

[00:00:00] Intro

Darin: You are listening to the Darin Olien Show. I'm Darin. I spent the last 20 years devoted to improving health, protecting the environment, and finding ways to live a more sustainable life. In this podcast, I have honest conversations with people that inspire me. I hope that through their knowledge and unique perspectives they'll inspire you too. We talk about all kinds of topics, from camping up your diets to improving your well-being to the mind-blowing stories behind the human experience and the people that are striving to save us and our incredible planet. We even investigate some of the life fatal conveniences, those things that we are told might be good for us but totally aren't. So here's to making better choices in the small tweaks in your life that amount to big changes for you and the people around you and the planet. Let's do this. This is my show, the Darin Olien Show.

[00:01:11] Guest Intro

Darin: Welcome everybody to another edition of the Darin Olien Show. Thanks for tuning in. Thanks for trusting me with navigating you through and to and towards different people, different guests, different information. I'm stoked to have you here. Everyone's just kind of coming off of the Thanksgiving weekend. I hope that was bountiful, and you didn't eat too much, and you didn't eat too many animals, and you ate more plants. I just have to say stuff like that. Come on, I found some of the greatest plants in the world. I've dedicated myself to that. And if we can get our nutrients from plants rather than animals, then why wouldn't we do that? My next guest is connected to one of the most important things that we do all of the time, and that is breathing. But here's the thing, all of us, most of us are not breathing correctly. We have devolved into allowing stress to take control and hold of our breathing patterns, contributing to infinitely greater issues in our lives, in the formation of our teeth, our skulls, our nasal passages, our body's ability to receive oxygen. And believe me, you want oxygen absorption because no disease bacteria or virus can survive in an oxygen-rich environment. So there's no better time to understand your breathing than right now to increase oxygenation in your system, and also to lower stress almost instantly breathing through your nose. So Patrick McKeown has been an innovator, a renegade, and really the most common sense educator we have on the planet. Basically, he is bringing us back as mammals into primarily nose breathing. We have gotten away from that into mouth breathing that causes a lot of issues, which we get into on the show. But Patrick wrote this amazing book, I've recommended it more than almost any book, and that's called The Oxygen Advantage. It's been published in over 14 languages. He has instructed well over 100 instructors and how to teach people how to get back into this very basic, powerful way of breathing. And he is recognized all over the world and as the top authority into breathing and exercise performance and sleep. Your sleep is going to improve. And we're going to reveal some things in the show that's going to blow your mind in terms of increasing your sleeping patterns by doing a couple of little tweaking techniques. He's worked with the military and a bunch of Special Forces, Olympians, coaches, athletes, fellow friends, and ex-PT world. So he is such a pleasure, and he is such an authority. I can't wait for you to learn and expand and lower your stress, increase your immune response, and just have a better

overall quality of life. So hook in, hold on, take a deep breath in through your nose and let it out and receive my good friend, Patrick McKeown.

[00:04:45] First Half of Interview

Darin: Okay, the myth, the man, the legend, Patrick, so wonderful to connect with you. For those of you that are fans of Down To Earth, I actually was trying to get Patrick on that show, and we just had to cut a bunch of other stuff as well. So we're exposing Patrick in this way. And Patrick, I have to say, dude, I've probably recommended your book more in the last two years than any other book. So dude, welcome. It is just my pleasure and honor to have you on the podcast.

Patrick: Thanks very much. It's great to be here. It's great to show the awareness of breathing and what people can bring into their way of life to make quite a difference.

Darin: Yeah, and this is something like it's the most obvious thing that hasn't been until just now starting to reveal itself. And it's literally in front of our face. And the fact that you've been-- I would say, there are some other books that have come out, but you are the one that kind of took-- Listen, everyone, breathing and all of this stuff, great, great, great. It's been around forever, from yogic practice to ayurveda to almost every type of religion, but there's an actual fundamental physical, physiological, biological, osteopathic even functionality to breathing on so many different levels to switching from everyone thinks well, you breathe through your mouth. And you sniff and smell things with your nose. And we literally just missed the whole boat on this one.

Patrick: Yeah, for sure. I think it's amazing, and I'm not sure how this has happened. One guy said to me about a month ago, he said, "It just took you 20 years to be an overnight success." And that's how I feel at the moment because you're right, breathing is taken off, and it's especially taken off this year. And I think, Darin, I think when people think about breathing their eyes glaze over. I don't think they fully realize it. There's too much of this bandied about, fill your lungs full of oxygen, breathe deep into your lungs, take a full breath, take a deep breath. And you know what, in many ways, that's not even right. And in other ways, that's just scratching the surface, the depth of which we can go here. And I'm not critical of anybody else because in breathing, I specialized primarily on the biochemical aspect of it for about 15 years. And I ignored biomechanical, and I ignored resonance breathing and cadence breathing. And now I embrace all three, and I embrace any aspect of breathing that we can bring in. It's the depth of it, the potential here is enormous. And even just taking one dimension of breathing, the biochemistry, going down that route, and then looking at the biomechanics because when we start investigating the functions of the diaphragm of what it does, it's not just about breathing. You can relate it to lower back pain, you can relate it to increase sports injury, you can relate it to functional movement, and then cadence breathing, resonance breathing, resonance frequency breathing, how that can impact the autonomic nervous system. So yeah, it's amazing.

Darin: Yeah, man. So for those of you because I know you've definitely, and it's been so great, every time I see someone else interviewing you and Brian Rose or whatever, I'm like, "Yes, he's he is getting out and the message is getting out." And with the success of Down To Earth,

there's been a lot of people that haven't been in this space, and they're just waking up to a lot of incredible things about health, their lifestyle, and how our ecosystem is connected to the bigger ecosystem. So I've read your books, I've watched your videos, I've gotten to meet you, and if you could just back up because I think your entry story is so important because something that is so important to you is the kids and that zone of 0 to 4, that zone of 4 to 12 or whatever that 90% of the ability to breathe, but it all started for you because of the infinite issues you had with asthma and sleep apnea and a cascade of problems. So if you could just unpack that a little bit because I want to start relating that, of course, to how parents right now immediately can help their children regardless of age and not to mention themselves because oh my gosh, if sleeping disorders hasn't gone up exponentially, man, I don't know what has. So could you unpack that a little bit in terms of your issues, how you started in this space, and just explain that to people?

Patrick: Yeah, for sure. I was a kid growing up, and I was born in 1973. And my parents first noticed that I was wheezing probably about two or three years of age. So off down to the local doctor and the local doctor diagnosed me as having chronic bronchitis or bronchitis because asthma, you typically don't get a diagnosis of asthma at least back then at an early age. So it was intermittent for the first few years. And the only way did I know I was a chronic mouth breather was when I looked back family photographs. Every time there was a photograph, not necessarily when I was smiling, but say for instance, I had a shovel in my hand and a bucket in my hand, my mouth was open. So I drew the conclusion and pretty much I was mouth breather, but I really remembered in high school, secondary school, and also in university. And where it impacted me most was my wheezing was getting worse, but I was waking up feeling exhausted. One year, I did Erasmus program with Uppsala University in Sweden, and I was staying in student dorms. And the students told me that I was snoring unbelievably loud. And then they told me, I stopped breathing. And one of them was concerned because they thought I was going to die. Now, of course, I had no idea what this is. I only realized this about 10 years ago that this is obstructive sleep apnea. I was taking medication for asthma. I had two three hospitalizations with asthma. I was always chronically fatigued. I was the kid in school that was falling asleep at the desk. And my issue with this is for me to get grades, I had to spend so much more time studying. And you know what, when you think of a kid's intelligence, it's often determined by what they achieve academically, but nobody is considering the sleep quality of these kids and a child with high intelligence, but with poor sleep quality is going to, you know, they're not going to do well academically. And yet, this kid then will have self-esteem issues. They probably know that there's something lacking, but they don't quite know what it is, and that was me. And it's not just your sleep that's affected, your mood is affected, my breathing was affected, my ability to partake in sports was affected. Some times people will say that I'm kind of taking pity on myself. No, no, not at all. I was fortunate enough. We now know there's 25% to 50% of study children in the same boat. And with the exception, Darin, I have a few very exceptional medical doctors, dentists, orthodontists, myofunctional therapist, and California is a hotspot for it. They really are pushing the awareness out there and getting the boat out there. So lo and behold, 1998, I read a newspaper article, spoke about the work of a Russian doctor, he said two things. He said breathe through your nose, he said, breathe light. And of course, I am reading this article, knowing that I'm doing neither of those things because you would hear me breathing a mile away. I'd be the kid that will go to the parents having dinner with them, with the rest of the kids,

and then I can remember my friend's parents giving out to me because I had very poor table manners. Of course, when you have a chronically stuffed nose, you have to eat and breathe through the same hole at the same time. So table manners goes out the window when that happens. So my story was, I went to sleep that night. I used to breathe right strip across my nose to help open up the nose. I used the nose on blocking exercise, which gosh and that was in the early, the infancy of the internet, and it's simply holding your breath and it actually did work. But I still felt air hunger because of years of mouth breathing. So I use breathe right strip across my nose to open up my nose and I taped my nose that night. Sorry, I taped my mouth that night. The next morning, I woke up kind of just getting used to it. I didn't really notice anything massive the next morning, but I did it the second night, and that was when I noticed a difference. It was the second morning I woke up and I woke up feeling concentrated. I woke up feeling alert. And I often described this to people, if somebody was to hand me a technical paper, I could put my attention on it, and I could focus on it, and I could concentrate on it. And there is no comparison, when you wake up feeling concentrated and alert versus when you are waking up feeling groggy, when you're waking up, it's almost like a hangover. And can you imagine these kids who are chronically mouth breathing and just before I forget it, Stratford-upon-Avon. She is a researcher and I believe she's an American researcher. She did a study in Stratford-upon-Avon in the UK back in the late 1990s into early 2000s. It was an eight-year study. She looked at 11,000 children. And she looked at the relationship between sleep disorder, breathing, mouth breathing, and special education needs. And children with sleep disorder breathing at age five who were untreated, by the time they were age eight, they had a 40% increased risk of special education needs. And I remember Dr. Christian Guilleminault, a Stanford Medical Doctor who passed on last year, and he coined the phrase obstructive sleep apnea. He came up with the term and he developed the apnea hypopnea index, which is a measurement of the severity of the condition. I was in Bordeaux or somewhere else at a meeting, and I was talking about it, and he was talking. And I remember saying one thing, he said children's brains are being fried, and that's what he said. He said, when an adult has sleep apnea, yes, you wake up, you know what that day, but when a child has any sleep disorder breathing, including snoring, it's impacting cognitive development. There is a car crash waiting to happen here. Something is really about to take place. And, Darin, this has been debated in the dental industry since 1909. If you go into Google and you put in dental cosmos, you will see an article written back in 1909 whereby the two researchers at that time spoke about the child with the mouth open, being inattentive in school, the face looks dull and expressionless, the child can be waking up with a headache, and the teacher accuses the child of daydreaming. So nothing has happened in 111 years, why has that not happened? Why has changed not taking place?

Darin: And yes, we're going to try to figure out what that is. But the thing that I really love is that it finally is scientifically, the kids not sleeping and having apnea in some form or fashion is literally affecting their cognition, steering them towards basically on the spectrum or not on the spectrum. And from that perspective, every parent, every person listening to this is got to just go, "This is astonishing."

[00:18:01] 121 Tribe Ad

Darin: So for years, maybe most of my life, people have been asking me, "What kind of foods do you eat? What kind of exercises do you do? What kind of water should I drink?" All of these things and so much more we put into a 21-day program so that can take you through a theme every day of knowledge, action, and then eating these delicious meals, working out, getting support, anchoring in these new habits so you can do what? So that you can kick ass. So you have the energy, the vitality to live the kind of life that you really want. That's what it's all about. So all in this app, we have grocery lists, we have education about real hydration and what greater oxygenation and the balance of alkalization. All of these things we are diving into as you're heading down this hero's journey of implementation into a new life to give you the kind of life that you actually want. So join my Tribe. All you have to do is go 121tribe.com. Sign up, and you get three free days. Join me on this hero's journey. Join the Tribe.

[00:19:27] Second Part of the Interview

Darin: There was already awareness in the early 1900s and yet, is it a suppression? Or is it just kind of a slough off once we kind of set up the American Medical Association that didn't necessarily thrive in the cornerstone of disease? It really was kind of had a different idea of pharmaceuticals and whatnot. Like from 20 years in this, what do you think happened in terms of losing that-- What do you think happened and how that message was lost?

Patrick: I don't have a clear explanation. If I was to tell you my honest opinion, it could offend a few people. But my honest opinion is that there's no motive to make money from teaching breathing exercises. That's my honest opinion. It's not scalable. You cannot patent a technology. It takes too much time. And I think I can see as well as if you say, for instance, if you're a healthcare professional, and you're undergoing huge training, and you're you're graduating from university, and typically you may have student loans of half a million dollars, you've got a lot of pressure to start recouping money at this level. And you're going to stick to what you've been trained at, and you're not going to take risks, and neither will you take risks because if you deviate outside of what's considered code of practice, you may get your wrist slapped. So the main driver, this was a discussion that we had with a number of doctors last week with the AAMS. They're a California based organization, and it was international dentist and orthodontist, and the same question come up. And I said, the only reason that change has not happened was because of money. And I said, the only reason that change will happen is if doctors can make more money by advocating nasal breathing and correct breathing practice are if they stand to lose money, if they don't, if they get sued for not advising it. Because when you look into the nose, and when you look into the mouth, the mouth exerts zero functions in terms of breathing. The mouth just isn't for breathing, like you mentioned in Neanderthals, you come across that study two years ago, Neanderthals had these really wide facial structures, but also they had wide nostrils. They had really wide palates. They had plenty of room to take air in and out of the nose. Neanderthals, whatnot have been snoring. And snoring is not just about the airway being inadequate, we also need to look at flow. So the whole field of sleep medicine, it needs to be approached from the point of view of an engineer looking at the diameter of a pipe. You know, if you listen to somebody snoring, you know there's resistance to the flow of breathing there. And an engineer will investigate, and the engineer will say, "Well, yeah, what is the diameter of the airway?" But not only will the engineer look at the diameter of the airway, the engineer will

wonder what is the flow to go through the airway, and flow his breathing. And if you have somebody with a higher respiratory rate, and breathing faster, and a little bit more chest breathing, and mouth breathing, that's going to increase flow, increased resistance, and that, in turn will increase turbulence. And there was a paper published in one of the US journals looking at obstructive sleep apnea. It was a study of 95 individuals with obstructive sleep apnea. Now, the AHI index with mouth breathing was 57 events per hour. And their blood oxygen saturation was dropping down into the mid 60%. Now we do breath holding with elite athletes. And you can imagine these guys are fit or super trained, and elite athletes would really find it a huge challenge to hold their breath to stop breathing to drop their blood oxygen saturation down to 60%. Now we have guys in that paper, and I can send all these studies on to you, 95 individuals, those who are mouth breathing, having up to 60 events per hour, and each hour, every hour, every week, going on for months, going on for years, their blood oxygen saturation dropping. With nasal breathing, it was 27 events per hour. It's still significant, but it's almost half, even by just getting the mouth closed by getting the tongue in the roof of the mouth. And it's not alone because we need also to engage the diaphragm because there's a group of upper airway dilator muscles. There's a group of muscles in the throat that are designed to help maintain an open airway. But these muscles are connected with your diaphragm. But when you breathe through your nose, you have better amplitude and engagement of the diaphragm because mouth breathing activates the upper chest. So nasal breathing alone, and by teaching diaphragmatic breathing diaphragmatic-- diaphragmatic breathing increases lung volume and with an increased to lung volume, the throat is stiffer and less likely to collapse. Now there are other connections with breathing too in terms of reducing the chemo sensitivity to carbon dioxide. Basically, teaching somebody during the day to slow down their breathing, to breathe less air, and by exposing their body to slightly elevated carbon dioxide levels, they're able to change their sensitivity to the gas. And as a result, their breathing becomes lighter during sleep. Now, to date, there has been no research in the world looking at the application of functional breathing to sleep apnea. One paper was published by a Dr. [00:25:22], a Harvard Medical Doctor, and he looked at one phenotype called loop gain. And yes, he was able to measure it using breath hold time. And we have been using breath hold time for breathing for 20 years. So I would love to see an awareness here and any research that's out there, this would be a pioneering study because the reality is both for children, adenoidectomy and tonsillectomy, and if you wanted me to go down that route and how sleep apnea is being addressed. And for adults, the solutions are not working very well. The reason that the solution isn't working for adults is because the gold standard of treatment is a CPAP machine. It stands for continuous positive airway pressure. The compliance is typically 50%. So you have 50% of people with obstructive sleep apnea diagnosed with the condition, they are not able to tolerate the treatment. Surely that should open the doors for new investigations to be able to offer people an approach. And losing weight, it's all very well saying to lose weight but the problem with sleep apnea is if you stop breathing during your sleep, it messes hormones, and one hormone is leptin, and the other one is ghrelin, and ghrelin increases, and that promotes appetite. So you have the individual with sleep apnea, they're stopping breathing several episodes every hour going on throughout the night, they wake up feeling exhausted, they're likely to be irritable, they have cognitive difficulty, they can't concentrate, which is normal. And also, because of the increased ghrelin, you've got an increased appetite. You eat more foods, you put on wage,

you've got fat pads in the throat, your tongue is getting bigger, you've got more fat in the belly, the diaphragm isn't working, the tongue occupies more space in the mouth. The diaphragm isn't working as effectively as it should do and as a result, the upper airway is more likely to collapse. So we have to recognize that the treatment of adult obstructive sleep apnea is not working very well. Now, let's look at children. The gold standard of treatment is tonsillectomy and adenoidectomy. There was a paper published by the American Thoracic Society, the American Journal of Respiratory and Critical Care of Medicine, and by an author called Bhattacharjee, I can never pronounce his name correctly, but anyway, there it is. Now, he looked at 578 children, and he concluded that of the 578 children who were diagnosed with obstructive sleep apnea, who had their tonsils and adenoids removed, only 27% of them had their sleep apnea cured. And 73% of these children continued to have residual sleep apnea post tonsillectomy and adenoidectomy. Now we'll go one step further. Dr. Christian Guilleminault has published papers on this, that tonsillectomy and adenoidectomy is short-term unless nasal breathing is restored. Now, here's another personal story. My own little daughter, Lauren, of course, she has my genetic profile, which is totally screwed up. A high narrow palate, compromised breathing. There is genetics and the environment coming in here. I was noticing that she was stopping breathing during sleep when she was a three-year-old. So the best available advice that I had back then, tonsillectomy and adenoidectomy. We went through the operation. No, there was no follow-up here in Ireland. There was no encouragement by the surgeon for the child to breathe through the nose. And it was a year or so later, I was coming across Guilleminault's paper and I sent them to him and he acknowledged it. But I then underwent an appliance called ALF, an orthodontic appliance that she had to put into the roof of her mouth, which expanded her palate and which had forward growth of the jaws. And then I realized I took the wrong route. I should have went down to the orthodontic route first to develop her airways to make room for her airway instead of just looking at the adenoidectomy and tonsillectomy. And it's not that I'm against adenoidectomy and tonsillectomy, but I think it's time that we realized that if 27% of kids, if it's only curing them because it's not a walk in the park. You see your child coming out of the operating theatre, and that child has after undergoing general anaesthetic, they bounced back, but it's trauma for the parents, it's trauma for the child. So yeah, I think really, we need to start asking questions here.

Darin: Yeah. There are so many aspects to this because there's the exchange aspect, there's the chemical exchange, there's the biology, there's the anatomy side of this whole thing, which you speak so well of. So for the average person listening, let's break it down in terms of what nose breathing will do for them. And then let's get into the nitric oxide exchange, the body's ability to receive more oxygen, the sympathetic response, especially now, we need to shift into those. So break down a little bit of the benefits people would receive by nose breathing, and also what they're counteracting as well.

Patrick: Sure. Most people will think of the nose and they will understand that the nose is filtering air, and that's all very well. So when you take a breath of air in through your nose, you are picking up the gas called nitric oxide, and this gas is produced inside the nasal cavity and the sinuses surrounding the nasal cavity. And this gas was first discovered on the exhaled breath of the human being in 1991. But when you breathe through your nose, and you're carrying that nitric oxide latent air into your lungs, nitric oxide helps to redistribute the blood

throughout the lungs. And this in turn increases oxygen uptake in the blood by 10%. So the pO₂, the pressure of oxygen in the arterial blood increases by 10% when you continuously breathe through your nose, and this was discovered back in 1988 by a researcher called Swift. And when they looked at individual's post jaw surgery, when their jaws were wired shut, they were forced to breathe through their nose continuously, the pressure of oxygen in the blood increased.

Darin: Just to highlight that, just by nose breathing, you can increase your daily systemic performance of just throughout the day, whether you're an athlete or not by 10%, just by closing your mouth, roof of the top of your palate, and those breathing, 10% increase of oxygen saturation.

Patrick: And this gas, nitric oxide, for people with asthma, people would say any sort of respiratory condition, it's a natural sterilization of air. And even though the studies on nitric oxide, in terms of the effect on COVID, they've been mainly laboratory studies. But if you were to put into Google now, say, for example, put in nitric oxide and COVID, you will see that there are studies underway of nitric oxide, this gas as a treatment for COVID. Now our nose produces a source of nitric oxide. Yes, we don't know if the quantity in the nose is sufficiently high enough to make a difference, but at the same time, it makes logical sense to breathe in and out through the nose. So when we breathe through the nose, we are carrying nitric oxide into the lungs and nitric oxide is a bronchodilator. It helps open up the airways. As I said, it's redistributing the blood throughout the lungs, it's increasing oxygen uptake. Now, nasal breathing also helps with more regular breathing patterns. And the nose also is more able to engage the diaphragm. We know that when you breathe through the mouth, and anybody can check this, if you were to look down at your chest, you take a breath through the mouth, you will see typically that the mouth engages the upper chest. Now, if we are breathing shallow, we are wasting a lot of air in dead space because the last part of every breath that we take into the body, the last part of that breath will stay in the nose and the throat and the trachea and the bronchi and the bronchioles. So we can improve alveolar efficiency. We can improve the efficiency of the air that we are taking in. And I'll just give you a couple of maths quickly. If one was breathing fast and shallow, which is very common. And you could have a respiratory rate or at rest of 20 breaths per minute. And we'll say that person is breathing shallow, so they have 20 breaths per minute, they have a tidal volume of 300 mL, they're taking 6 liters of air into the body. But after that 6 liters of air, 3 liters remain in dead space, it never actually reaches the smaller sacs in the lungs for gas exchange to take place. Now if that individual was to slow down the response rate from 20 breaths down to say 12 or even 6 breaths, if they slowed it down to 6 breaths per minute with a tidal volume of 1,000 mL, still bringing in 6 liters into the body. But the amount of air getting down into the smaller sacs increases from 3 liters to 5.1 liters. So there's a significant improvement and I remember reading an article by this Italian Cardiologist called, Luciano Bernardi. And he spoke of his patients with chronic heart failure, and he said, "My patients with chronic heart failure, they have exercise intolerance. They go for a walk. They're overly breathless. They don't want to do physical exercise." And he asked a question, "Was it the heart which was causing the problem? Or did they have overly sensitive chemo sensitivity to carbon dioxide buildup?" So he started teaching his patients, this is going back 20 years ago, slow breathing to reduce the chemo sensitivity to carbon dioxide, and their exercise tolerance

improved. I then had a client coming up, and she had chronic heart failure. I had her go for a walk in my my clinic, and she was wearing pulse oximetry. And she was desaturating down to 92%. Yeah, she was kind of on the borders of going into hypoxia, but at the same time, your normal saturation, blood oxygen saturation should be 95% to 99%. I simply had her close her mouth, put her hands on either side at her lower two ribs to engage the lower regions of the lungs. And I had her slow down her breathing down to 6 breaths per minute as she was walking, and within about a minute, her blood oxygen saturation increased to 96%. Now I couldn't help thinking that people with respiratory conditions, they're not told. And this isn't a criticism, this is just the reality of it. Many of your listeners will have asthma, 10% of the Western population have asthma. How many of your listeners have been told to breathe in and out through the nose, it doesn't happen. And the other thing as I say with your listeners with asthma, they don't just have asthma, they're also more likely to be sleepy, they're more likely to be tired, and they're more likely to have sleep disordered breathing and anxiety. Because even if we just have a stuffy nose, if we have hay fever, we don't just have a stuffy nose. It's the impact that the stuffy nose is causing mouth breathing, and it's the impact that mouth breathing is having on our mood, mouth breathing is having on our sleep. And sleep, if we aren't getting a good night's sleep, we are not getting the recovery. So then you could ask, well, why should we be breathing in and out through our nose during physical exercise? Again, no comparison. The science is starting to come out on this. There's a professor of Sports Medicine called, George Dallam, from the United States. And he's a well-known triathlete, but he works with really well trained athletes, top class athletes. And he started a whole program of nasal breathing about five or six years ago. He published a paper back in 2018. He got 10 recreational athletes, and he said to them, he said, "You train now for the next six months, but only breathe through your nose." And after six months when the adaptations have taken place, then we'll test you. Because there's no point in grabbing a bunch of recreational athletes who have been operating for the last 20 years during their physical exercise. And saying, "Today, guys, I'm gonna have you breathe through your nose during your physical exercise, and I'm going to see how you're going to get on." Of course, it's going to be dismal because their body hasn't adapted to nasal breathing. And when you first switch from mouth to nose breathing during physical exercise, the air hunger is stronger. But the air hunger is stronger because carbon dioxide is increasing in the blood and carbon dioxide, because you're breathing through your nose, carbon dioxide is not able to leave the blood through the lungs so quickly, so it increases. And it's carbon dioxide that gives you that stimulus to breathe. Now carbon dioxide is not just that waste gas because discovered back in 1904 by a Danish physiologist called Christian Bohr that the pressure of carbon dioxide in the blood and result in change of the blood pH is a catalyst for the release of oxygen from the red blood cells. So you can think of it this way, we take a breath of fresh air into our lungs, oxygen passes from the lungs into the blood. Most of the oxygen in the blood is carried by hemoglobin molecules. But in order for hemoglobin to release oxygen readily, carbon dioxide needs to be present. And that's the Bohr effect. Now, how many times have we heard breathe in as much oxygen as possible and get rid of all that waste, toxic carbon dioxide. And, you know, it's unfortunate because anybody can check this, just put in Bohr effect into Google. Check the oxyhemoglobin dissociation curve or the oxygen dissociation curve, it's in pretty much any chapter that's on respiratory physiology. So back to George Dallam. What happened when he got his 10 recreational athletes breathing through the nose for six months, they were able to

achieve 100% of their work rate intensity with nasal breathing as with mouth breathing, but they had 22% less breathlessness. The fraction of expired oxygen was less, meaning that more oxygen was delivered throughout the body. And carbon dioxide in the blood was 44 millimeters of mercury versus 40, and that's quite significant. And also air hunger had diminished. And typically, like I'll always say to the students, I say, "Yeah, you switch to nasal breathing. Your nose will be running for a couple of weeks, bring a handkerchief with you. Don't overly breathe too hard through your nose because it may irritate the inside of your nose, and just gently allow your nose to climatized, and to become conditioned, to be able to handle that air." But the air hunger will diminish in time. And I would say give it about six to eight weeks, and your recovery is better, oxygen uptake, oxygen delivery is better. But the other thing is the connection with the nose and the diaphragm breathing muscle, and the connection with the diaphragm breathing muscles and functional movement. So for example, people who are upper chest breathers, the impact that can have because our diaphragm is not just for respiration. If a weightlifter is lifting a weight, typically, the weightlifter will breathe in and hold their breath. And as they breathe in, their diaphragm is moving downwards. And it's almost that the abdomen becomes like a pneumatic balloon to provide stabilization for the spine. So the breath itself and the function of the diaphragm helps with functional movement. And you cannot have good functional movement without functional breathing. And if an individual doesn't have functional movement, there is a greater risk of injury. So that's just with nose breathing. And that's kind of not even touching on dental health. Waking up with dry mouth, we all know that saliva is an anti-plaque agent, we all know that mouth breathing, there's going to be increased gum disease and dental cavities. It's trauma to the upper airways. And also mouth breathing, there's a 42% greater water loss breathing out through the mouth. Now we could say this about COVID too. We know or at least we think we know that COVID is transmitted via water particles like an aerosol. And if you have a family member who's infected with COVID, they will be likely to be in respiratory distress. They feel that they are not getting enough air. They will naturally start breathing fast and shallow, which is the wrong thing to do because it's very inefficient and non-economical. But because they are feeling they're not getting enough air, they will start mouth breathing. And as they mouth breathe, they're going to emit a greater water loss into the atmosphere, so anybody in close contact to them is going to be at greater risk of picking up the infection.

[00:42:25] Barukas Ad

Darin: Many of you who follow me know I've spent most of my life searching for the healthiest foods on the planet. If you look hard enough, there are a few unknown extraordinary foods around the world that people still don't know about. And a few years ago, I came across my favorite superfood discovery of all time, Barukas nuts. When I first tasted them, my eyes lit up. The taste alone just absolutely blew me away. But after sending them to the lab, which I do and getting all the tests, I realized they're the health theists nuts on the planet. No other nut even compares. They have an unusually high amount of fiber and they're off the charts in super high antioxidants and have few calories than any other nut. It's jam-packed with micronutrients. But they're not just good for you, they're really good for the planet. Most other nuts require millions of gallons of irrigated water, but Baruka trees require no artificial irrigation. Barukas are truly good for you, good for the planet, and good for the world community. It's a win all the way around. I really think you'll love them, so I'm giving all of my listeners 15% off by going to

barukas.com/darin. That's B-A-R-U-K-A-S dot com backslash Darin, D-A-R-I-N. I know you will enjoy.

[00:44:31] Third Part of the Interview

Darin: Nose breathing has changed my whole workout. It's changed my life. It's been a calming functional side of just dropping heart-- What I really love is after a workout, nose breathing and dropping the heart rate as quickly as possible. Just really shifting down and for everyone listening, if it isn't obvious by now, nose breathing will calm the system. It is one of the great stress reducers that you could possibly imagine, at the same time, you're increasing oxygen and saturation, and just improving your life period. So if when people are stepping into working out and then going, okay, I want to give this a shot with nose breathing, it's almost like you have to back off on the amount of volume you may be doing at first in order for that six week-ish kind of adaptation to happen where you're now nose breathing only and allowing your body to receive more oxygen in that way. So what are your recommendations in terms of literally as simple as workout to the degree at which you can keep up with that nose breathing and allow yourself that time to adapt? What's your recommendation there?

Patrick: Typically, it depends on the athlete that we're working with. If I'm working with a recreational athlete, I will try and encourage them to breathe through the nose throughout the entire process.

Darin: In the nose, out the nose, in the nose, out the nose.

Patrick: In and out the nose, yes. Now, if I'm working with an elite athlete, I'll pick times and I would like them to devote 50% of their training to nasal breathing. And there is a time when the intensity with an elite athlete that they will switch to mouth breathing, and they have to do that to maintain muscle condition. Now your ability to maintain nasal breathing during physical exercise will also be influenced by nose and nostril airway size. Now, you have a pretty well developed face. You don't have a nose like mine with a deviated septum whereby one nostril is tiny and the other one is slightly bigger. So for those individuals that may have a nose like mine, I'd suggest that you get a nasal dilator. And there's different nasal dilators on the market. And they're just little devices to help open up your nose. But at least you won't be getting so frustrated.

Darin: And that is easily, for everyone listening, that little tape that goes on your nose. It just opens up your-- You know what I found too on that note? When I'm doing some intense stuff, I will smile. Like I will make this smile and I tell my guys when we're doing that like smile because that smiling opens up my nose. Have you come across that at all because it definitely works for me and it's not bad smiling and being intimidating for people when you're smiling doing something hard and they're sweating?

Patrick: What you were doing there it looked as if you were doing what's called the Cottle Maneuver. So you have your hands either side of your nose of the lower part of the nostrils, and you're just gently prising the nostrils apart. And that was developed by an ear, nose and throat doctor about 30 years ago, 40 years ago. But I suppose, yeah, a nasal dilator does air intake as

well, which is a pretty good one, and there are other ones on the market. And then I would say to people do a really good warm up. And a good warm ups should sustain and go easy enough that you're walking or light movement, first of all, in and out through your nose, but don't hear your breathing. So don't have a belief that it's good to big breathe, because if you big breathe or overbreathe, you can get rid of too much carbon dioxide from the blood, and this causes your blood vessels to constrict. And this causes less oxygen to be delivered to working muscles. Bear in mind, if you intentionally force more air into your lungs, you are not oxygenating the body. You're not going to increase the oxygen saturation. Or if you do, it might be by 1% or 2% but what you are doing is getting rid of too much carbon dioxide and that's reducing oxygen delivered to the working muscles. So nasal breathing, you could have your hands either side of the lower two ribs. And as you breathe in, your ribs are moving out and as you breathe out, your ribs are moving in. Then as you're moving and doing light movements, start slowing down the speed of your breathing. It's very good for the mind. And it's very good as well that you're exposing your body to higher carbon dioxide. Now it does activate more parasympathetic response. And nasal breathing during physical exercise does activate more of flow stage, whereby you're relaxed but you're alert at the same time. So after a few minutes of that, we typically have athletes or recreational athletes going into a jog with nasal breathing. And then what I do is I bring in two easy breath holds. So as they're jogging, I have them take a normal breath in and out through their nose, hold their nose and jog holding their nose for about 10 or 15 paces then let go, breathe in through their nose. And about 30 seconds later, we do it again for about 10 to 15 paces. Now, after about a minute to 10 of light exercise, then I have them do really strong and long breath holds. And I have them as they're doing their warm up, take a normal breath in and out through the nose, pinch the nose and hold and/or walking. And then fast walk, holding the breath. Jog, holding the breath. Jog faster, holding the breath. Keep relaxing into the body, keep going, keep pushing. And then when they need to let go, when the air hunger is pretty strong, let go but get your breathing under control immediately. And then wait a minute and do it again. And we do with five reps. So just to give you a nutshell, we spend typically about 10 minutes with lateral expansion and contraction of the lower ribs, light slow, deep breathing. So those of you in the '90s generation, LSD, and I'm sure you remember it. So light is about the biochemistry. Slow is about the cadence in terms of improving and increasing alveolar ventilation. And deep is about lateral expansion and contraction of the lower ribs. But then we want to stress the person. So we have them two easy breath olds just to prepare them. And then we go into five strong breath holds. And the reason that we do the five strong breath holds are, it increases blood flow to the brain, that's one. Because when you increase carbon dioxide in the blood, carbon dioxide is a vasodilator, and that will increase blood flow to the brain. So even though you're holding your breath, your brain is actually getting increased blood flow, and also increased oxygen because of a right shift of the oxygen dissociation curve. Another aspect is that you get spleen contraction. So we have a spleen, those of us who have spleens intact, and our spleen is located on the left side of the diaphragm, and it contains about 8% of our red blood cells. And it's really ritually densed packed red blood cells, 80% are hematocrit. It's really good quality blood. When you do a breath hold for about 30 seconds or longer, your spleen will release red blood cells into circulation. Now, it's not known how long the released red blood cells stay in circulation before the spleen absorbs them, but it's taught to be 10 minutes. The other aspect is we're putting an extra load on to the breathing muscle, but also

you'll open up your nose, so anybody with a fever, anybody with bronchial problems. So during the warm up, I want to kind of put people through taking their attention, and to be honest with you, I got the idea first when I was giving presentations. You know, 10 years ago, if I was asked to give a presentation to a large group of people, oftentimes healthcare professionals, and the nerves would be there even though I'm focusing on my breath, but at the same time, there's a time that the nerves would be there. So I'm saying okay, I don't want to go out here and not being able to get a word out of my mouth, so what do I do with this one? So what I would do is, I would typically meditate with really slow breathing for about 20 minutes before a presentation, but the only problem is I'd be too relaxed, and I become too relaxed. So then I will do a couple of easy breath holds to stress myself. And then I will do five strong breath holds. And that really puts you because it gets you from that downregulation. You're really being upregulated there and you're going up alert. So we want to do that for the athletes but even a person training at a gym to do the same. So coming back to your question, we switch from nasal to mouth breathing typically when we are breathing about 35 to 40 liters of air and that's a fair volume of air. So we can achieve a fair quite a good work intensity, a work rate intensity with nasal breathing. It's in around 85% to 90%. So if you devote all of your physical training to nasal breathing, you will lose about 10% or 15% of your intensity in the initial few weeks. But if you keep doing it, you will surpass because it's all about I suppose quality. And yeah, it's really worth exploring. If it gets too much, switch from nose-nose, and if it gets really too high, the intensity, then you could go in through your nose and out through your mouth. And then for a period of time, in through your mouth, out through your mouth. And then when you reduce the intensity, go back to nose, in through your nose, out through your mouth. And then when the intensity drops again, back to nose-nose. And then the recovery, same as the warm up, hands on either side of the lower ribs. Anytime that we are gassed out or too breathless, don't breathe fast and shallow because again we are wasting too much air in dead space. If we are breathing rapid and shallow breathing, upper chest breathing, all we are doing is about wasting about 50% of the air that we are taking in. It's staying in the throat, it's staying in the trachea and the bronchii, and it's not reaching the smaller sacs. So if you want to recover, always kind of think of light, slow and deep breathing, have your hands either side of the lower ribs. As you breathe in, the ribs move out. And as you breathe out, ribs move in. And you recover quicker that way.

Darin: You know, we're talking about the research is done on issues, on severe issues and all that stuff. But if you really look at it, most people especially from-- let's just look at the nose breathing, most people, probably well over 99% of people are definitely not nose breathing. So you're at a severe disadvantage to every cascade, every biological, every metabolism, every optimization in your body because you'll know that just by holding your breath and trying to hold your breath right now you realize the importance of oxygen. So if you're compromised from the very genesis of that mechanism, and it's funny that sleep also has become such a relevance in our world right now. So there's sleep researchers, there's all of this stuff, but the important marriage is this nose breathing aspect and the retraining and the untraining of the mouth breathing. So as a quick kind of way that people can start to move healthily and effectively in changing their sleeping patterns, they have to look at this. And so what's the best, because I know this is going to come up, we're going to get out to tape, and that's an aspect of it. So just break that down a little bit as to how people can, because it's so important. They're

unconscious, they're sleeping, and in order for their sleeping patterns to improve, they have to be nose breathing. So how do we go about that?

Patrick: Yeah, first of all, start breathing through your nose during the day. And start becoming really conscious of how you're breathing. And if you are breathing fast and upper chest breathing, and if you're feeling caught for breath, and you're feeling you're not getting enough air, practice some of the exercises that we spoke about a while ago. Gently slow down your breathing and don't hold your breath or freeze your breathing while you're doing it. You're just gently slowing down your breathing. What you want to do is, you want to slow down your breathing to feel a tolerable air hunger. And this will change your breathing pattern so that your breathing becomes lighter and slower in sleep. Now during sleep, make sure that you breathe in and out through your nose. And the only real way that you'll know this is if you wake up at a moist mouth in the morning. Now, I'm going to say this and apologies to the female listeners, a man should wake up with two things. Number one is, his mouth should be closed with the tongue and the roof of the mouth. And he should also wake up with morning wood with an erection. And if he doesn't, it could signify that there's a problem with the heart. So that's really, really important regardless of age. Now, you will see men and the reason that men are more prone to obstructive sleep apnea. Statistically 43% of men over 50 years of age, almost one and two. And if you have a large neck size, so for example, greater than 16 inches, you're more prone to it. So get the mouth closed. You should always wake up at a moist mouth in the morning. Now Darin, I disclosed that we have our own tape, and the reason that we brought it out was we brought out a tape called Myotape. We brought it out for children because we couldn't tape teenager's lips. And so we brought a tape that surrounds the mouth and brings the lips together. And for adults as well because I can understand that many adults are going to be apprehensive about taping their lips, but you could use anything. If you want to use, what we did use for 20 years, we were using 3M 1 inch micropore tape that you'll get down in your drugstore. If you're apprehensive about sealing your lips, and by the way, your nose will never fully block when your mouth is taped. Because the wonderful thing about the human nose is, the more you use it, the better it works. And it is normal that when you're lying on your side that the nostrils closest to the pillow slightly get congested and this is normal and then you switch position and the other side gets-- so you're switching position anyway. So yeah, I would say to you, I think the real elephant in the room for sleep quality, which doesn't get discussed, is the importance of nasal breathing. Any of you waking up at a dry mouth in the morning. And by the way, it's likely to be 50% of the people listening to this. 50% waking up at a dry mouth in the morning, they're not likely to wake up feeling refreshed, more likely to have had to go to the bathroom during the night, and bad breath associated with it, poor dental health. And everything else associated with it in terms of mouth breathing is a stress activator. It's sympathetic driven. Nasal breathing is really having a huge impact. And we know from people monitoring their heart rate variability with Oura Rings, etc. The feedback was when they got their mouth closed and breathing in and out through the nose, that our sleep is deeper, they're waking up more alert, but their HRV, their recovery is better. So the Myotape, you will see if you want to just to see what it looks like, it's myotape.com. Now the children's exercises, Darin, are completely free. So if people go into YouTube, and have to put in my name, Patrick McKeown, children's breathing, the entire program is completely free. There's nine exercises up there. The adults, if they wanted to see

them, you can also practice them, but they are more prone to the kids because we wanted to put something out there for children that any child regardless of income or regardless of parents income, we wanted it that a child could practice these exercises free of charge. And because I think it's something that's so vitally important that has been overlooked. Like adults can make decisions, and we can make choices on whether we want to take it on board or not, but for a young child who's there with the mouth open and a stuffy nose, and only of the parents listening, if your child has a stuffy nose, just sit them down in front of the breathing exercise, there's little exercise there to decongest the nose by holding the breath gently nodding their head up and down. And I did all of the exercises, my daughter that I'm teaching with. So you understand that they're safe, because I'm hardly going to teach my own daughter if I thought it was anything sinister. But yeah, the information is all out there. And the research is really getting out there now. The research, and this is the wonderful thing about it because this comes back to what we spoke about at the very start, is this going to change? It is going to change, Darin, but it's not going to change within the medical profession first. It's going to change with the mothers and fathers and grandmothers and grandfathers and sons and daughters. And they are going to be the drivers of change when they put it into practice. Now in saying that, we have the likes of Dr. William Herring from Agoura Hills in California. We've got many others, like Marc Moeller, Joy Moeller. There are some absolutely tremendous people putting it out there, Alicia [01:02:43], Kevin Boyd, the list goes on and on and on, tremendous people and we're all on the back of it. We're all in this together.

Darin: I just want to say I'm so grateful for you because I know what it's like to spend kind of a lifetime doing something. And you kind of beat on walls, and you want to scream it from the mountaintops, but at the same time, you still continue. And to see it, the maturation of what you've been doing for a long time kind of being heard and being applied is phenomenal. And so I just want to thank you for solving your issues, but then also taking that message to the globe. And again, I just want to help you do that.

Patrick: Wow, that's super, Darin. Thanks so much.

Darin: Of course, man. Dude, so much to talk about here and we'll get you on again. I just really appreciate what you've done and the time today. And I'm so stoked for the people to hear this message that haven't heard it on this podcast. So thank you for you and thank you for the message that you've brought into the world.

Patrick: Thanks so much, Darin.

Darin: Thanks, brother.

[01:04:10] Generic Outro

Darin: What a fantastic episode. So tell me, what is one thing you got out of today's conversation? If this episode struck a cord with you and you want to dive a little deeper into my other conversations with incredible guests, you can head over to my website, darinoliem.com for more episodes and in-depth articles. Keep diving my friends. Keep diving.

[01:04:48] Amplify Plug

Darin: This episode is produced by my team at Must Amplify, an audio marketing company that specializes in giving a voice to a brand and making sure the right people hear it. If you would like or are thinking about doing a podcast or even would like a strategy session to add your voice to your brand in a powerful way, go to www.mustamplify.com/darin. That's www.mustamplify.com/darin.