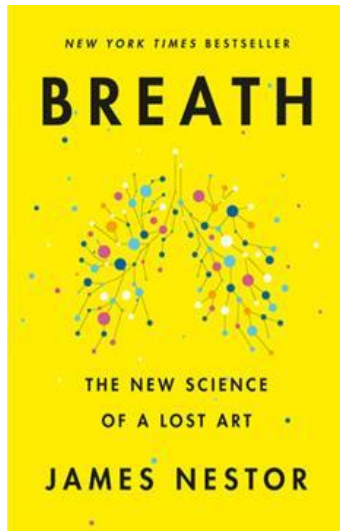




***Breath: The New Science of a Lost Art* Take-Aways for Flutists**
by [James Nestor](#), 2021, 304 pages



Article written by Donna Maebori - Feldenkrais Practitioner, retired physical therapist who specialized in treatment of persistent pain using yoga and Feldenkrais, fellow flutist and GPFS member.

Why this article for GPFS? Because breath is the source of our well-being and therefore our music. We learn to breath deeply through the mouth, but how does breathing for life serve us?

Takeaways from this book can: support our overall health and maintenance of our breathing mechanism; strengthen our capacity to calm ourselves; focus our mindfulness; teach us what a relaxed breathing structure can feel like during and outside of practice; feed our creativity; and, quite possibly, contribute to our endurance.

Overview

Breath is not a book for the faint of heart. James Nestor provides quite a romp through explorations of breathing that are rather fantastical and at times alarming. He presents the tribulations of poor breathing in our modern era as afflicting the majority of humans on our planet, a presentation which makes one wonder, with concern, what on earth is happening to one's own breathing and health prospects. Other than that, it's a terrific read. Nestor is a delightful writer who is informative, engaging, personable and witty. Creating a best-selling page-turner on the topic of "breath" is quite an accomplishment. While this book does not touch on musicianship apart from a few mentions of singing, the material is unique, potentially quite useful and downright interesting.

Take-Aways

The premise of the book laid out at the start is that the real estate for the mouth, nose and nasal passages was whittled away eons ago when our hominid ancestors started developing bigger brains, especially the forebrain.

Fast track to the industrial era processed foods, which has that in times past kept our

We flutists are “pulmonauts!”

and we come to the advent of soft robbed us of prolonged chewing mouth structure usefully enlarged.

We are now left with smaller mouths and nasal passages, tooth crowding and pinched tongue. Hence, breathing problems have ensued. But humans are observant, creative, and remedies are to be found. Off the author goes on a ten-year journey to find solutions. To do so he conducts many interviews. He studies under and experiments with physicians, speech pathologists, dentists and the like. Plus, he practices yoga and other breath work, both from deep in the past to the present day, with “pulmonauts” as he calls them, persons who are not medically or scientifically trained but who have delved deeply into aspects of breathing, making valuable and thought-provoking discoveries.

The Health and Wonder of Nose Breathing

One of his first adventures is an experiment he and Swedish pulmonaut, Anders Olsson, did on themselves under the direction of a nasal-sinus surgeon at Stanford University. In this rather ghastly experiment the good doctor places silicone plugs in both nostrils of each of them, obliging them to mouth breathe for..... wait for it..... *ten* days. And nights. They both live identical routines of exercise, food consumption and health parameter tests during these ten days. Halfway through now, they go back to the doctor who removes the plugs. Nestor and Olsson, blessedly nose breathing for another ten days, undergo the identical food, exercise and health checks routine from the first ten days. **Results are compared. Conclusion: mouth breathing is very, very bad for our health. We flutists should save mouth breathing for playing the flute.**

The nose is a wonder of design and function, he learns, cleaning the air by siphoning germs, dust and the like down our throats into our stomachs, unbeknownst to us. The nose warms the air and keeps it moist as well so its passage into the lungs is comfy to the tissues. We need that. Mouth breathing provides none of these services.

I have done alternate nostril breathing for years, which I learned in yoga classes. It distinctly both calms and wakes me up, better than coffee does. It can be excellent to use, for a minute say, prior to a performance.

Interestingly, breathing through the right nostril is stimulating. It speeds up the heart, heats the body, and sends more blood to the left side of the brain which is the side of the brain concerned with cognitive function like logic, sentence structure and analysis. (I'll add music theory to that list.) **Left nostril breathing is calming** with its connection to the right side of the brain which has creative and imagery capabilities. Breathing with the left nostril reduces heart rate, cools the body and provides for relaxation. A way to enhance these

features for ourselves is to do “alternate nostril breathing” which the author describes in his chapter on the nose. I'm calling it the **Really Helpful Technique Number One: Alternate Nostril Breathing**. See the end of this article for the technique instructions. I have done alternate nostril breathing for years, which I learned in yoga classes. It distinctly both calms and wakes me up, better than coffee does. It can be excellent to use, for a minute say, prior to a performance.

Seven Principles of Healthy Breathing

Nestor continues in his writing to provide full accounts of learning the seven principles of healthy breathing. In this article four will be presented.

Nurturing the Nasal Passage and Soft Palate

The first is to *Keep Your Mouth Shut*. Many of us tend to mouth breathe, at least some of the time, if not more. Extensively doing so causes the nasal passages and soft palate to narrow as the pressure and effort of breathing take place lower in the mouth. The jaw stays down for mouth breathing which adds a downward pressure as well. Facial appearance can actually change to a narrower lower face and sagging jaw. Breathing through the nose becomes more difficult with these effects, making mouth breathing more of a relief and therefore utilized yet more. The opposite can occur, however. More nose breathing can provide the pressure to open the nasal passages and shore up the soft palate. With the mouth open less, the jaw is no longer being trained to sag. Nose breathing can become easier. We flutists need a healthy functioning soft palate.

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So, during the day be intentional about keeping your lips closed. This practice of breathing through your nose consistently is greatly aided and supported by having the tongue rest optimally on the “ceiling” of the mouth. See end of article for **Really Helpful Technique Number Two: Tongue Rest Position**. Get used to having the tongue rest on the ceiling when your mouth is closed. It can start to feel normal quickly.

Day time taken care of, what about the night? There’s a solution for that, which is to tape your mouth shut. No, really. Actually, I have been taping my mouth closed at night for a number of years. Many of us mouth breath at night, which can lead to heavy breathing and snoring. For me, this tendency also led to my mouth starting to hang open when relaxed during the day, very bad optics, and “sleep taping” resolved that problem. It was pretty exciting to read of others’ enthusiasm for sleep taping in this book. See end of article for **Really Helpful Technique Number Three: Sleep Taping**. As for the tongue position at night, apparently with keeping its resting place enough during the day, the tongue will eventually stay in position when one is sleeping.

Please, with all the techniques for sleep taping you might come across, **DON’T** ever tape across your mouth completely. Some people do and that is so unsafe for the inner ears should one cough or sneeze and the air can’t escape through the mouth.

Less Carbon Dioxide and More Relaxation, Yes Please

The second principle is that *Exhalation is Key*. What was presented substantially in the book was the usefulness of a long exhalation following a simple soft inhalation. The thinking Nestor presents on the

When it's air you want it can seem counter-intuitive to exhale slowly, but it does rebalance our respiratory system and calms us down.

importance of the exhalation is that often we tend to breathe in quite a bit of air, usually quickly, and we exhale quickly as well. A quick exhale is shallow, which does not release carbon dioxide sufficiently from our system meaning it gradually builds up, which leads to anxiety since overload of carbon dioxide is akin to suffocation. Feeling this anxiety, consciously or unconsciously, we breathe in

more vigorously, but if the exhalation stays short the imbalance of carbon dioxide to oxygen ratio persists. When it's air you want it can seem counter-intuitive to exhale slowly, but it does rebalance our respiratory system and calms us down.

Religious traditions from around the world and throughout history all came, each on their own, to an astonishingly identical pattern of breathing during chanting or prayer recitation, which is to breathe in slowly and gently for 5.5 or 6 seconds, then breathe out for the same time length while vocalizing. Some of the chanting or prayer recitations used 5.5 seconds each in and out, others 6. Researchers, starting in the 2000s, found this rate of breathing increased blood flow to the brain and brought the nervous system and heart/circulatory system into a peak coherence. Once the research subjects returned to regular living, such coherence gradually dissipated. However, only a few slow 5.5 or 6 second breathing cycles was needed to again come into peak efficiency. Further research found that the most effective rate to be 5.5 seconds in and 5.5 seconds out. This pattern of breathing has been called the Perfect Breath, or Coherent Breathing or Resonant Breathing. See end of article for **Really Helpful Technique Number Four: The Perfect Breath**.

Full focus on a very long exhalation while softly counting out loud, then becoming sub-vocal and on to only lips moving, is beneficial to do as well. Nestor described learning this technique, relating that coming toward the end of breathing out as long as possible “felt like my chest had been plastic-wrapped,” a sensation that I also experience with this practice. The author learned that runners becoming well versed in efficient exhalation performed distinctly better in races. This ability, to me, feels particularly strategic to breath control for wind instrument players. See **Really Helpful Technique Number Five: Very Long Exhale** below.

It's too early to be sure, but I think I'm noticing I can go for longer when playing my flute before needing a breath, and it feels easier to do so.

The beauty of these two simple exercises is they can be done anytime and are indeed meant to be part of our day to day living, especially the perfect or coherent breath. I'm tending to play with both techniques when talking a walk, working at the computer, watching a movie, or going to sleep. It's too early to be sure, but I think I'm noticing I can go for longer when playing my flute before needing a breath, and it feels easier to do so.

Exercise Your Chewing Muscles

A third principle is to *Chew*. The central bone in our face, the maxilla, has properties that allow it to change shape throughout our lifetime, or at least into our 70s, Nestor learned. As with the healthy tucked-up tongue rest position, chewing is instrumental to keeping or expanding the width of the maxilla, i.e., preventing narrowing as described earlier in this article. Moreover, like jumping or bouncing on our feet can help keep or put calcium into our bones, chewing can do the same for the mandible, our jaw bone, and the maxilla bone, as well as strengthen the masseter muscle. Nestor means chewing harder, denser food. All our soft refined foods are a disservice to the optimal shaping of our mouths. So, eat food that takes some work such as chewing raw vegetables, nuts, whole grains and even gum. Do experiment with chewing and chewing food, especially what's raw, dense or hard, about which I can attest there are new and enjoyable discoveries to be made.

Learn the Leisurely Exhale

Lastly, a fourth principle is to *Breathe Slow, Less and Through the Nose*. It seems we hear about deep breathing a lot in our culture. There can be a place for that, I think. For example, if you find taking in a deep, effortful, sound-producing breath helps to prepare yourself just before performing, that can be an okay ritual, especially if followed by a pause, then a long, slow, leisurely exhale.

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Nestor talks about fast heavy breathing techniques, which can be very beneficial even to mental health, but with the caveat that doing them can also be dangerous. He stated that a few seconds to a few minutes of over-breathing can decrease blood flow to the brain by 40%, for one thing. Some techniques are described in the book, and his experiences while being coached through heavy breathing routines make for absorbing reading. I am not summarizing heavy breathing techniques in this article. Better to read about it fully in his book and if you choose to experiment, have knowledgeable supervision available.

On the other hand, big dividends to your health are paid by developing the habit of breathing slowly, less, and through the nose.

On the other hand, big dividends to your health are paid by developing the habit of breathing slowly, less, and through the nose. The author states on page 86, and the italics are his, that "The key to optimum breathing, and all the health, endurance, and longevity benefits that come with it, is to practice fewer inhales and exhales in a smaller volume. To breathe, but to *breathe less.*"

As part of breathing less, the author refers to breathing in without making sound. Moreover, in the appendix where he provides instructions for all the techniques described throughout the book, he says to breathe in softly. I take that to mean as one inhales, let the breath come in easily and pleurably to a first satisfying extent without making sound, refraining from effortful inhaling that narrows the nostrils and makes noise.

Yes, breathing exploration can take us to the level of excitability of electrons. Electrons are of course found in both animate and inanimate matter. Perhaps, for the joy of it, we can imagine our breath energizing us as we in turn energize our flutes to create the sound of music.

On page 194 he says that “Breathing slow, less, and through the nose balances the levels of respiratory gases in the body and sends the maximum amount of oxygen to the maximum amount of tissues so that our cells have the maximum amount of electron reactivity.” Yes, breathing exploration can take us to the level of excitability of electrons. Electrons are of course found in both animate and inanimate matter. Perhaps, for the joy of it, we can imagine our breath energizing us as we in turn energize our flutes to create the sound of music.

Really Helpful Techniques

The following are simplified versions of the author’s instructions in the book’s appendix. The tongue resting position and sleep taping instructions are found within the text of the book, but I placed them here. The others are three of the fifteen breathing method instructions Nestor provides.

Number One: Alternate Nostril Breathing

There are two sets of instructions here, the first is the one I learned in yoga classes years ago. The second method is from Nestor, which had a few differences.

First, bring either hand to your nose, but in this case let’s say the right hand. Press your thumb against the side of the right nostril, closing it completely but lightly. Breathe into the left nostril slowly and smoothly for four full counts (one second counts basically). Then hold your breath for four full counts as you let go of the right nostril and place your fourth finger against the left nostril, closing it lightly. Exhale through the right nostril smoothly and gently for six counts. Keep your hand as-is. Pause a moment and repeat: breathe in the same nostril, the right one, for four counts. Then while holding breath for four counts let go of left nostril and place thumb to close right nostril, then breathe out the left nostril for six counts. Then pause and breathe in the same, left, nostril and continue in this pattern for maybe another two to three times, or more.

You can play with variations. Count in six, hold six, out nine. Or four, four and eight. Or no counting, just approximating with the exhalation 1.5 to 2 times longer than the lengths of inhalation and breath holding.

Second, Nestor’s instructions use your hand in the same way. Breathe in very slowly through one nostril, say the left one, while holding the other closed with your right thumb. Then briefly have both nostrils closed by your thumb and fourth finger so you are holding your breath momentarily, then release the opposite, right, nostril and breathe out slowly. Then momentarily close both nostrils once more. Then release the same nostril again, and breathe in through the same, right, nostril through which you had breathed out. Hold both nostrils closed momentarily, then release the left nostril and breathe out slowly. Then hold both nostrils closed briefly, release the left nostril and breathe in. Continue in this pattern. He suggests up to ten cycles. The next cycle starts when you breathe in again with the original nostril, in this case the left.

He also says to place your second and third finger tips on your forehead, but that it is an option. This position is common in yoga. I let the index and middle finger rest curled down toward the palm.

The effects of these two styles are a little different I find. And there are more styles available, including in the text of the book.

Number Two: Tongue Rest Position

Nestor states to put the tip of your tongue on the top of your mouth as far back as you can go easily. Slowly draw it forward, feeling how it's a dome shape there. That's the soft palate. When you come to the front low part of this dome you are on the back side of the hard palate where, furthest down, you will find a little "speed bump" you have your tongue go over. Now the tongue is on the plateau of the hard palate. Keep going forward and you come to the front upper teeth. Retreat the tip of tongue back a little. You'll find where on the plateau it settles most easily. Then have the rest of the tongue tuck up into the soft palate dome, perhaps using a slight sucking action. Let that sucking effort go and the tongue will drop very slightly. There you are! No effort is needed to let the tongue continue to rest in this position.

Another way to obtain this resting place for the tongue is to place the forward part of the tongue on the plateau of the hard palate, as if getting ready to make a clicking sound. Then tuck the tongue up as described in the paragraph above.

Nestor says the upper and lower teeth should be lightly touching in this position. That doesn't work for me however, as it takes continuous action on my part. After I tuck my tongue up, which does bring the teeth together lightly, I let the jaw relax and drop down slightly, and no longer feel my teeth touching. If I touch my teeth with my index finger I find, however, that the upper and lower teeth are less than a finger nail's width apart. From time to time, I need to return tongue and jaw to this positioning, but it is pretty easy to keep, and of course the lips are closed.

Number Three: Sleep Taping

The author's choice of method: having ready a post stamp sized section of 3M Nexcare Durapore "durable cloth" all-purpose surgical tape, he brings his lips together. At the center he puts the tape from top of the upper lip to bottom of the lower lip. He also says others have found other ways that work well for them.

The author mentions there are a variety of ways to close the mouth for sleeping and people get fond of their choice. He notes too that the internet is replete with other suggestions and devices, including cloth supports that one can consider.

What I have been doing, and am sticking to it, is using one-inch-wide paper tape. Make sure it's paper tape, which is what health care workers use on patients. I attach one end just under my nose at the center of my mouth, on my maxilla bone. With my lower teeth held gently against my upper teeth, the other end goes down below my jaw bone. Then I put my tongue in its resting position. With the jaw supported by the tape, tongue in place, I go sleep.

If you explore other options, once again, **don't ever tape across your mouth completely. That is very important to prevent damage to the inner ears if you cough or sneeze and the air can't escape through the mouth.**

Number Four: The Perfect Breath (Aka Coherent Breathing or Resonant Breathing)

Breathe in gently for 5.5 seconds, then breathe out gently for 5.5 seconds. No pauses after an in breath or out breath. Instead, quietly allow for smooth continuous soft breathing. Nestor says to sense the breath as being a circle.

If one is sitting, have an “easily upright posture” with relaxed shoulders and belly, Nestor instructs. I'd add that standing or moving around when using this perfect breath, “easily upright posture” is good too of course. If lying down, I will, of course, already simply be in a comfortable position.

Nestor says to do this ten times at least. Have to say I find with around six times I'm ready to let it go and breathe spontaneously again, but I imagine going more will happen as it becomes more familiar.

The author states that one can breathe in for 6 seconds, out for 6 is an option with the same effects as 5.5.

Number Five: Very Long Exhale

Nestor lists this as “Breathing Coordination” in his appendix. Once again, use an upright posture for this one, and have the chin parallel to the ground, which I'd say is basically the case anyway with upright posture.

Breathe in smoothly and gently, to a satisfying extent. At that point, start counting quietly one to ten over and over. You will fairly soon go into counting with barely making a sound, then no sound with just lips moving, coming to where the lungs feel fully empty.

Take in another large yet soft breath and do again. 10 to 30 times.

With my own experience, I'm good for a handful of times, not ten yet. Ten or more will come. Nestor says to do these while sitting, then add doing this while walking or during other light exercise, which I find is a great way to engage with this action.

If the setting is around others, or I'm using this to help with going to sleep, I will skip, as the author suggests, the vocalization part and just breathe out slowly and gently as long as possible. That's a good option but counting out loud should not be dropped entirely as it seems to add an element of strengthening to the mouth and abdomen.

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