

Breathing Upgrade: Get It Right & Catch Some Serious Air – Patrick McKeown & James Nestor – #945

Dave Asprey:

You're listening to the Human Upgrade with Dave Asprey, formerly... Bulletproof Radio.

Dave:

I recently read a book that blew my mind by a guy named James Nestor, who is a real biohacker. He's a guy who's a science journalist, an author, a surfer, a free diver, adventurer, a speaker, and super into breathing. The book is called "Breath." And I will just tell you right now, this is one of the top five books of the year that you want to read if you're into biohacking, living longer, performing better, just feeling good. And his book convinced me to do some stuff that I've talked about on the show before that I wasn't doing reliably, that I am now doing. So I already owe a debt of gratitude to today's guest, who hasn't even said a word yet. So James Nestor, welcome to the show.

James:

Thanks a lot for having me.

Dave:

And you met free divers. This isn't in your book, but you met them, I'm guessing because of the work you did on whale communication and all of that, and it's part of your other science journalism work. So you got connected to the diving community that way.

James:

Yeah. I went out with Outside magazine to write a story about a freediving competition in Greece. And I didn't know too much about this, even though I'd spend most of my life in the ocean surfing or swimming, body surfing, I didn't know about freediving. I'd never done it. Didn't know anyone who did it. And I watched these people. These were ordinary looking people, so small people, tall people, large people, whatever, various walks of life, that had used the power of breathing to hold their breath for 6, 7, 8 minutes at a time and dive down to 300, 350 feet with just a single breath of air. And this completely blew me away. What they told me was, breathing cannot only allow you to do this, which is considered scientifically impossible, it can also allow you to heat your body up when you're cold and allow you to heal your body if you're sick. So pretty outrageous claims, but I had seen what freediving could do. I was there looking at it, I thought, hmm, maybe there's a larger story here.

Dave:

Before breathing blew up... See what I did there? So much in the last couple years, Patrick was on the show. I think he was my first major guest on breathing with the work he does with the Buteyko clinic. And since then this new book, which is very encyclopedic, it matches very nicely with James Nestor's book. James Nestor wrote a very, a popular science book about this. So there's a lot of just really cool stuff that's come out, says why you do this one thing right, it's probably as important as eating. So here we have it on the show. One of the world's leading breathing reeducation experts. Patrick, welcome back to the show.

Patrick:

Great to be here. Thanks very much, Dave.

Dave:

You're a bit of a crazy person. And in fact, you and James are both similarly crazy. Are you guys buddies? James Nestor and you, you must know each other.

Patrick:

Yeah. We know each other. James reached out to me about four years ago. He was writing the book for Penguin. So breath is a small world, in terms of, I think we all know each other. So it's, yeah, it's information always crosses and people, we cross paths as well. As a kid growing up I'd asthma and a stuffy nose. And if you have a stuffy nose, your sleep is really impacted, so I had fatigue, poor concentration and I was always kind of, yeah, feeling that something was not quite right, but you're not quite putting your handle on it.

So I came across a newspaper article in '97 and it spoke about the work of a Russian doctor. And he said two things. He said, breathe through your nose. And he said, breathe less air. Now this was news to me because I'll give you an example. I was at the university in Dublin and I was going, I can remember going into an exam hall in my finals and I was quite anxious going in. This was back in '96, 1995. And I took a walk for three minutes before going into the exam hall. And I took these full big breaths because that's what I was led to believe was the best right thing to do. And I walked into the exam hall totally spaced out.

James:

We know that there's so many problems associated with mouth breathing, and the science is very clear on that. Increased risk of respiratory infections, increased risk of snoring, sleep apnea. I mean, this goes on. Changes the shape of your face if you do it too much and when you're young. So when we're breathing through our mouths, you can think of the lungs as an external organ when we're mouth breathing. So they're just exposed to everything in your environment. If you live in a city like I do, that means pollution. That means pollens. If you're in an enclosed space with black mold or other problems, that means dust. So our noses have all these hairs and cilia and different structures to filter gunk out. That's what they do. And by breathing like that, you get none of those benefits of filtration. That's the first big problem.

But what it does immediately is, mouth breathing, you're going to be breathing into the upper part of your chest, which is much less efficient, which means you need to take more breaths to get less oxygen so your... your heart rate's going to go up, you're going to place yourself and do a sympathetic state where your stress levels are going to go up. And all of this has a downstream effect on your ability to think, on your ability to exercise, on your ability to basically do anything because we take about 20,000 to 25,000 breaths every day, it's on the upper end, but we can take that many breaths a day. And if you're taking those breaths inadequately or inefficiently, it's going to catch up with you. The body will compensate for some of that time because our bodies are really good at it, but that doesn't mean we're healthy. And after a while, it's just going to break you down. So it's so many people have chronic sinus. I think it's like 25% of the population. So many people are mouth breathing. So many people have asthma that we've accepted this as completely normal.

Patrick:

So when I came across the importance of nose breathing, I started using the nose and blocking exercise. It worked. So I knew there was something in it. I started breathing less air and the temperature of my

hands increased. So I knew there was something in it. And then I taped my mouth that night and I used breathe right strips as well to keep my nose open. The first morning, I don't remember much out of it. The first morning, was it good or bad? I don't know. But I kept sticking with nasal breathing during that day. And I taped my mouth closed again the second night. And I woke up the second morning and it was the best night's sleep that I had in 15 years. I think with snoring and with sleep, 50% of the adult population wake up with a dry amount in the morning. And if you wake up with a dry mouth, you are not waking up feeling refreshed.

I just feel that breathing has been too left of field and it hasn't been put out there properly. I really need breathing to be taken seriously. And the only way it's going to be taken seriously, if we can support it. And if we can support it with whatever science is out there. And granted, science does tend to like breathing in terms of it's not getting major funding, et cetera. But at the same time, there's information about breathing that's been around for a hundred years, but it has been buried in PubMed. And it's really important to get this into the hands of the general public. Like you spoke about kids, female breathing, the male population, it really has application for everybody.

And I suppose, Dave, I'm working now with elite police forces, SWAT, Navy SEALs, air forces, Olympians. And when you see high performance individuals taking it on board, you know, there's something in it. And it's great to see it getting out there. But at the same time, yeah, the book I had to show that there's a lot of science supporting this. This is not just something that's taught by a load of hippies, lads going around with robes and beads and sandals and everything. No, no, no. This is something we have to start taking seriously.

James:

So as far as our teeth and our faces are concerned, you start off researching a subject and you think you kind of know your way around where the research is going to lead you. When you're writing nonfiction, you write a book proposal. I say, I got this thing figured out. And then you're thrown such like this hard left turn. And I had to ditch about six months of research because I'd learned that so many of the problems that we're suffering from, from breathing, aren't just psychological, they're anatomical. And they've happened to us in just the last few hundred years. I know that seems crazy, because a lot of people think that evolution is just progress, progress, progress, survival of the fittest. It's totally not. Evolution means change. And just look at the human face and human skull and you can see what I mean.

I spent months looking at ancient skulls and it will really spook you out. Not only because they're skulls, but because they all have perfectly straight teeth, they have these very wide jaws, these very flat or very pronounced faces, wide faces. And by having those faces and having these pronounced jaws, they had larger airways. So the reason why humans have crooked teeth, this is something I had never thought about, everyone I knew had crooked teeth, had braces, extractions, all that crap, because our mouths have grown so small the teeth have nowhere to grow. So they grow in crooked. Having a small mouth also means we have a smaller airway, which is one of the main reasons so many of us suffer from sleep apnea, snoring and other breathing issues, is because our mouths are so small.

Patrick:

And we shouldn't just think of breathing as being, it's this one silo. And that's the way it is because the issue with breathing is that we are trained according to a tradition. And I was trained originally according to the Buteyko tradition. I cannot change the Buteyko method. Of course, I will tweak it here and there as best I can with my own students. However, with the oxygen advantage, I set it up that it was not going to be constrained by any tradition. It was free to embrace all traditions. And it wasn't just

for part of yoga, but it was for performance-based because I wanted to get a technique out there that men would do and that men would embrace. And that's very important.

I remember I was giving meditation and mindfulness, mindfulness and functional breathing patterns back in 2010 to 2013. Ireland was a mess with anxiety as a result of economic crash here. And I gave small classes to 3000 people over a course of two or three years, 90 to even 95% of people who attended were females. And I remember thinking, where an earth are all the men? Because it was the men who were dying most by suicide, but yet they wouldn't embrace breathing and they were stuck in their heads drowning in thought. And that's part of the reason why we brought out The Oxygen Advantage. I wanted something that was for the common and the normal person and not just use breathing as a means of training the breath for performance, but training the mind. Because if we can train the mind, that's the filter through which all of life's perceptions are realized. And it's very important to know how the mind work.

And I'm going to say is mindfulness does not work for the very group of people who need it the most. Because if you have a lousy sleep pattern and if you have dysfunctional breathing, you can do all of the mindfulness in the world. It was developed two and a half thousand years ago. Mindfulness is wonderful. And I have to say that because I've done it and I've done the Vipassana courses. Absolutely wonderful. It's not sufficient.

Dave:

What? So we haven't... we don't have the studies on expanding the palate, but we do have studies on breathing through the nose and oxygen in the brain. What do those studies say?

James:

Well, breathing equivalent breaths through the nose than through the mouth will increase oxygenation about 20%, you get 20% more oxygen. And that is a combination of nitric oxide, because we produce a perfusion of nitric oxide in our noses. We can increase that 15 fold by humming. And it's also that because it slows air down. A lot of people think, well, why do I want to slow air down? I need more oxygen. When you over breathe like this, and everyone can try this, breathe like a pervert for a little while, you're going to feel some tingling in your fingers, you might feel some tingling in your toes, you're going to get lightheaded. That is not from an increase of oxygen to these areas. It's from a decrease of circulation. So the idea that breathing more is going to bring more oxygen to your hungry cells is completely false. You need to breathe in line with your metabolic needs, which almost always means breathing less than you think you should and breathing slowly.

So by breathing through the nose, right? There's a vacuum going in and positive pressure coming out. You're slowing down air. You're increasing the pressure. You're giving your lungs more time to extract oxygen. You're also breathing lower, and the lower lobes of the lungs have more blood in them. Blood is gravity dependent. So in those areas you can extract more oxygen as well. So people have known this. Researchers have known this for decades. We've known that having the right amount of carbon dioxide and oxygen is essential to be running most efficiently. And Yandell Henderson at Yale was doing these studies a hundred years ago. But what was so bizarre to me is to stumble across this, all of this science, which nobody has refuted, okay? And then you bring it up to a pulmonologist. My father-in-law's a pulmonologist so he was with me along this entire journey, we were passing studies back and forth. He'd never heard of any of this stuff.

And this is not pointing fingers. He's amazing at his jobs, but he's dealing with pathologies. He's cutting out stuff from lungs. He's dealing with people with emphysema. He's dealing with people with COPD. He's not looking at people who are trying to maintain health in certain ways. And even the

breathing patterns that I was mentioning to him, I was like, look at what happens to circulation. Look what happens to your heart rate, your heart rate variability by just breathing in these certain ways. This was completely news to him because in his profession it's, are you breathing or not? If you're breathing, that's good. If you're not, that's really bad. And they're great at what they do. Same with ENTs, have transformed so many people's lives. So again, there's no finger pointing, but it's not binary. Medicine's not binary. If you're looking to maintain health and prevent yourself from getting sick at any time, breathing has to be considered. It's a core part of that along with what you eat, how you sleep and how much you exercise.

Dave:

In your book you talk about reducing the rate of breathing to between 4.5 and 6.5 times a minute, right, or number of breaths per minute. How do I know if 4.5 or 6.5 is right for me? And how does it apply to teenagers or perimenopausal women? I mean, there's all these different groups.

Patrick:

Yes there are.

Dave:

And that's a relatively large range. So how do we know how much to breathe?

Patrick:

You don't. I'm not saying that the respiratory rate all day, every day should be that. What I'm saying is take 10 minutes twice a day or 20 minutes twice daily and pay attention to your breathing. You could choose a good average of six breaths per minute, breathing in for five seconds and breathing out for five seconds. And this helps to strengthen the baroreflex, which is a very important function within the autonomic nervous system. It's the sensitivity of your baroreceptors to changes in blood pressure. I'll keep it simple. Our major blood vessels have pressure receptors, so you're talking about the aorta and you're talking about the carotid artery, and the pressure receptors are continuously monitoring our blood pressure. When blood pressure increases, the baroreceptors respond by sending immediate signals to the blood vessels to dilate and the heart rate to come down. And conversely, if blood pressure drops, the baroreceptors send immediate signals for the blood vessels to constrict and the heart rate to increase.

And as the sensitivity of our baroreflex, which is so important as an indicator of the functioning of the autonomic nervous system, it's the sensitivity of the baroreflex which is influencing the vagus nerve and vagal tone then is evident by heart rate variability. So the research over the last 30 years coming from Sapol, I never pronounce his name right, Laver and others, that you're slowing down the respiratory rate that you can help to strengthen the baroreflex. And when you look at people with chronic conditions, people with either emotional issues or they're physically unwell, they typically have reduced heart rate variability. And now that people are wearing wearable devices, which is very good, it's giving them feedback of their HRV, but the real question to ask here is how could you optimize your HRV? And that's when nose breathing during sleep, breathing light, even though when you breathe light and you feel our hunger, your HRV can dip, but after the exercise, your HRV will increase.

Breathing slow, and breathing low. And that's why I brought together the acronym LSD, light, slow and deep breathing. And here again, David, or Dave, people focus on one dimension. If you go down to your local studio, the focus may be on the biomechanics, but not necessarily looking at the biochemistry or resonance frequency breathing. If you go to your heart rate variability instructor,

they're focusing on resonance frequency breathing, but they're not looking at the biomechanics or the biochemistry. And again, we have to look at the breath, and I'm not here to complicate it. I was teaching the biochemistry for 15 years, and then I realized, oh my God, I'm stuck in this tunnel vision. I really have to start broadening here because the breath is deeper than just one dimension.

James:

So throughout the day, there's something called the nasal cycle. Every about 30 minutes to three or four hours, you will be right nostril dominant, meaning that that nostril will be more open and breathing will be more easy, or you'll be left nostril dominant. So I am much more right nostril dominant right now. So our bodies do this automatically. It's this amazing thing. One nostril opens as the other closes.

Sometimes they both feel like they're open. It's very subtle, but other times you'll notice throughout the day that it's pretty pronounced. One will really be closed up. And that's not because of congestion. That's because of this erectile tissue. So they were doing Freud was all into this stuff. He thought sexual neurosis were tied to the nose. So he would have patients go in and drill out their noses, some pretty gnarly stuff.

But some science that did not make it into this book, because it sounded too sketchy, is they used to administer cocaine to women with serious PMS, they felt great. Who would've guessed? But sometimes they would remove some tissues in there and they would suffer much less symptoms of PMS. And they did tons of studies on this stuff. But that was just getting too far out in the weeds. What you do need to know is everyone has this erectile tissue and it's definitely serving a purpose, which is one of the reasons you should be breathing through your nose and not through your mouth, because your mouth has none of that stuff.

Dave:

So you breathe through your nose, it increases nitric oxide, which increases vasodilation, which increases erectile tissue, both in men and women in the sex organs.

James:

Yeah. And if you look at Viagra, what does Viagra do? It releases more nitric oxide, which creates more vasodilation.

Patrick:

This carbon dioxide is not just this bad guy that's out there, it's not just this waste gas that you read in every newspaper and magazine and everything else. Let's look at the functions of carbon dioxide. I'll tell you that I had cold hands and feet for decades. And it so common that people with-

Dave:

I did too.

Patrick:

... dysfunctional breathing have cold hands and feet. And I've used this with thousands of people. Gently slow down the speed of your breathing for short pockets, not by holding the breath or tensing the body, just by softening the speed of the airflow coming in and out of the nose and allow carbon dioxide to increase a little in the blood. You feel air hunger and the body is very sensitive to that increased CO2.

The feeling of air hunger is not because your oxygen has dropped. Your oxygen has to drop by 50% before that stimulates your breathing.

So when you breathe a little bit less air and you feel air hunger, it signifies that carbon dioxide that is increased in the blood. What is happening when you expose your body to an increased CO₂? You stimulate the vagus nerve. You know you're stimulating the vagus nerve because you'll have increased watery saliva in the mouth. You'll also go drowsy. That's why we use this as a down regulator before sleep, but it influences your blood circulation. 70,000 miles of blood vessels in the human body. We can help to dilate them. It influences oxygen delivery. It helps with the airways.

What I really want to do is improving functional breathing patterns. And this of course can be assessed by using a simple tool called the bolt score, your breath hold time. And the bolt score, I know it may be shocking for many people when they're measuring their own, but don't worry about what you get. But for people to give it a go, you take a normal breath in and out through your nose and you pinch your nose with your fingers and you time it. How long does it take until you feel the first definite desire to breathe or the first involuntary movement of your breathing muscles. So it's not the maximum length of a breath hold time. It's a physiological reaction to breath.

Now, Professor Kyle Kiesel from Evansville University did a study of 51 individuals in 2018. And his conclusion was that if your breath hold time is above 25 seconds, there is an 89% chance that dysfunctional breathing is not present. Now, I have met eight, 9,000 people working with them with breathing. And I will say that the vast majority of them were less than 25 seconds. Typically when we have an athlete coming in, they're about 20 seconds and our goal is to get them up to 40 seconds. And then you'll have people with anxiety and panic disorder. Their breath hold time could be down to 10 seconds. Let's just even look at this population. 75 to 80% of the population with anxiety and panic disorder have dysfunctional breathing. 75% of them.

Dave:

Wow.

Patrick:

They're in that fight or flight. It's not that they're having a panic attack. It's just meaning that their breathing is a little bit faster, it's upper chest breathing, they may have irregular breathing, they have their mouth open maybe at night. And this is feeding into their anxiety.

Dave:

Standard box breath for Navy SEALs is five seconds, but you had a more precise number. What is the ideal number of seconds for a breath and where did it come from?

James:

So I'll have everyone do this and then I'll explain what's happening to your bodies while you're doing this. So you can just calmly exhale, inhale to a count of about five or six, don't stress if you're a little off. So 1, 2, 3, 4, 5, 6, exhale to six. Just do that on your own. Just very calmly, don't push it. This isn't a competition. So some Italian researchers, about 20 years ago, they brought a bunch of subjects into a lab and they had them recite the Ave Maria and then they had them recite, Om Mani Padme Hum, which is a famous Buddhist mantra. And they noticed that both of these prayers locked into the same respiratory rate. It's about five to six breaths per minute, about five and a half seconds to inhale, five and a half seconds to exhale.

And they notice what happened to their bodies when they were reciting these prayers, because when you're exhaling, you're vocalizing, then you have time to inhale very slowly, is their bodies entered the state of what they called coherence, where everything was working at this peak efficiency. So oxygen increased in their brains. Circulation increased. Their heart rates lowered. Blood pressure lowered. And their brain waves, and this was found in later studies, were able to enter this state of synchrony where everything was working at, again, at the state of coherence where everything could function more efficiently. So the second that these subjects stopped praying, stopped breathing this way, it all went to hell. So spontaneously talking just like we're doing, my heart rate variability is probably not going to be very good. Blood O2, probably not going to be very good. But you don't need to pray to do this. That's what they found out. You just need to breathe at this rate. So about five to six seconds in, five to six seconds out.

And since then, Dr. Richard Brown at Columbia has used this for patients with anxiety, depression, anorexia, 9/11 survivors, on and on and on because it allows you to enter into that parasympathetic state where your body can naturally heal itself. And so many of these populations are breathing too much. So it seems so simple that people are probably like, there's no way this is going to do anything. Get your pulse socks out, get your heart rate variability out, get your blood pressure monitor and take it before and after and see for yourself. So many psychiatrists and psychologists and doctors are now using this very simple breathing method.

Patrick:

I was surprised that there has been absolutely no mention of the importance of nose breathing. And when we think of the gas nitric oxide, first discovered in the exhale breath in the human being in 1991, it's antiviral, it's antibacterial, it redistributes the blood, helps to redistribute the blood throughout the lungs, it increases the pressure of oxygen in the blood by 10%. There is a way to breathe to improve your SpO2. And that's not by breathing fast and shallow, but it's by breathing nose slow and low. Because every breath that we take, the last 150 mil of air doesn't reach the small air sacs in the lungs, it stays in dead space. And if you have an individual who is breathing rapid, fast breathing and shallow breathing, they are leaving so much more air in dead space and less air is reaching the small air sax in the lungs for gas exchange to take place.

Dave:

Patrick, your new Breathing Cure book is going to be a Bible of breathing. I think everyone who listens to this show and has for years, we're always looking for things that make us perform better and things that are broad spectrum. And there's some books that you really ought to have on your shelf. And when it comes to breathing, there are two really important foundational books out there. And The Breathing Cure book that you just came out with is, it's an encyclopedia. It's got all the stuff that you'd want to know about it. That's one of them. The other one is James Nestor. And James has also been on the show. He's a friend as well.

And if you have those two books together on your shelf, you're going to just sit there and go, wow, I get why and I get how. And there's some why in both books. They're both worth your time to read. And I will just tell you if you read my book, The Bulletproof Diet or any of my other nutritional books, air is as important as food. And you're the guy who first turned me on how important this was about 400 episodes ago. So my personal thanks to you for that.

Patrick:

Yeah, no, Dave, and thanks so much for you as well, because this is how the information is getting out there. So I'm very grateful. It's been great. Enjoyed talking to you.

James:

So I think the best place to connect with me, I'm trying to get better at the social media thing, I still pretty much suck at it, but I'm on Instagram at Mr. James Nestor. That's my handle across the board. And my website at mrjamesnestor.com has breathing practices, has all of the references, has a whole bunch of interviews with experts just specifically about the benefits of healthy breathing.

Dave:

James, thanks for your work in the world. Guys, you need to read this book. It's so important. Have a beautiful day. Thanks for writing this.

James:

Thank you very much, Dave. Really appreciate it.