs are compressed and the chest cannot expand efficiently. The diaphragm muscle is "squeezed" into an unnatural position and "forgotten". This results in high, shallow breathing.

[3] See footnote two

This incorrect breathing still stems from the time when we pressed the school desk and spent thousands of hours in the same position over and over again during the years of our growth. At that time, we unconsciously got into the habit of very restricted breathing.

- **Overweight**

Excess abdominal fat impedes the movement of the diaphragm and abdominal fat around the rib cage prevents its expansion during the breathing process. This makes breathing more difficult. As a result, the respiratory muscles fatigue and a much higher energy input than is actually necessary is required.

- **Stress**

When we are stressed, we are mentally, emotionally and physically overloaded. Under these circumstances, our breath changes, becoming shorter and shallower. Then we tend to breathe only with the part of our body, limiting the oxygen supply to the organism. This sets off a chain reaction against our well-being. When we are anxious or restless, we hold our breath: This causes an accumulation of carbon dioxide, which puts the nervous system under stress.

However, it is also important to understand that these factors can hinder our breathing in an unconscious state; however, this does not mean that breathing is not possible at all. On the contrary, conscious breathing can also counteract these factors.

SUMMARY

In summary, it can be said that the fact that breathing is important is not just a mundane statement, but there is more to it. Breathing properly is not only good for the ability to concentrate, but for our entire immune system (especially heart and gastrointestinal). So it's not all just a question of stress management, it's also more widely about health.

On the following pages we will introduce you some different breathing techniques.

BREATHING TECHNIQUES

Now that you've learned a bit about breathing and automatically have a different connection and awareness to it, we'd like to introduce you to a few breathing techniques. Some of them we have learned and explored over time in various trainings and self-experiments. Some others of them were taken from the book „Breath“ written by James Nestor.

We invite you to try the different breathing techniques for yourself. If you would like more precise support for this, please let us know. Otherwise, have fun and feel free to tell us about your experience.

Technique 1 - Alternate Nostril Breathing (Nadi Shodana)

This standard pranayama technique improves lung function and lowers heart rate, blood pressure, and sympathetic stress. It's an effective technique to employ before a meeting, an event, or sleep.

- (Optional) Hand Positioning: Place the thumb of your right hand gently over your right nostril and the ring finger of that same hand on the left nostril. The forefinger and middle finger should rest between the eyebrows.
- Close the right nostril with the thumb and inhale through the left nostril very slowly.
- At the top of the breath, pause briefly, holding both nostrils closed, then lift just the thumb to exhale through the right nostril.
- At the natural conclusion of the exhale, hold both nostrils closed for a moment, then inhale through the right nostril.
- Continue alternating breaths through the nostrils for five to ten cycles.

Technique 2 - Breathing Coordination

This technique helps to engage more movement from the diaphragm and increase respiratory efficiency. It should never be forced; each breath should feel soft and enriching.

- Sit up so that the spine is straight and chin is perpendicular to the body.
- Take a gentle breath in through the nose. At the top of the breath begin counting softly aloud from one to 10 over and over.
- As you reach the natural conclusion of the exhale, keep counting but do so in a whisper, letting the voice softly trail out. Then keep going until only the lips are moving and the lungs feel completely empty.
- Take in another large and soft breath and repeat.
- Continue for anywhere from 10 to 30 or more cycles.

Once you feel comfortable practicing this technique while siting, try it while walking or jogging, or during other light exercise.

Technique 3 - Resonant (Coherent) Breathing

A calming practice that places the heart, lungs, and circulation into a state of coherence, where the systems of the body are working at peak efficiency. There is no more essential technique, and none more basic.

- Sit up straight, relax the shoulders and belly, and exhale.
- Inhale softly for 5.5 seconds, expanding the belly as air fills the bottom of the lungs.
- Without pausing, exhale softly for 5.5 seconds, bringing the belly in as the lungs empty. Each breath should feel like a circle.
- Repeat at least ten times, more if possible.

Several apps offer timers and visual guides. My favorites are *Paced Breathing* and *My Cardiac Coherence*, both of which are free.

Technique 4 - Tummo

There are two forms of Tummo - one that stimulates the sympathetic nervous system, and another which triggers a parasympathetic response. Both work, but the former, made popular by Wim Hof, is much more accessible. It's worth mentioning again that this technique should never be practiced near water, or while driving or walking, or in any other circumstances where you might get hurt should you pass out. Consult your doctor if you are pregnant or have a heart condition.

- Find a quiet place and lie flat on your back with a pillow under the head. Relax the shoulders, chest, legs.
- Take 30 very deep, very fast breaths into the pit of the stomach and let it back out. If possible, breathe through the nose; if the nose feels obstructed, try pursed lips. The movement of each inhalation should look like a wave, filling up in the stomach and softly moving up through the lungs. Exhales follow the same movement, first emptying the stomach then the chest as air pours through the nose or pursed lips of the mouth.
- At the end of 30 breaths, exhale to the "natural conclusion", leaving about a quarter of the air in the lungs. Hold that breath for as long as possible.
- Once you've reached your absolute breathhold limit, take one huge inhale and hold in another 15 seconds. Very gently, move that fresh breath around the chest and to the shoulders, then exhale and start the heavy breathing again.
- Repeat the entire pattern at least three times.

Technique 5 - Sudarshan Kriya

Sudarshan Kriya consists of four phases: *Om* chants, breath restriction, paced breathing (inhaling for 4 seconds, holding for 4 seconds, exhaling for 6, then holding for 2), and, finally, 40 minutes of very heavy breathing.

A few YouTube tutorials are available, but to get the motions correct, deeper instruction is highly recommended. The Art of Living offers weekend workshops to guide new students through the practice. See more at www.artofliving.org

Technique 6 - Buteyko Breathing

The point of Buteyko techniques is to train the body to breathe in line with its metabolic needs. For the vast majority of us, that means breathing less. Buteyko had an arsenal of methods, and almost all of them are based on extending the time between inhalations and exhalations, or breathholding. Here are a few of the simplest.

Control Pause

A diagnostic tool to gauge general respiratory health and breathing progress.

- Place a watch with a second hand or mobile phone with a stopwatch close by.
- Sit up with a straight back.
- Pinch both nostrils closed with the thumb and forefinger of either hand, then exhale softly out your mouth to the natural conclusion.
- Start the stopwatch and hold the breath.
- When you feel the first potent desire to breathe, note the time and take a soft inhale.

It's important that the first breath after the Control Pause is controlled and relaxed; it it's labored or gasping, the breathhold was too long. Wait several minutes and try it again. The Control Pause should only be measured when you're relaxed and breathing normally, never after strenuous exercise or during stressed states. And like all breath restriction techniques, never attempt it while driving, while underwater, or in any other conditions where you might be injured should you come dizzy.

Mini Breathholds

A key component to Buteyko breathing is to practice breathing less all the time, which is what this technique trains the body to do. Thousands of Buteyko practitioners , and several medical researchers, swear by it to stave off asthma and anxiety attacks.

- Exhale gently and hold the breath for half the time of the Control Pause. (For instance, if the Control Pause is 40 seconds, the Mini Breathhold would be 20.)
- Repeat from 100 to 500 times a day.

Setting up reminders throughout the day, every 15 minutes or so, can be helpful reminders.

Nose Songs

Nitric oxide is a powerhouse molecule that widens capillaries, increases oxygenation, and releases the smooth muscles. Humming increases the release of nitric oxide in the nasal passages 15-folg. There is the most effective, and simple, method for increasing this essential gas.

- Breathe normally through the nose and hum, any song or sound.
- Practice for at least five minutes a day, more if possible.

It may sound ridiculous, and feel ridiculous, and annoy those nearby, but the effects can be potent.

Walking/Running

Less extreme hypoventilation exercises offer many of the benefits of high-altitude training. They are easy and can be practiced anywhere.

- Walk or run for a minute or so while breathing normally through the nose.
- Exhale and pinch the nose closed while keeping the same pace.
- When you sense a palpable air hunger, release the nose and breathe very gently, at about half of what feels normal for about 10 to 15 seconds.

- Return to regular breathing for 30 seconds.
- Repeat for about ten cycles.

Decongest the Nose

- Sit up straight and exhale a soft breath, then pinch both nostrils shut.
- Try to keep your mind off the breathholding; shake your head up and down or side to side; go for a quick walk, or jump and run.
- Once you feel a very potent sense for air hunger, take a very slow and controlled breath in through the nose. (If the nose is still congested, breathe softly through the mouth with pursed lips.)
- Continue this calm, controlled breathing for at least 30 seconds to 1 minute.
- Repeat all these steps six times.

Patrick McKeown's book *The Oxygen Advantage* offers detailed instruction and training programs in breathing less. Personalized instruction in Buteyko's method is available through www.consciousbreathing.com, www.breathingcenter.com, www.buteykoclinic.com, and with other certified Buteyko instructors.

Technique 7 - Yogic Breathing (Three-Part)

A standard technique for any aspiring pranayama student.

Phase 1

- Sit in a chair or cross-legged and upright on the floor and relax the shoulders.
- Place one hand over the navel and slowly breathe into the belly. You should feel the belly expand with each breath in, deflate with each breath out. Practice this a few times.
- Next, move the hand up a few inches so that it's covering the bottom of the rib cage. Focus the breath into the location of the hand, expanding the ribs with each inhale, retracting them with each exhale. Practice this for about three to five breaths.
- Move the hand to just below the collarbone. Breathe deeply into this area and imagine the chest spreading out and withdrawing with each exhale. Do this for a few breaths.

Phase 2

- Connect all these motions into one breath, inhaling into the stomach, lower rib cage, then chest.
- Exhale in the opposite direction, first emptying the chest, then the rib cage, then the stomach. Feel free to use a hand and feel each area as you breathe in and out of it.
- Continue this same sequence for about a dozen rounds.

These motions will feel very awkward at first, but after a few breaths they get easier.

Technique 8 - Box Breathing

Nowadays a very well known technique with a calming effect. Great to use in between stressful situations or if you have problems with falling asleep. Side note: Navy SEALs use this technique to stay calm and focused in tense situations because of its simplicity.

- Inhale to a count of 4; hold 4; exhale 4; hold 4. Repeat.

If you feel comfortable and want to explore it deeper you can easily build it up by increasing each of the four parts by 1s. So inhale 5, hold 5, exhale 5, hold 5. If this is easy add again 1s for each etc.

Longer exhalations will elicit a stronger parasympathetic response. A variation of Box Breathing to more deeply relax the body that's especially effective before sleeping is as follows:

- Inhale to a count of 4; hold 4; exhale 6; hold 2. Repeat.

Try at least six rounds, more if necessary.

Technique 9 - Breathhold Walking

Anders Olsson uses this technique to increase carbon dioxide and, thus, increase circulation in his body. Olsson says it's not much fun, but the benefits are enormous.

- Go to a grassy park, beach, or anywhere else where the ground is soft.
- Exhale all the breath, then walk slowly, counting each step.
- Once you feel a powerful sense of air hunger, stop counting and take a few very calm breaths through the nose while still walking. Breathe normally for at least a minute, then repeat the sequence.

The more you practice this technique, the higher the count. Olsson's record is 130 steps.

Technique 10 - 4-7-8 Breathing

This technique, made famous by Dr. Andrew Weil, places the body into a state of deep relaxation. It has a good effect on, for example, long flights, because it helps to fall asleep.

- Take a breath in, then exhale through your mouth with a *whoosh* sound.
- Close the mouth and inhale quietly through your nose to a mental count of four.
- Hold for a count of seven.
- Exhale completely through your mouth, with a *whoosh*, to the count of eight.
- Repeat this cycle for at least four times.