Breathe Better, Think Sharper: The Science Behind Oxygen And Brain Function Transcript

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Introduction to Breathwork and Metabolic Inflammation

Hello and welcome to another special session of the Reversing Alzheimer's Summit. I'm one of your co-host, James Maskell, and we are going to be talking about all things metabolic inflammation and breathwork, and to bring on someone who I've known for more than a decade does incredible work in his own practice in Toronto, but also is mentoring practices all across the country and all across the world and, reversing chronic illness, building programs that can reverse metabolic dysfunction and also create health at scale.

So please welcome Sachin Patel. Sachin, great to be with you. Thank you. James, what a pleasure. What an honor. Full circle moment. You've been very instrumental in my life, in my in my career and in my profession, my beloved profession of holistic health and functional medicine.

Always an honor and a pleasure to connect with you. I'm looking forward to our time together. Me too. Well, let's let's start off by talking about this, this connection here because, you know, as, as, people go through the summit, they're going to be sort of become aware of two things.

One is that there are things that you can do every day to build a foundation of health that is going to determine your long term trajectory. And, you know, I've been to some of your breathwork sessions, and I know you're super passionate about that, but another thing that you're going to learn is that if you start to look at some of the root causes of cognitive decline and, you're going to see that metabolic inflammation is one of the major causes.

And that's why, you know, you've probably heard people say, well, Alzheimer's is type three diabetes. Sometimes it is and sometimes it's not. So what I wanted to do today was to talk about those two areas, because I know that you're, expert in both of them.

But when we were just about to come on the call, you shared that there was actually a connection between the two of them. So why don't we just start there?

Yeah, absolutely.

How Breathing Affects Oxygen, Nitric Oxide, and Brain Health

So one of the most overlooked modalities in all of health care is looking at how, assessing how and correcting how people breathe. You can go weeks without eating.

You can go about a week without drinking any water. You can go a few days without sleep, which you can't go more than five minutes without breathing. Our mitochondria die after five seconds of not getting oxygen.

So if we're focusing on mitochondrial health when it comes to longevity, when it comes to energy, when it comes to resilience, it's impossible for us to be metabolically healthy if we're not breathing correctly.

And by making simple shifts in the way we breathe, we can significantly reduce the amount of inflammation in our body and the amount of stress in our immune system.

So most people may not know this or may not recognize this, but it's immediately apparent. But our immune system actually starts in our nose. So we interact with 30 pounds of air every day.

So we actually consume more air in a day than food we do in a week. And when that air comes into our body, it's informing our body. But it's also developing a microbiome in our lungs.

When we breathe through our nose, we actually, clean the air, we perfect the air, we pressurize it, we sanitize it because we make nitric oxide in our in our nasal mucosa.

And we also, facilitate the air. So it's temperature and moisture regulated. So we essentially perfect the air if we breathe correctly. However, if somebody breathes through their mouth, a few things start to happen.

One, they dry out their saliva when they dry out their saliva. That creates the perfect storm for cavities to form, for plaques to form, and, gingivitis and inflammation in the mouth to start.

That also changes the microbiome. And when the microbiome in the mouth is altered, we don't produce as much nitric oxide, nitric oxide, which is what lions are.

Nasal mucosal membrane is the initial defense against the outside world. Nitric oxide also helps us dilate our blood vessels. And so we all know that, Alzheimer's isn't just about toxicity to the brain.

It's also about delivering nutrients and oxygen, to the brain. And the hardest place to get blood flow to in the entire body is actually in the outer regions of the brain, because our heart has to work against gravity.

And these are very, very tiny blood vessels. And so, we want to set the stage biochemically and physiologically for us to deliver more nutrients and oxygen to those parts of the brain.

However, if our nitric oxide levels are low, then it's very difficult for us to do that because our blood vessels are capillaries aren't dilating enough to get adequate blood flow to those areas.

So nitric oxide also plays a role in that. And nitric oxide also helps us regulate blood pressure. So by simply breathing correctly we set up our body to be better for circulation.

We set it up better for immune defenses. And we also set it up better, for, helping create the right physiology in our body. One thing that's also important, James, is, is that our breath is like the steering wheel of our nervous system.

And when our nervous system is in a more parasympathetic state, we're able to actually heal and repair and become more resilient. Most people, because of their dysfunctional breathing patterns, are breathing themselves into a chronically sympathetic, dominant state.

That's so interesting. You know, one of the things that I always, I always, marvel at is the, you know, the degree of interconnection between all of the different parts of the body is that, like, the simplest things can have the biggest impact, and, you know, the connection that you're making there between the breath and nitric oxide and changing brain.

One of the reasons why, you know, impacting the health of the brain is so tricky is because you, you know, have all these natural barriers, you know, to make an impact.

And it sounds like this is something that anyone can do that is actually reasonably straightforward, no matter, you know, what stage of, the journey you're in and that if you master it, could have a big impact.

So, I'm grateful for you sharing that. Yeah. One thing to thank you for that one thing to note for everyone is that about 50% of people are habitual mouth breathers, which means 50% of people listening to this can immediately benefit by but by simply breathing through their nose instead of their mouth.

66% of people are habitual mouth breathers at night, which means they sleep with their mouth open. So two thirds of people listening to this just by simply placing a small piece of surgical tape, you know, vertically over their lips like this, you don't even have to seal your mouth.

Those individuals can, tremendously benefit and improve their quality of sleep and, restoration just by simply taping their mouth at night.

Mouth Taping and Nasal Breathing at Night

And it's amazing. You know, one of the things that happens, at night is we dream and that's, you know, that's memory consolidation and thought consolidation, and it's a sign of a healthy brain.

Many people who, stop dreaming, start dreaming again when they start breathing through their nose at night instead of through their mouth. That's great.

So mouth tape is recommendation number one. And just give us a quick primer on, you know, the practicalities of that because it is quite scary for people who have never done it before.

Yeah. And so one thing I encourage people to do is don't place the tape across your mouth. You don't have to hermetically seal your mouth. You just have to get your mouth in a position where your lips are gently pressed together, and you put the tape on vertically so you can still talk.

You can still sift through a straw if you want to. You can still breathe through your mouth if you want to. The objective isn't to seal your mouth. The objective is to keep your jaw in a relaxed position and your mouth stay closed.

So this is great for people who grind their teeth at night. This is also great for people who may not be aware of it, but they might be breathing through their mouth at night.

And it's also really good for people who snore. One of the most metabolically disrupting things that we can do is, snore at night. And snoring has also been linked to dental decay.

It's been linked to, Alzheimer's because the plaques that we develop on our teeth are closely correlated to the blocks that people develop, on their brains.

And so there's a strong correlation between dental health and, and, brain health and systemic inflammation. So one of the easiest things that we can do to improve our dental health is to breathe through our nose instead of our mouths.

I love that. All right. So that's that's tip one. I think that's really powerful. When I've been in your breathwork sessions, you know, I've had kind of an intense experience.

So, you know, obviously the mouth breathing, that's nighttime taking care of. What about during the day? What are the things that we can do to, get the blood flow moving and bring the new, healthy nutrients that we're eating?

You know, to the brain. Yeah. Great question. So one thing I want people to note is what their default breathing patterns should be. And there's a different breath for every different activity.

So James and I are doing this interview together. When I'm speaking, he can go into a certain breathing pattern, of six seconds in, six seconds out, and that's going to keep his nervous system calm.

It's going to keep him focused. It's going to bring him present to this moment. And it's also going to help him hold space for whoever he's speaking to so we can, totally calm our own nervous systems down to get us into a more parasympathetic state.

This is about 5 to 6 breaths per second. So it's about, you know, 5.5 seconds in 5.5 seconds out. Our tongue is placed gently at the roof of our mouth.

And when we place our tongue at the roof of the mouth, if we think of a young child who sucks their thumb or uses a pacifier, or is instantly soothed by latching on to their mother's breast, what happens when, when we place pressure at the roof of our mouth?

It instantly soothes are nervous system. So this is something that you can do as well. Gently placing your tongue at the roof of your mouth will relax your nervous system.

It'll seal your mouth, so you'll now be breathing in through your nose for a count of six and six out. And that immediately is going to improve you and shift you into a more parasympathetic state.

And then there are different breathing, techniques that one can use.

Breathing Techniques for Calm, Energy, and Nervous System Regulation

One is called a physiologic sigh, where you exaggerate an audible sigh. This is one of the fastest ways to relax your nervous system. It's actually been shown to be more effective than meditation.

And so by simply taking a deep breath in, holding, and then letting out with a sigh, an audible sigh, doing that 5 to 6 times, you're going to shift your body from a sympathetic state into a parasympathetic state.

If you need energy, you can do something called bellows breath, where you are moving your hands up and down and exhaling with each breath. This is rapidly moving your diaphragm up and down, rapidly expanding and contracting your your lungs, creating huge amounts of pressure on the heart.

So you instantly increase increased blood pressure and your body goes into a fight or flight type of state. So breathing is very interesting because, our body naturally uses our breath to shift our state.

So if a lion were to walk into your office, James, and your mental perception of the situation is danger, then the first thing you're going to do is you're going to take a deep breath in.

That's going to rapidly expand your lungs, squeeze your heart, increase blood pressure, gets blood to your arms and legs, and you're ready and off to go.

You wouldn't sigh. Right. And lower your blood pressure because that's going to send more blood to your gut. You would do the exact opposite. When we feel a sense of relief, we sigh.

When we're upset, we cry. Crying is actually a form of breathwork that releases our emotions. So telling a child to stop crying is one of the worst things that we can do.

Because the only way to stop crying is to stop breathing. So many people have trauma that they store in their diaphragm and emotion stored in their diaphragm, and this is why they have huge releases when they go through prolonged breathwork sessions.

Because we're releasing a lot of stored emotion. Your diaphragm does three main things. One is it pumps your heart. So every day your diaphragm moves up and down 23,000 times.

It's the only thing that we can consciously control. And indirectly, we can control our heart rate by slowing down our breath or speeding it up. So 20, 3000 times you're breathing in and out, that's assisting your heart in pumping blood.

Your diaphragm is referred to as your second heart. Your third heart is your soleus muscles, your calf muscles, which pump the blood from your lower extremities back up to the heart.

The diaphragm also pumps your lymphatic system so as it's moving up and down the biggest lymph nodes in your body, some of them are underneath your diaphragm.

So your lymph is also being pumped 23,000 times. So now when somebody has short, shallow breathing because of, injury to the diaphragm, trigger points in the diaphragm store trauma, unreleased emotions, they breathe short and shallow.

This tells their nervous system that they're under stress to it, too. So then they have a perpetually fight or flight nervous system. So they never heal because their nervous system never heals.

When we're in fight or flight, the third thing that the diaphragm does is it maintains a hydrostatic pressure in the myofascial matrix. Myofascial matrix is a system of tubules that connects every single nucleus of every single cell in our body, together simultaneously with a constant pressure.

So it's a force, an emotional distribution network. This is regulated by the diaphragm. And so it makes sense to put it right in the middle of the body if we're going to regulate pressure in the system.

So trauma and grief are stored in our diaphragm in our lungs. The rest of it gets distributed into the myofascial matrix. So people with chronic pain, usually it's the, the issues are in our tissues.

And that distribution of force happens through the diaphragm. Yeah, yeah. Super interesting. Well, I can see how anyone is listening to this, whether you, caring for someone who's on the, sort of Alzheimer's spectrum or if you, in the journey to, you know, yourself or you're looking to support.

This is a great tool and a great skill. You know, I know ever since I've known you, you've talked about that the solution to chronic illness is skill building.

And it seems like this breathwork is really just like, a primary skill that anyone can build that will stand you in good stead no matter what chronic illness you have.

Yeah, that's the thing. Like, you know, when I, when I kind of stumbled across this and I started connecting the dots, I started realizing how breath plays a role in our immune system, how we breathe plays a role in our dental health.

Thus systemic inflammation, how it plays a role in heart health and cardiovascular health, how it plays a role in mitochondrial health. How plays a role in brain health.

How it plays a role in, lymphatic health. And now we're also discovering the lungs actually produce, red blood cells. So it also plays a role in the production of new cells in our body.

The lungs are also where we detoxify. So 70% of detoxification takes place in the lungs. And so, you know, it just connected so many dots for me. When I started studying this through the functional medicine lens and the metabolic lens, and I would just always wondered why, more people didn't know about this.

And so I'm grateful to be, you know, accumulating this knowledge and then sharing it. And, and hopefully, you know, people just by listening to this are more conscientious of how they breathe.

But I'd love to, give them a formula to create a healthy habit around breathing. Can we do that? Yeah. For sure. Okay, so, one of our mutual friends, BJ Fogg, wrote a book called Tiny Habits.

And in Tiny Habits, he has a very important formula, and it's called, you know, if you want to create a new habit, then that new behavior. So be equals map.

B stands for behavior. And then map stands for motivation and then ability and then prompt. So hopefully everyone by listening today is motivated to breathe a little bit better.

Just by breathing through your nose, for example, you get 20% more oxygenation versus breathing through your mouth. That in and of itself should be a reason to breathe better, right?

And a simple thing that you can do is just put your tongue at the roof of your mouth and start breathing through your nose. You can tape your mouth closed, and if you just do those two things with more awareness, you're going to see significant, instantaneous, measurable improvements in your health.

You know, we have so many people that they start mouth taping and their chronic brain fog goes away. That tells me their brain is healing. They tell me they wake up with energy instead of waking up tired just by using literally one penny's worth of tape every night.

So it's one of the most powerful, safest, most affordable interventions that I've ever come across. And it's just simply getting people to do that. One thing, the the thing with breathing that I love is that it applies to people at every stage of their life.

So whether you have a young child, whether you have a middle aged child or, you know, whether you have a, you know, an adult parent, how we breathe shapes so many aspects of our health.

One of the things that it does is it actually shapes our facial structure. So if you have young children, make sure their tongue is in the roof of their mouth, because the tongue acts as a spacer that pushes their face outwards and allows them to have nice, wide open nasal passages.

When people have their tongue at the, floor of their mouth, when children have their tongue at the floor of their mouth, it changes the shape of their face.

Now, the reason this is important, it many of us who might be struggling with brain health and cognitive decline and issues like that. Your brain is your most, oxygen demanding, organ in your body.

Breathwork, Trauma Release, and the Diaphragm

So how we breathe from the moment we're born to the moment that it is that it is right now for each of us is absolutely crucial. So many people are watching this.

You might be watching for a parent, who's struggling with their health, but pay attention to your kids. You know, so many people develop, dental issues and issues that later all lead to Alzheimer's and cognitive decline because of the way they breathe when they were a child.

Yeah, well, that's really powerful. Well, thank you for sharing that. And I think everyone could take something away from that. And I really appreciate you sharing that.

I do want to capture some of your insight with regard to the metabolic inflammation conversation, because, you know, during this, during this, summit, but really laying out the methodology for the consistent reversal of cognitive decline.

And one of the pieces is understanding which one of the root causes or which combination of root causes is driving it. And metabolic inflammation is one.

And I would love to just gather your insight on one. You know why this is so critical? And to, you know, some of your, best practices, if you if you identify through a journey that you that metabolic inflammation is an issue and maybe you have some ideas on how you could sort of like tweak that it is without taking any tests, then you know, what?

What are some of the most, leverage things that you can start doing that isn't breathing? Yeah. Great question. So I'm sure there's people that have discussed the diet.

And one of the things that we work on with our clients is, is, of course, starting them off with a foundational, whole foods healthy diet. We also go a little bit further by looking at other, factors such as what foods cause inflammation for their body.

So we actually do a test called a food inflammation test. So in knowing what foods are inflammatory for you, you're able to, eliminate those from the diet.

Most of the inflammation people feel is painless. Right. Your brain doesn't feel inflammation. It just starts becoming dysfunctional. Your organs, many of them don't feel pain because they don't have pain receptors.

They just become less functional. And that's why organs can be damaged beyond 80% before there's any symptomology or any discomfort that people experience.

So I feel like it's it's super important for people to realize that not all pain, or not all inflammation causes pain. The other thing to to keep in mind is aside from food is the barriers of our body.

So the quality of the barriers and how they interact with the outside world plays a huge role in inflammation. So, for example, mold can be a big problem for people.

And that's something that they could be breathing in, day in and day out. So even something as simple as getting an air purifier can be very beneficial at capturing, you know, some of these particles, so they're not breathing them in 30 pounds of air is how much we breathe each day.

Most people spend a significant amount of time indoors, and if the air quality isn't where it needs to be, it in and of itself can be quite inflammatory for them.

Other aspects, that are overlooked when it comes to inflammation is is actually our inflammatory repair system. So the adrenals play a very crucial role because of the hormones that they produce and helping us to deal with inflammation.

And many people's adrenals are burnt out these days. One of the most effective ways to increase, regeneration of the adrenals is, one getting sunlight.

The average person, unfortunately, doesn't get enough sunlight, especially, you know, living in the northern climates like I do. You know, you have to make a very conscientious effort a lot.

There's a lot of mental factors to overcome just to go for a walk because it's so cold outside. Thankfully, right before this interview, I went outside for a nice walk and I caught the sun set.

But, that doesn't happen very often for most people. So the sun, sets our circadian rhythm, and our circadian rhythm helps with, the repair of our organs, in our systems, in our body.

But particularly what it does, is it, being outdoors more helps us regulate our melatonin production. And melatonin is a very overlooked, compound. It's actually one of the most, it is the most powerful antioxidant that our body makes.

It's made 95% of it is made in the mitochondria, and 5% is released by the pineal gland, in the presence of darkness.

Metabolic Inflammation, Diet, and Environmental Triggers

The significance of melatonin is often overlooked. It is because it's a powerful antioxidant, and most people don't manufacture enough because they don't get enough light, and their circadian rhythm is all messed up.

This makes people so much more prone to all kinds of health challenges. All cause mortality is reduced when melatonin levels drop, and so getting adequate sunlight in the day and then turning off the lights at night or going more to red color, light bulbs is going to be a powerful way to lower cortisol and raise, melatonin and bright light during the day as a way to help regenerate the adrenals and, and particularly, release hormones that help us heal and regenerate as well, when we get more sunlight, it also allows us to reduce our, food intake requirements.

So you actually need less food when you spend more time outdoors. And we all know the benefits of calorie reduction can be very powerful in increasing the lifespan and healthspan as well.

Yeah. I'm glad you mentioned about the light, because I'd love to just follow up on that. You were one of the first people that I follow that were really clear.

You know, vitamin D creation from sunlight as opposed to supplementation. And, you know, you live in, in Toronto area. And so it's not like the easiest place to do it.

I mean, I live in California, where I get 300 days of sun a year. So I just love to, like, get some of your protocols around, early following you. It's like you, intention taking time with your shirt off in the sun in the winter, to make sure that, that this process is happening as best as you can.

Is that something that you've kept up and how do you how do you make sure that that's a part of your everyday experience? Yeah. Great. Great question.

So for me, I'm very conscious about my light environment. Just like our mouth eats, our eyes also eat and they eat wavelength of light. And within those wavelengths of light is information.

If you look at sunlight and then you compare that to a tungsten bulb, you'll see that the wavelengths of light emitted by a setting and rising sun are very similar to tungsten bulbs, which are the Edison bulbs, the bulbs we all grew up using when people didn't have sleep issues.

Then what happened is, manufacturers said, well, we don't need our bulbs to make heat, and we don't need other wavelengths of light that are invisible, like UV light and an infrared light, which are both healing wavelengths of light, which would be naturally found in sunlight.

And in some of those and infrared light is found in tungsten bulbs. 50% of the light emitted from the sun is read in infrared light and read. An infrared light is missing in LED bulbs.

That's what produces the heat. That's why they see it as an inefficiency. So most of the light they were exposed to is highly processed. So it's like processed food.

But except as processed food for our eyes, our eyes play a huge role in telling our brain what time of day it is when we when our brain knows what time of day it is based on that internal clock, it heals and repairs different organs and systems at different times.

And so our circadian biology plays a huge role. So we have to find ways to mitigate from our, screens. That's why I'm wearing these glasses, to filter out the wavelengths of light that don't serve me right now.

That's why I went for a walk, to see the sunset, because that's going to signal to my brain that, you know, it's time to start winding down. When I go upstairs, it'll be dark, so I'll turn off all the overhead lighting, and we'll go to red lighting, and I'll switch my glasses out.

So they actually have an orange lens in them, which filters out green wavelengths of light. And then an hour before bed, I'll put on my red light, glasses, which filter out all wavelengths of red, a blue and green light.

And so what ends up happening is my cortisol levels starts dropping as it should, as it would if I was an animal in nature or living in nature.

Sunlight, Circadian Rhythm, and Light Hygiene

And my melatonin production starts to increase and that melatonin goes in as a scavenger, antioxidant, heals my mitochondria, finds any excessive oxidative stress that's taking place, and inflammatory stress is taking place and quenches it.

So how were our exposure to light actually changes our own capability of healing and repair? Now you might say, you know, the question might be, does it have to be so complicated?

But the reality is it's actually super simple. Every animal that lives in nature is already tapping into the light and dark cycles of the sun, because they're not exposing themselves and they're not exposing themselves to non native wavelengths of light like human beings do.

So to our ancestors, this would have been passive. They wouldn't even have it. They wouldn't have had to given this any thought whatsoever. Yeah. Well it's it's it's interesting that we have to, take new things into account to be healthy in the new environment.

I mean, it's all like that if you think about killing the toxins and bio toxins and all these things, are a result of our modern environment. And, it takes a lot more to get healthy and stay healthy than it used to.

And ultimately, that's what we're here to, to share here on the summit. It's actually been such a wealth of information. I really appreciate, you know, you, you know, continually putting out the message and then leveraging your impact by helping other practitioners and, coming on events like this to share with the masses, about how to, stay healthy, get healthy, be healthy in your community.

I really appreciate, years of collaboration and, grateful, for all of those times and many more to come. And hopefully we're on a pathway towards, that transformation and, chronic illness and, thanks for your participation today.

Thank you, my friend. It's, honor and pleasure, and the feeling's very mutual. Looking forward to giving you a big hug when I see you next. All right.

This has been the reversing Alzheimer's summit. We've been here with Sachin Patel. We learning all about breathwork. There are amazing, sessions coming up both today and the next couple days.

So make sure that you, set your clock and make sure that you're in to check out some of these other sessions. Thanks so much for tuning in, and we'll see you next time.