

Breathing Essentials That Will Change Your Life – James Nestor with Dave Asprey – #751

Announcer:

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Dave Asprey:

You're listening to Bulletproof Radio with Dave Asprey. Today is a show that I am so excited to do because it's something that has been a core part of the Bulletproof lifestyle and something that I've been interested in for years, but something that I feel like maybe we haven't talked about enough in the world of biohacking. And in case you're wondering why I'm sitting here looking really weird, we're talking about nothing other than breathing.

And there's all kinds of times I've talked about maybe doing a box breath, I've even taught some breathing meditations in some of the online challenges that I've done, but going really deep on carbon dioxide, on nitric oxide, on oxygen levels is something that I learned about, oh, maybe 20 years ago, 15 years ago, with a device that I'm wearing right now. If you're watching on YouTube, I'm actually holding up a CapnoTrainer, which measures the amount of carbon dioxide and CO2. I'm going to take this little nasal cannula off because it's irritating.

And when I first tried this off, I didn't really know what I was doing. This was at the very beginning of my journey on this, but I've done Art of Living for a long time, yet there was something missing from the story, from the physiology. I know that there's super powers from breathing and there's so much weird information where it sounds good, but then it doesn't work and all that. And 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. I already owe a debt of gratitude to Dave's guest who hasn't even said a word yet.

James Nestor, welcome to the show.

James Nestor:

Thanks a lot for having me.

Dave:

Your new book, Breath, it's called The New Science of a Lost Art, it had all the best seller lists, LA Times, New York Times, Wall Street Journal. So, it's already successful, but I feel like you had a very long path to get there. I mean, you talked to all the crazy people around the planet, you went to visit them, you have crazy Swedes hanging out at your house. And before we get into the nuts and bolts of breathing, I want to know what made you so interested in this one area of ancient wisdom when there's so many directions. I mean, you could be a Qigong master. I mean, you went so deep. Why breathing versus any other path?

James:

I never set out to write a book about breathing, it's just I kept stumbling upon research and stories over several years until finally there were enough of them to convince myself that this was something worth exploring. It really started when I went to an Art of Living course-

Dave:

[crosstalk 00:03:23]. That's right.

James:

Oh, yeah, and I did the follow-up course. So, the course was cool. I enjoyed it. I didn't feel too much from any of the breathing techniques. And then I did a follow-up course when I was really stressed out. My house was falling apart. I was rebuilding my house. My job was stressing me out. So, I rode my bike down to this old room and sat cross-legged in this cold room with 12 other people sitting around in this circle. And I started breathing along with Sri Sri and just in this rhythmic pattern, nothing really special. And I broke [crosstalk 00:03:59]-

Dave:

You did it with Sri Sri in the room or just with him [crosstalk 00:04:01]-

James:

No, via a cassette tape, not even a CD. This is-

Dave:

Yeah, cassette tapes. It's always cassettes.

James:

For some reason they love the cassettes. I love the hiss along with that analog hiss. So, I'm breathing along with him just thinking, "I can't wait till this is over with. I'm going to go grab a burrito, going to grab a beer." And I broke into the sweat, that was the most extreme sweat I've ever had in my life far more than when I was working out, jogging, boxing, whatever. My hair was sopping wet. My tee shirt was sopping wet. I had sweat lodges on my jeans. So, other people in the class saw this and afterwards they said, "What happened to you?" And I wasn't sure what happened. I asked the instructor and she said something about prana or energy.

But I went back to my doctor who actually, she was the one who told me I should check out a breathing class because I'd been having so many respiratory problems, pneumonia and bronchitis. And I asked her what had happened and she had no idea. She said I must have had a fever or I must have been wearing too many clothes. She had no, no clue, and she didn't really want to understand it. So, as a journalist I filed that experience away, because I didn't know what to do with it. I wasn't going to write a memoir about breathing. How lame would that be? But it was really until I met free divers who showed me the true potential of where breath could take us and really opened that door.

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 free diving 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 free diving. I had 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 six, seven, eight 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 can not 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 free diving could do. I was there looking at it, I thought, "Maybe there's a larger story here."

Dave:

And you tell part of the story, in fact, very effectively in your book, and just as a fellow author my compliments for the job you did just in terms of making the book accessible. I played it with my kids. You know, when you get an 11 year old and a 13 year old saying, "What's happening? Daddy, I'm going to tape my mouth closed when I go to sleep tonight," it's not something you hear very often. By the way, if you're listening and going, "What the hell?" We're going to get there. [inaudible 00:06:57].

James:

We need a big caveat before we get into that, but don't call the cops yet. Okay?

Dave:

Exactly.

James:

[inaudible 00:07:05].

Dave:

And for long time listeners, we've actually had the Buteyko Breathing guys on the show maybe about a year ago talking about that kind of breathing, but for new listeners, and there are lots of show, it's really growing. And it reaches a couple million downloads a month now. So, it's big. But if you're new to this, just stick with it because there's going to be references to stuff that's in your book or stuff that I've talked about at various episodes that you might not have heard, and that's okay. And if you're saying, "Dave, you're repeating yourself," yeah, that's because you've listened forever. So, you guys are going to have to just deal with that.

James:

So, you screwed both ways then?

Dave:

Exactly. Because this is a really complex topic. Your book is the preeminent book on breathing that I've come across. And I mean, I wrote the forward for Sri Sri's head trainer for the Art of Living, I did those breathing exercises for five years. And like you, I couldn't explain it. And I'm regretting, after I read your

book, about maybe five, six years ago, a guy named Chris, if memory serves, who is a free diver, reached out like four or five times, "Dave, you need to talk to free divers. You've got to have someone on the show for that." And I just never got around to it. I was like, "This is interesting, but like there's so much going on." And when... I was like, "Oh man, I missed that one," but you landed on it and you went so deep.

You started out with a question mark as a science journalist like, why did this happen? And you filed it away, and it percolated for a while. Similar, in some cases to me [inaudible 00:08:36] Mount Kailash in Tibet I'm like, "Why do I feel different after this weird butter thing?" And eventually something came of it. So, you connected with the free divers, you saw super powers in action, you saw lots of people and had some experiences sweating, and that drew you into this, but I want to talk about sinuses.

Because you open your book with that. And I have maybe never said this on the show, I was three days away from scheduled sinus surgery when I figured out what to do on cleaning out my sinuses and avoiding the surgery. It was a book called Sinus Survival, but it wasn't about breathing through my nose. Walk me through what you did, especially the measurements of the thickness of bone in your face to fix your sinuses before we even go into the rest of the breathing stuff you did.

James:

I just want to be very clear. Some people absolutely need surgical interventions with their nose, they're completely messed up, but from what I learned from the top researchers in the field is most of us don't. So, when an ENT says, "Okay, I've looked at your scan, you have a deviated septum. We need to put you right into surgery right now." 75% of the modern population has a septum that is clearly deviated to the naked eye. So, you should maybe step back and try some less invasive techniques. You know, that will be less profitable for them, but could save you from a lot of trouble.

So, I started working with the Chief of Rhinology Research at Stanford, guy named Dr. Jayakar Nayak, we had several interviews, Stanford's pretty close to my house here in San Francisco, so I just cruised down there and we'd have these three hour lunches. And he kept telling me about all the wondrous things that the nose does. So, it filters the air, humidifies the air, pressurizes the air, and it's really our first line of defense.

And he also told me something that was pretty shocking to me was that about 25 to 50% of the population that's on the higher end are chronic mouth breathers. So, we don't use our noses either because we can, because they're always plugged up, or we just choose not to. So, I asked him, I said, "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. It changes the shape of your face if you do it too much and when you're young. So, no one's arguing that, but nobody knew how quickly it came on.

So, I asked him, I said, "Well, why don't you... you're at Stanford, man. Why don't you test it?" And he didn't know how. He didn't have money allocated. So, I mentioned, I said, "Well, what if I get myself and one other person to do an experiment?" And he was all game for it. So, we spent 10 days with silicone of our noses to just be breathing through our mouth. And the point of this wasn't to do sort of jackass supersizing stunt, it was just to lower ourself into a position that so much of the population was already in. So much of the population is mouth breathing. The difference was, we were calculating exactly what was happening to our bodies every minute of every day. Well, not every minute of every... often, three times a day, we were [crosstalk 00:11:47]-

Dave:

Crazy amounts of data.

James:

Yeah. Crazy amounts. So, that was it. We knew it was going to suck. No one was kidding each other that this was going to be a pleasant thing, but we didn't know it was going to suck so hard so quickly. So, my blood pressure just within a few hours shot up about 15 to 20 points, just off the bat, into serious stage two hypertension. So, that was bad. Then I went to bed that night, I started snoring, and I had not been snoring at all. And a few days later, I was snoring for about four hours throughout the night. I had sleep apnea. We were totally stressed. We couldn't focus on anything. I mean, our heart rate variability was just in a gutter. It was a complete disaster to the point that after about five days, I looked at Anders Olsson, who was the other participant in this study, like, "I don't know if I can do this for another five days," but we did and it just got worse.

Dave:

It got worse, and when I read that part of your book, I was like, "Man, you just explained my childhood." I grew up in a basement that had toxic mold. I had sinus infections every month for 15 years. I'd go on antibiotics for them, which wrecks your gut, but so I remember also I would get these chronic nosebleeds and I must've been maybe 10. And when I say chronic, I mean every day my nose would bleed and I became a little bit paranoid because it's like sitting in class and there's like blood coming out of your nose. It's just not cool.

So, I just decided I'm not going to blow my nose anymore, as a child would do, so I went for at least a month with fully clogged sinuses, but I didn't know what that was doing for my teeth and for my jaw and even for my brain. What happens to you when you do not breathe through your nose at all for a period of time like that? Just walk listeners through that.

James:

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. So, 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 into 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, and it's not. And the science is very clear what damage this is doing to us as a population.

Dave:

As we said that, I opened my mouth to take in a breath. When I record podcasts, I spend all day pretty much on video and audio, and I've become more aware of breathing in through my nose even when I'm doing that. You just don't want to sniff into the microphone. It's something that after your, after listening to your book and reading your book, I did both, I did become much more conscious of just consciously during the day breathing through my nose.

And I experimented after I had the Buteyko Clinic guys on the show. I experimented with a lip seal tape. I actually sent it out in a box, I do like a box every quarter, curated Dave Asprey box of just cool stuff that I find that people get a discount on, and I sent it out to people, but I'd only used it three times because I knew the science, but my nose has always been a little bit gunky, it's pretty good, but it was that reinforcement and your storytelling that got me to go, "You know what? I'm just going to deal with it, that the nose will open itself up in a way that I had heard on the show," but I just hadn't executed in my own life.

So, I will tell you that for the past maybe three months now, I tape my mouth every night when I go to sleep, which sounds super crazy. If you're listening to this, I'm not kidding, read "Breath" and you'll understand why or listen to the other episode and listen to this episode. And it has profoundly improved my sleep quality in a way that is weird. But you talk about how mouth breathing is bad, but you didn't talk about teeth and facial structure. What did you find breathing did for teeth as we develop and as adults, and what did you do to your own teeth and sinuses to change them?

James:

First of all, with the sleep tape thing, this sounded, I just want to address this real quick, this sounded completely sketchy to me. And then I went on YouTube and it looked even more insane. I said, "There's no way I'm ever going to do this," but then when I was at Nayak's lab, I went across the hallway and saw a breathing therapist, Ann Kearney, doctor of speech, language pathology at Stanford. I was talking to her, just shooting the stuff about various things, and she's a sleep taper. She prescribes it to all of her patients.

And she told me that she was slated for nasal surgery because she was like, "I've been a mouth breather my whole life. I can't breathe at all." And she thought she knows about the nose, she looked at various people, 20 different people who had laryngectomies, the hole drilled in their throat, and noticed from two months to two years their noses were completely clogged 100%. So, she viewed the nose as a use it or lose it organ.

And so she tried using sleep tape herself and she thought, "Oh my God." After 10 days she could breathe through her nose. Now she's an obligate nasal breather and is really preaching this. So, after I talked with her, I talked to Dr. Mark Burhenne, who has been prescribing this for years and years to all of his patients and so many other people. So, don't go on YouTube, don't look at what people are doing, talk to the experts in the field, but it's a known thing. The more you breathe through your nose, the more you're going to be able to breathe through your nose. And that has massive benefits.

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 said, "I got this thing figured out." And then you're throwing 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.

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 because everyone I knew had crooked teeth, had braces, extractions, all that crap, because our mouths have grown so small that 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 reason so many of us suffer from sleep apnea, snoring, and other breathing issues. Is because their mouths are so small.

Dave:

My upper palate used to be much smaller than it is, my lower jaw was further back than it is. I didn't have a square jaw. After I figured out the Bulletproof Sinus Rinse and 10 times a day I was washing my sinuses out and really focusing on this, I found a guy named Dwight Jennings, who's one of the first couple hundred people on this show. And he went in, as you described in your book, he made a custom splint that expanded my upper palate, took about two years, I wore it 24/7, and allowed my lower jaw to come down and relax and move forward. And it opened up my palate and restructured my face without surgery.

Now, I didn't measure the thickness of bones in my face the way you did, but I've talked about this, even in my last anti-aging book, and I've always felt like such a crazy person saying, "No, seriously, the shape of your jaw and how your teeth hit affects how long you're going to live." But I didn't have the connection between nasal breathing. I should have put it in my anti-aging book, but I didn't have it down, and shame on me because I had heard about this from the Buteyko guys, I just didn't know the connection between breathing through your nose and having a big palate and having straight teeth. And I'm so grateful I get to teach my kids this now.

And what did you do to fix your face given that you and I both were not nasal breathers when we were young?

James:

Yeah. I wish I had known this stuff growing up too, it would have saved me a lot of grief. But what I did is I took a CAT scan and Nayak looked at it and started cracking up, which is not something you want a doctor to do while looking at a... He's like, "You are a complete mess." I've broken my nose like three times, deviated septum, like all kinds of problems. He's like, "You're a perfect candidate for surgery. Let me fix you." I said, "No, no, no. I want to try to do this another way."

There's a lot of confusion as to why having a plugged nose or different growth patterns in the face would affect nasal breathing. Like why would having a small mouth affect your nasal breathing? And it turns out that this upper palate, and if you have a clean thumb in the age of COVID, use a clean thumb, you can put up to the top roof of your mouth, the upper palate, and that palate should be pretty flat. If you're like me, it's not flat at all, it juts way up. So, that is called a V-shaped palate and a high-arched palate, they call it various names. And when the palate doesn't fall correctly when you're younger, which it did not in my face, it stays up too high, which can impede the flow of air coming in through your nose. It actually interrupts the flow of air into your nose.

Dave:

If you have a ridge down the middle, that's essentially the bottom of the V. So, if it's higher on either side, that's what you're talking about?

James:

If there is a large indentation, when you're looking at [crosstalk 00:23:21]-

Dave:

On either side or in the middle?

James:

Right in the middle.

Dave:

Okay. Got it.

James:

And it's interesting, you look at ancient skulls and it's almost flat. Their upper palates are almost flat and extremely wide. When you look at modern skulls, they're very, very high up because their faces, their mouths, are so thin now. This is something that Dr. Mark Burhenne told me. This is so important when you're younger, it's really easy to change this, right? Correct oral posture, chewing, other correct breathing. This can all affect how your face is going to look. So, if you don't care about your health, a lot of people care about how they're going to look then maybe pay attention to that, but when you're older, it's hard. You're an adult.

Youth was a million years ago for me, what can I do? But I managed to meet some people who had sort of taken a very old technique and used it for more modern purposes. What I mean by that is the first orthodontics, functional orthodontics, weren't meant to crane teeth in, and there weren't headgear, they expanded the mouth.

The problem with having a mouth that's too small for your face, it's the teeth growing crooked. So to me it makes perfect sense to expand that mouth, that upper palate, make more room for the teeth to grow and straight, you also make more room for the airway. You breathe better. So, they've taken this technology or this philosophy and have used it for adults.

And I used one of these devices. I was just curious, I had seen the science, I'd seen the case studies, dozens and dozens of case studies of huge airway growth in these people after a few months. So, I wore this device for every single night, I won't say it was the most pleasant thing in the world. On my upper palate had a little dowel screw in it. And it very slowly opened up that upper palate. There's a suture right in the middle of that upper palate that can gently split open.

And even in adulthood, and not only does it increase your airway size, but it can also add bone to your face. We're told after 30, we can't model new bone. Wrong, we can in our faces.

Dave:

Right. You can do it elsewhere too, you just have to have the right stimulus. And it involves bone flexion, which raises bone morphogenic protein. And your little dowel was flexing the bone. In my case, I had a custom made little metal thing. And every about four weeks I'd go in and he'd remake it and just keep pushing. And I think it was one of the things that turned my brain back on it. It was an important part of me recovering from all the toxic mold exposure. What I didn't know until I read your book though, was the effect of that in combination with nasal breathing on oxygen in the brain.

Because even though I fixed all the holes in my brain with Dr. Daniel Amen Brain Scans, the things that were caused by toxins, I still have less blood flow in my brain than I'd like. And in your book, you talked about changes in oxygen and changes in blood flow to the brain just from nasal breathing. And presumably from having enough space in your palate there. How long does it take for people to see a brain change from either expanding their palate or just from breathing in their nose?

James:

I don't think anyone has done any studies on looking at brain blood flow and palatal expansion because this stuff is still considered fringy, it won't be [crosstalk 00:26:49]-

Dave:

Oh, yeah.

James:

I promise you.

Dave:

It's real. Well, you just [crosstalk 00:26:53]-

James:

Moving in this direction.

Dave:

You let the cat out of the bag. I mean, any doctor who reads your book and there are lots of doctors listening to the show and seriously, guys, you have to read this, it'll change your practice, is going to look at the hard data that you put out there and say, "Wait, maybe I should look at this." We don't have the studies on expanding the palate, but we do have studies on breathing through the nose and oxygen and the brain. What do those studies say?

James:

Well, breathing equivalent breaths through the nose then 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 profusion of nitric oxide in our noses. We can increase that 15 fold by HME. 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, 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.

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 100 years ago, but what was so bizarre to me is to stumble across this, all of this science, which nobody has refuted, 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, that they've 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:

I would absolutely double down on what you just said, and why there's a couple of different directions we can go here, but you talked about nitric oxide and breathing through the nose. Tell me about the weird connection I did not know about between your sex organs and your sinuses.

James:

This is another thing that I stumbled upon that I just was not predicting in this long and strange journey of writing this book. So, it turns out that there is one organ more closely connected to your genitals than any other, and it is your nose. Because our noses are coated with erectile tissue, the same erectile tissue on your nipples, same erectile tissue, as you know where, and they act the same way. So, our erectile tissue in our noses engorges with blood or it becomes flaccid and opens up.

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. I'm much more right nostril dominant right now. 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. 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 have 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 and 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. And you can release a lot more nitric oxide in your nose by humming. I don't know if there's been any long range control studies looking at humming and sexual performance, good luck getting that one funded, but it would be interesting to see. 15 fold increase is not small, is not minor.

And there was one study this guy did, who had chronic sinusitis, which is caused by a virus or a fungus, and he hummed for a select amount of times every day. He would... for a few minutes a day, and he was able to completely get rid of his chronic sinusitis. This was N-1 study, so don't run out and start humming and saying that this is the prescription for everyone with sinusitis, but it is interesting that nitric oxide, guess what it does? It interacts directly with viruses and with bacteria and with funguses, it kills them.

Which is why Louis Ignarro, who won the Nobel Prize in the 90s for his work with nitric oxide believes that just breathing through the nose that nitric oxide could help STEM sum of a huge viral load of COVID. And another reason to do that.

Dave:

I got a lot of crap when I posted on Instagram this thing called Mask Mouth, because when you have a mask on even just an N95 or one of those cloth masks that actually doesn't do anything according to the latest research, but they cause you to naturally mouth breathe because there's more pressure to suck things in. And anyone listening to this, if you're wearing a mask right now, are you breathing through your mouth? The odds are almost certainly high that you're doing that. So you have to really consciously remember to nasal breathe in a mask.

So, they're seeing more cavities, more sinus issues. And one of the studies shows that especially cloth masks, which have more back pressure and less filtration, increase your chances of getting respiratory illness quite a lot. I think it's because you're breathing through your mouth, not through your nose. And I'm thinking that because of your book, to be perfectly honest.

James:

Well, we know there's direct links between mouth breathing and cavities. Dentists who have been working on this, again, I'm going to quote from Dr. Mark Burhenne, he believes the No. 1 cause of cavities is mouth breathing, even beyond diet, even beyond sugar. Because if you're breathing for a third of your life... which 50% of the population is doing, you're going to make this environment so acidic and it becomes a breeding ground for cavities. So, if you're breathing through your mouth through a mask, that is bad news across the board for so many reasons.

To me I take the mask as an opportunity to focus on my breath, to breathe slowly, to breathe less, and to breathe through my nose. And if you're ever doubting that you're not getting enough oxygen, you can buy one of these things for about 20 bucks on Amazon, for those people listening, I'm holding up a pulse oximeter, and no matter what mask I've worn, no matter how I was breathing in that mask, how slowly I was breathing, my sats were completely fine. My O2 sat was completely fine.

Dave:

You're 98, 99% blood oxygen the way you'd expect.

James:

Exactly. What people are reacting to when they're breathing through a mask, they say, "Oh, I'm not getting enough O₂. Man, I can't breathe." They're reacting to an increase of carbon dioxide, it's not a lack of oxygen.

Dave:

For a long time I traveled with a pulse oximeter, and I fly a lot, at least I did before this whole pandemic, and I would really not enjoy how I'd feel when I landed. So, I finally got to the point where I feel exactly like myself when I land, but part of that exploration was, what am I doing? And I would go down to 94, 95 on airplanes. And one of the things that I noticed made a difference was if I drink carbonated water, like give me the club soda and not the normal water, which has carbon dioxide in it. Why did I feel better and have an increase in my SpO₂, in my blood oxygen levels when I drank carbon dioxide? Why would you think based on all this stuff you know?

James:

You know, I went deep into that hole and talked to several researchers about it. What I found it was not conclusive, what was happening with drinking, because I felt the same thing and I would see it too. I said, "Oh, this is very interesting. If I drink a liter of carbonated liquid, is that going to increase my O₂ delivery?" I think if someone were able to do a study with this, it would have to be a very closely controlled study because you have to watch how people exactly how they breathe, because breathing a little too much, a little too less will really... So, it's almost impossible to do this, but I think it would be fascinating. But nonetheless, having more carbon dioxide in your body for the vast majority of us is not a problem, it's a benefit, because having more CO₂ will allow oxygen to detach from those red blood cells, from that hemoglobin, into hungry cells.

So, oxygen is able to dislodge in the presence of carbon dioxide. And so we've known this for 110 years now, it's called the Bohr effect. So, breathing more slowly allows that oxygen to come more easily into our organs, our tissues, and everything else. And this is something that so few people recognize or appreciate, but again, the science is so clear, no one's really refuting it, just not a lot of people are doing it.

Dave:

We know that increasing carbon dioxide by the way you breathe, it increases acidity in the body. And how does the body reverse that?

James:

You want to be balanced. You don't want to be too acidic and you don't want to be too alkaline. And your body is going to, at all times, you want to stay at 7.4 pH because that's where all the magic happens throughout your body. So, if ever you're going too low, or if ever you're going too high, becoming too alkaline, the body immediately adjusts. So, when we become more acidic, our bodies, our lungs, do a lot of this work, right? We're forced to breathe more to bring us back, back in line, back in balance. When we become more alkaline, our kidneys start doing this work. They start offloading bicarb.

And that's, for temporary times, like that's not a problem. We have these mechanisms that allow us to stay in balance, but if you are constantly over-breathing over weeks, over months, over

years, this can have such a deleterious effect on your health. It can actually impact your bone density, it can cause increased risk of bone fractures, osteoporosis, and so many other problems. Because when you offload bicarb, you're taking with it essential minerals, magnesium, phosphate, more and more. And so you see this with asthmatics or people with anxiety, populations who traditionally breathe way over the amount that they need to, that they can suffer from these problems. And again, I never thought that breathing could be associate with bone density, but it is. And again, the science is very clear on that.

Dave:

When I was doing work for Super Human, my anti-aging book, and I was going through just finding all of these substances that are shown in studies to extend human life span, it turns out baking soda is one of them. So, having more bicarbonate present in the body so that you don't have to suck it out of your bones probably is helping people who are over-breathing because it does extend life. In fact, I find that potassium bicarbonate is a better choice as long as you don't get way too much of it, because too much potassium does bad things to you, but not enough does bad things.

So, I take potassium bicarbonate every night before I go to bed, because I figure, why would I want to suck it out of my bones when I could keep my bones right where I want them. And it's tied to breathing.

James:

There's no doubt eating differently, taking different supplements, these can have a profound effect on your health, but the body does so many amazing things if you keep it in balance to do those things, it can heal itself in so many ways. So, I prefer to start with my body. If my body can't figure it out, then I'll move on to this other stuff, not immediately to move into surgery, like put nasal surgery. And again, to be clear, some people need surgery. Absolutely need it, it depends [crosstalk 00:40:56]-

Dave:

There's nothing wrong with surgery or drugs or any intervention, just don't do it first.

James:

Yeah. Yeah. And it's like Western science, that this isn't a West versus East thing to me. Western science is fricking amazing. I am a huge fan of Western medicine, but if you look at something with, especially if your nose is messed up, why not start with neti pot? Why not start nasal breathing? Why not start humming and try that for a few weeks? Why not start with always breathing out of your nose with some sleep tape? These things basically cost nothing. And as you've seen, as I've seen, as so many other people have seen, they can have a really huge benefit to your ability to breathe clearly.

Dave:

How much humming do I need to do to get benefits?

James:

Another study I wish has been made, we do know that humming does increase that NO by 15 fold, I believe a couple of minutes, just a couple of minutes, because nitric oxide lasts for about two to six seconds, it has a bioavailability which is very short, but it's extremely potent. And I don't think it's a coincidence that there are now 11 clinical trials looking at giving nitric oxide to patients with serious symptoms of COVID. And from what I've heard, it's having a tremendous effect.

Again, our bodies can create nitric oxide. We can do it by breathing, we can do it by eating some different foods, but this humming thing, it'd be hard to hum for a few hours a day and maybe that would just overload you with NO. I don't know if anyone's done it, but if you look at traditional chants, if you look at traditional mantras... what are you doing at the end of that? You were humming a low frequency, which is very good at releasing nitric oxide. So again, I just wish somebody that wasn't me or you, could do long range, real controlled studies of this stuff because it could benefit everybody. And maybe someone listening right now will be intrigued and want to do that. That would be wonderful news.

Dave:

You talked about a specific number of breaths in the book, which is funny because the standard box breath for the 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:

I'll have everyone do this and then I'll explain what's happening to your bodies while you're doing this. You can just calmly exhale, inhale, do a count of about five or six, don't stress if you're a little off. So, one, two, three, four, five, six, exhale to six, to just do that on your own. Just very calmly, don't push it. This isn't a competition.

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 famous Buddhist mantra. And they noticed that both of these prayers locked into the same respiratory rate, about five to six breaths per minute. About five and a half seconds to inhale, five and a half seconds to exhale. And they noticed 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.

As their body's 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 brainwaves, 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 it's 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 ox out, get your heart rate variability out, get your blood pressure monitor and take it before and after and see for yourself. So, so many psychiatrists and psychologists and doctors are now using this very simple breathing method.

Dave:

You talked about the amount of time for it to go in, the amount of time for it to go out, but so many of the Yoga classes, so many of the techniques that I know of, even with Wim Hof, there's, okay, breathe in, hold, breathe out. For at least some of it. Is there an ideal hold time or what's going on there?

James:

Well, this five to six seconds, and I call it 5.5 in my book. So, 5.5 seconds in, 5.5 seconds out. There's 5.5 breaths per minute, 5.5 liters of air. But then I've gotten so many emails of people stressing out that they're half a second off and they're all worried about, I'm like, "Oh God." So, I'm just saying five to six seconds. Anywhere in that ballpark, people, it's fine. You're going to be okay. Don't be so anxious.

With other breathing exercises, whether it be pranayamas, or Kriya, Sudarshan Kriya, Wim Hof exercises, these can be viewed as almost weight training for breathing. Okay? So, they have profound benefits. We should not be weight training all day every day, which is why we should not be Wim Hof breathing all day. I'm talking to Wim tomorrow about this and he could not agree with this more.

Dave:

Yeah. You go bonkers. I mean, anyone who does that kind of stuff, including Stan Grof would tell you, try holotropic breathing all the time and see what happens. It's not good.

James:

No, it's awful. And some of these should only be done every couple of weeks, or maybe holotropic breathing three hours of breathing with loud music. You know, I don't know if you want to do that every week.

Dave:

It's like a tab of acid every day. You don't want to do that.

James:

Exactly. I mean, for some people, might really dig that and good luck with it. And we know it's so therapeutic these different things, and that's what some people have written and said, "Well, Wim Hof says you breathe really hard and then you hold your breath," of course, that has benefits because it's acute. I'm talking about habitual breathing should be slower and lower and through the nose.

But in the last third of the book I focused on this. It's like, okay, here's the foundation of healthy breathing at rest, right? So, where else can breathing take us? And I did holotropic breathing, I did Sudarshan Kriya, I did Wim Hof. And so many of these different breathing techniques, these more intensive, I called them breathing plus techniques because they're build on that foundation of healthy breathing, they're all doing the same thing. They have different names, but you're breathing really fast and then you're breathing really slow or you're holding your breath.

It's just like weight training with these repetition. So, it's making you very alkaline, it's making you very acidic so your body can remain flexible so that you can willingly place yourself in a state of stress, which is what Wim Hof, what does Sudarshan Kriya does...

Dave:

Right.

James:

You probably now know this very well, [inaudible 00:48:28]. So, you were putting yourself in a state of stress, but you were controlling it with your breath. And then you were controlling a state of relaxation with your breath, and you're allowing your body to recognize that you have these tools that you carry around with yourself all the time. You can make yourself stressed, but most importantly, you can make yourself relax. So, I'm a huge fan of Wim's breathing, call it tummo, call it Wim Hof method, call it whatever. I'm a huge fan of Sudarshan Kriya. I try to do the long version at least once a week. I'm a huge fan of breath holding. There are so many benefits to these things, but again, there's a difference between a technique that you practice for short amount of time and how you breathe for the rest of the day.

Dave:

The first time I met Wim Hof, it was unexpected. I was holding the Biohacking Conference I do every year, and Rick Rubin, who's been on the show as well, texted me and said, "Dave, I've got Wim Hof here in the audience. Can he come up on stage?" It was completely unplanned. He comes up there and he has me do his breathing technique. Okay. I'm hosting a three day event for thousands of people and he has me doing this and I'm sitting there going, "Oh crap. This guy has me... I'm going to start tripping balls like I'm kind of seeing stuff around the edges," which is what happens during holotropic breathing.

And I've also done events with Stan Grof and I have very profound experiences when I do that. So, I'm sitting there going, "Oh man, I have no idea what's going to happen, but I got to function the rest of the day at my very highest level." And I love Wim, he's been on the show, because he's so passionate about it, but I was going, "I wonder if I'm going to be loopy for the rest of the day from this sport today," we didn't do it too much and I did a whole bunch of pushups and it was a cool thing to be able to share with the crowd, but these are powerful and I can't imagine doing it all day. It would be ruinous.

And I've had a few people even who do like the Art of Living exercises. They warn you, don't do these for long periods of time each day. You know, it's a 15 minute set of exercises in the morning because you become almost ungrounded if you do aggressive breathing exercises for long periods of time. Like you become odd, for lack of a better word, kind of like someone who smokes way too much pot or something.

James:

Well, yeah. To me, this seems so obvious. You're not going to sit around and do curls for 16 hours a day, you're going to destroy your body. Just because something is very good for you at a short amount of time, doesn't mean it's going to be really great for you if you do it all day. And this is just such a Western thought, this is how we think about things, well, I'm going to kick this breathing practice's ass, I'm going to do it twice as long, but breathing doesn't have to be like that. And I think it's frustrating that people view this as a competition. "How long do you hold your breath, bro?" "I hold my breath for three minutes." Stop it! Dude, go bring that competition somewhere else, but breathing should be something to nurture our bodies, to center us, and to rebalance us. And that's what it does.

And the more you recognize that, and the more you start using this in your life, I think you're going to feel huge benefits. The great thing also is there's no side effects beyond feeling better. So, there's nothing bad that's going to happen to you. And to me, I've seen people absolutely transformed by this. I mean, people who were in serious trouble, serious asthmatics, emphysema, COPD, they're no longer on inhalers, they're no longer on oral steroids. They're completely transformed. And there's hundreds of these studies, they're not select things. And it makes sense to me, this is what happens when your body's in balance, when it's able to do what it's naturally designed to do.

Dave:

We've talked about people who are anxious that they're breathing the wrong number of times per minute. We've got people who are obsessed with, "I can hold my breath longer than you." I think we invented a new term just now, I'm going to name it oxyrexia. And it's kind of like orthorexia, like people who are afraid that they're eating the wrong food even though it probably isn't perfect, but it's okay. So, we have people who are afraid of not breathing the right way. And to your point, what you've already said, I'm just going to reiterate that, be thankful you're breathing at all. So, you can start there. And then you can improve it by breathing through your nose, but if it's only four seconds, you'll probably live, right?

And so just take that mindset with everything you do, whether it's food, whether it's breathing, whether it's exercise and all that stuff, to just bring that into your awareness as a listener of this show. Don't fall for the, "Oh my God, I took a breath through my mouth. I'm a bad person." That's just bad programming.

James:

I completely agree with that. You know, you see some people who are so into wellness that they're miserable because they have to adhere to so many things. The point of having your body well and healthy is to enjoy life. So, if you're not enjoying life at the end of this wellness road, then why do it? And it's so much of this anxiety around, I'm not eating every single thing the perfect amount of food, I'm not breathing right, I'm not exercising right. That damage, any benefits you're getting to doing these things is going to be countered by the damage you're doing by being stressed out about it.

Dave:

Right.

James:

With breathing, with anything else, chill out. If you can't get to that six second inhale and exhale, do four seconds in and four seconds out, and get to it eventually. The point is to relax yourself.

Dave:

Yeah. That kindness towards yourself. I love the way you put that. Is there such a thing as fasting from breathing?

James:

Yeah. It's called breath holding, and it's been around for thousands of years. One of the earliest definitions of pranayama was trance induced by holding one's breath. So, breath holding practices, and we know there's innumerable benefits to it, if you do it regularly you can increase EPO, which can increase your red blood cell count, you can increase NO synthase, you can increase... I mean, so many benefits, which is why it's been used in athletics for decades and decades.

And mark my words, very soon people are going to start to incorporate serious breathing, I mean, it's already happening, breathing therapies. Elite athletes have been using this for a while, but they're going to be doing it even more so. So, I think that the cessation of breathing, breath holding, whatever you want to call it, it's all doing the same thing, where it's increasing your flexibility. Your respiratory flexibility is a phrase I've used before. And we all know that flexibility is one of the most, if

not the most important thing to your health. You want your body to constantly be flexible so that when it's faced with a challenge, you can be flexible enough to overcome that challenge.

Dave:

If you think of what the body does to make energy, it's food plus air equals electrons. And you've talked about diabetes, which is basically you suck at turning food into electrons. And almost no one is talking about that notion that air is the other side of the equation. And if food is so important, why isn't air equally important? And I have a new book called *Fast This Way*, that's coming out in January, and we just announced it and it just went up for pre-order and all that.

And it's funny, I'd written a brief section of the book on, well, even fasting from air is important because I was talking about just the very basics of breathing, and then I came across your book, I'm like, "This is amazing." You actually talked briefly about fasting from air as breath holding, so I love that mindset, but if briefly withholding food from yourself can have such a profound effect on your biology, doesn't it follow that briefly withholding air from yourself could have the same impact on your biology? It just makes sense. And based on your research, it seems like it does.

James:

Of course, because you're making your blood more acidic, which will make oxygen it can more easily disassociate from hemoglobin. So, just holding your breath like that and increasing your tolerance for CO2 has so many, but we won't get into the laundry list of benefits for that, but if you look at populations of people with asthma or anxiety, they can hold their breath often for about three or four seconds and they go... So we know that increasing your threshold for CO2, whether again, whether or not you're a marathoner, or you're a deep sea diver, or you're an asthmatic, or someone with emphysema, can have profound benefits. So, this should all be, these are different tools in the toolbox to be used at different times.

Dave:

There's so much more stuff in your book. Where's the best place that people can connect with you?

James:

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 @mrjamesnestor. 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.