Addressing Dysfunctional Breathing Habits That Sabotage Your Health
A Special Interview With Peter Litchfield, Ph.D.
By Dr. Joseph Mercola

Dr. Joseph Mercola:

Welcome, everyone. Dr. Mercola helping you take control of your health. And we are going to be dialoguing with one of the best breathing experts in the world, I'm absolutely convinced, because I've done some deep training with him and really understand what he's teaching. Normally, I have to – or don't have to – but I frequently read a book for the person, but I've actually taken Dr. Peter Litchfield's course that he provides and makes available, so I understand what he's doing. And because of that understanding, I appreciate the enormous value.

I've interviewed breathing experts before, many breathing experts actually in the past, and no one compares to the understanding he has of respiratory physiology and its impact on your health. And almost every one of you is going to benefit from listening to this carefully, because virtually very few people, very few people, appreciate as I did – I did not appreciate the prevalence of dysfunctional breathing habits that are typically developed as some type of trauma, emotional trauma typically. It gets embedded in your brain circuits, and when you encounter this trigger, it activates them and it lowers your CO2 (carbon dioxide) level.

You may have been getting a hint over the last few weeks or months that I really value CO2. It's probably one of the most important molecules in your body. And literally, I'm going to go deep into this in the coming year, strategies to increase your CO2 are probably one of the best things you can do to optimize your health.

So, today we're going to talk about your breathing because it's kind of like having a hole in a bucket. Your bucket carries the water. This is an analogy, of course. And if you got a hole, it's dripping, so you got to keep on filling it up. Well, the water equivalent would be CO2, and you really need CO2. The higher your levels you can get within biological normal optimal ranges, the better. Most of us are not even close to that.

It's a long intro, but I also want to give my frame because I'm going to let Dr. Litchfield do most of the talking. If you don't understand these breathing habits – That's not where I want to go. If you think you're breathing well because you're belly breathing or you're deep breathing, or you do Buteyko breathing, I want to give you a generalized summary: You're likely seriously confused. There's a lot more to it than you superficially understand. It really goes deep. And Dr. Litchfield is going to help enlighten all of us as to this. So, with all that intro, welcome and thank you for joining us.

Dr. Peter Litchfield:

Thank you very much. I'm very pleased to be here, absolutely.

Dr. Joseph Mercola:

Yeah. And I want to give Dr. Litchfield a disclaimer of sorts. He's still kind enough to participate, but he had some international travel, just got back last night, and had exposure to a friend of his that's staying with him and he got the flu last night. So, he's still struggling a little bit, but he feels okay. He normally doesn't talk like this, but he's had [an] acute unexpected surprise. And we could reschedule, but we decided to go forward. So, cut him some slack. All right.

Dr. Peter Litchfield:

I can use that. Thank you very much.

Dr. Joseph Mercola:

You're welcome.

Dr. Peter Litchfield:

Yeah.

Dr. Joseph Mercola:

All right, so. Dangling participle. I think the best way to start is to give us a brief summary of your clinical training, because your training is in respiratory physiology and behavioral psychology, which is a very interesting combination. And you wouldn't be able to do what you're doing if you didn't have those two depths of knowledge under your belt just to provide just a masterful strategy to optimize human biology. So, why don't you tell us about your journey, but keep it brief because we want to go into the meat.

Dr. Peter Litchfield:

All right, where do I start? I basically started in psychology, interested in animal behavior many years ago at the University of Michigan. And I went from there to an interest in existential psychology, came back into psychology from a philosophical perspective, and then kind of traveled down through personality theory. Researched around personality, and then ultimately back to physiology. I took this long trip through different parts of the field which has really helped me in a lot of ways, actually.

So, I'm not just physiological. I'm interested in the comprehensive part of what breathing is about. There's so many aspects to it. There's so many things to look at, so many things to explore. It's just a really exciting area. And so, I did my Ph.D. in experimental psychology and then became a professor of psychology immediately. That was back in 1970.

Dr. Joseph Mercola:

Just a little while ago.

Dr. Peter Litchfield:

Just a little while ago. I'm 82 now.

Dr. Joseph Mercola:

That's over 50 years ago.

Dr. Peter Litchfield:

That's over 50 years ago. That's correct.

Dr. Joseph Mercola:

You got your Ph.D. 50 years ago. Congratulations.

Dr. Peter Litchfield:

Well, I actually earned it in 1972. I had my dissertation to finish. You know how that is. It took me a little bit longer. But then I got very involved in the field of behavioral medicine. Behavioral medicine sort of came online in around 1978, something like that. And I got very involved in that field on the ground floor, and also had a very strong interest in behavioral pharmacology which has had a tremendous impact on me. A lot of what I do is based on my background, believe it or not, in behavioral pharmacology. I really learned some very important things there, which we might get to at some point.

And then I became involved – I started up an institute in San Francisco with [Dr.] Chuck Strobel, who has passed on now, but [he's] a physician from Yale University School of Medicine. Chuck was a major player in behavioral medicine. And then [Dr.] Robert Freed in New York and [Dr.] Ken Pelletier. Maybe you know of Ken Pelletier. The four of us got involved together. We put together an institute and we put on professional education programs in mental health everywhere in the United States. I mean, from Anchorage to Key West. So, I was very involved in that for a long time. Professional education was a big part of what I was doing. And of course, my main interest was in behavioral medicine and ultimately what we call behavioral physiology. And what that's about is really looking at physiology as a programmable system.

The thing that's really exciting about physiology is it self-regulates. It learns, in essence. It does something and there's a consequence, and based on that consequence, it changes what it does. The physiology collects information, stores information. It uses information on all levels, not just with the brain, but on a cellular level. It's collecting data, using data and so on. And that's what we call learning ultimately and what we call, really, behavior. Behavior is a physiological kind of a phenomenon. But for me, physiology really is psychophysiological because it's a learning system. And whether it's conscious or not, we could argue about that forever, but we're not going to take that up here.

But one of the things that's important in the work that we do in breathing based on this, is that people need to learn to form a partnership with their own identity in the world, with their bodies. That the body is a learning, living system. The day the first cell came into existence, psychology was born. That is really such an important thing to understand. It's not just you obviously who's

doing the breathing. Your body is doing the breathing. These aren't just genetic things or organic things. The body gets programmed constantly by virtue of what it does and what results from what it does, and breathing is no exception.

You look at the habits that we learn in our lives. Look at my hands. I'm moving my hands right now. Look at my head. I learned this unconsciously. I'm just a whole collection of amazing habits, thousands of habits that come into play at just exactly the right time. So, the right thing happens at the right time, and I don't even have to think about it. That's the nature of a habit. But they don't always go well. They can go wrong.

Habits always serve people. There's always an outcome and it's serving somebody. You don't engage in a habit unless it serves you somehow or it serves your physiology. So, one of the things that's really important in the work is we talk about our client and we talk about their body, and helping them form a partnership between the body and themselves, so that they explore themselves and learn about the habits that have been learned. They're not generally even aware of their habits that have been learned. So, you establish this connection.

And in a sense that's kind of your unconscious. In a sense it's the consciousness of your physiological system, it's your unconscious. You claim it because it's in your body, so it's got to be yours and you're not fully conscious of it. So, as far as you're concerned, it's about, "This is my unconscious." But that relationship is so important to understand.

And so, what we're really focused on in our work in breathing is we're interested in breathing as a behavior. We're not using breathing as a technique where you manipulate breathing so you can relax, or you manipulate breathing to have some otherworldly experience where you dissociate, disconnect or whatever it is. There's all kinds of reasons that people bring on board some kind of technique. Our work isn't about breathing techniques.

Dr. Joseph Mercola:

Excuse me for interrupting.

Dr. Peter Litchfield:

Sure. No. No problem.

Dr. Joseph Mercola:

Having had the benefit of taking your work, I just want you to emphasize that point, because that, my friends, is the crux of what he's teaching. So, I want you to repeat it again, maybe say it a little bit differently, because these habits are what are unconsciously sabotaging you, profoundly, profoundly, enough to make the voluntary choice to pick up the phone and call the paramedics because you think you're dying because of these voluntary habits. And I'm sure he's going to go into sharing the statistics on that. Repeat that again because it is super, vitally important.

Dr. Peter Litchfield:

Well, in essence, if you think of physiology as behavior, it's doing things all the time, and it's learning things based on the outcomes of what it does. Another thing that's very important, there is a trigger for every habit. It's not there all the time. It shows up at specific times, highly specific times. And this is what you see, for example, in the statistics in the larger cities of the United States like New York City, Chicago, Los Angeles, that surveys show that about 60%, if you can believe that, 60% of the ambulance runs in these cities are a result of symptoms that are brought on by dysfunctional breathing.

And it's not as if this person is breathing dysfunctionally all the time. It's that at that particular moment they breathe this way, then that precipitates these symptoms. They don't understand where they're coming from. They don't think of their breathing. Maybe some of them do, but they have no idea where these symptoms are coming from. They call 911, if you're in the United States, and they end up in emergency. What do they get? Basically, after a little while, they go home, maybe they get a prescription for anxiety or something, maybe they get a referral. But what happens is that this happens over and over and over and over again.

I'm not going to mention names, but a man who's extremely well-known, he's passed on now, but extremely well-known in the area of breathing. Everyone knows who he is. He's a healthcare professional, highly trained, many books and so on, breathing. He focused on breathing as a physical thing. It's not a psychophysiological thing. There was no learning in any of it. He just practiced doing the right kind of breathing at the right time or something. And it turned out, when I first met him, that he had been going to the ambulance almost monthly in the U.K. for help because of the symptoms his breathing was bringing on. Here's this incredible expert at what he does. He's a really talented man, and he was a victim of a habit that he'd learned but never identified it.

And a lot of what our work is about is identifying these habits. What is a breathing habit? What do you look for? So, there are many components of it. First of all, there's motivation. Behavior's motivated. When you talk about survival, for example, biologically speaking, and evolution, survival isn't anything unless it's psychological. Who wants to survive if you don't want [to]? You have to want to be able to survive. There's motivation behind all these different habits that might be tied up with your breathing.

Then you have to identify the exact behaviors. What is a person doing? A person may be aborting the breath. They breathe out, they get near the end of the breath, and they immediately take a breath. They get near the end of the breath, they immediately take a breath. What's happening there? This is a very simple thing. As they let the air out, they start to get anxious. Maybe they even verbalize, "I'm worried about getting enough air. I need to take over the breathing. I need to do the breathing. It's not going to happen. I got to do it." You always hear people saying, "Remember to breathe," as if you have to remember to breathe. I mean, that's silly. You don't have to remember to breathe. It's absurd.

Dr. Joseph Mercola:

Yeah, yeah.

Dr. Peter Litchfield:

So anyway, that whole end of things, if you look at the behavior itself, and there's an aborting of the breath and there's that emotion embedded in it. And then when the person takes that breath early, they get an immediate outcome that serves them. It reduces their worry, it reduces anxiety. Air hunger is a really big subject that gets tied up with it. What can happen when you abort the breath and you don't really let all the air out? Then when you go to reach for air there's not enough. You go to reach and then you get claustrophobic. "God, I can't get enough air." Okay, now you've built in air hunger into the situation.

And air hunger is learned. Think of your life, you put a blanket over your head and you feel like you can't get enough oxygen. A lot of people put a COVID mask on, they feel like they can't breathe, but they're getting all the oxygen they need. It's nothing to do with oxygen. It's about claustrophobia here. So, this person then develops a kind of claustrophobia that's now embedded in that breath. And you'll find people constantly reaching, trying to get that breath. They have air hunger all the time. As they breathe out, they abort that constantly, trying to get it as soon as possible. So, you look into the specific behaviors. That's just an example of an exhale. There's all kinds of breathing behaviors that we look at when we do this work.

And then you have to look at the outcomes. What are the outcomes? How are those outcomes serving those individuals? For example – you might be really amazed. For example, some people when they start to take larger breaths thinking they're going to get more air and they feel like they're in charge and in control, and that keeps them going, but what happens is that they lose carbon dioxide when they do that. You really hardly need to take any air in, breathing. For every liter of blood you can move through your lungs, you can move 20 liters of air. You only need 1 liter of air. So, it's not really about not getting enough oxygen in a healthy person. It's about basically a very fundamental part of respiration, is essentially regulating the carbon dioxide concentrations in the body in various places, like in the brain and throughout the system. That carbon dioxide level we'll see is so extremely important, that concentration.

So now this person is taking these deeper breaths, and when they do that, then you lose blood in the brain. With that loss of carbon dioxide, you get vasoconstriction in the brain. Not only that, but their red blood cells and the hemoglobin in the red blood cells, they're becoming too alkaline, and they don't give up the oxygen as easily as they normally would. So, it contributes to an oxygen deficit. So, you get constriction of vessels in the brain almost immediately. You get this constriction-

Dr. Joseph Mercola:

Yeah. And can I just comment? The constriction is there because the primary vascular purpose of carbon dioxide is it is the primary vasodilator. When you have sufficient carbon dioxide in your system, it will open your blood vessels much more effectively than nitric oxide, because nitric oxide has a dark side. [It] binds to complex IV in your mitochondria, and it shuts down your electron transport chain. So ideally, you want to do it with carbon dioxide. So there's a huge downside to blowing off your CO2 prematurely through these nasty breathing habits that most of you have no idea that you've developed.

Dr. Peter Litchfield:

Now if you get back to the outcome of the behavior, you see, the outcome here in this case is that loss of blood in the brain, loss of oxygen, loss of glucose, et cetera, and electrolyte changes that occur in the brain very, very quickly, that then lead to things like lactic acidosis in the brain cells, that kind of thing. This is really quick. Most people have no idea that this is going on.

Now what happens with some people – but because of that, you get a lot of emotion in many people. It triggers – You get what we call disinhibition where emotion is discharged. And so, some people, depending on your background, who you are, your history, your experience, some people, they get angry. And this may serve them. They can get angry at their wife. They can get angry at their husband. They can get angry at the people around them. They can control the people around them by becoming negative. And so, the way that they get to that anger is by overventilating.

So, they take these larger breaths, they lose carbon dioxide, they get this vasoconstriction in the brain, they get this triggering of emotion that they need to be able to cope with an environment that's difficult for them. Maybe they've come from [a] very traumatic kind of a background, and the only way they could really cope with it is to get angry. But a lot of times they're really frightened. But when they overventilate and you get that state change in the brain, that may then trigger anger.

I once did a demonstration with a woman. I was doing a class, and I had people divided into pairs. One was a therapist and one was the client. We had them deliberately lowering the CO2 levels and then having them bring it back, which is a very important part of how you deal with this. And what happened [was] I interviewed this one woman who was a "client" and I asked her, I said, "Well, how did you respond to this? What did you get from this?" She said, "I felt like picking up a stick and hitting my partner over the head. That's how I felt." Okay? That was simply by lowering her carbon dioxide level.

So, whenever she's in a certain situation where she feels threatened, where she can breathe that way, that triggers an emotion that's very useful to her. She was a school teacher, and she revealed to us that this is how, honestly, she said she controls her husband, she said. See, so breathing is really playing a major role in her life in navigating her challenges. This is a simple example, but the outcome of what you do when you're breathing is really, really important to understand what's happening.

And there's really a lot more than just the physiology, say, the overbreathing part of it. There are things like this that when you overventilate, you get a symptom, you get a physiological change. And that physiological change, people have learned to respond to that change in their own unique ways.

Some people, for example, when they get dizzy because they lose oxygen in the brain, when they overventilate, to them, they feel like they're losing control and they freak out. They don't know what's going on. They can't focus. They don't remember what's going on. They feel unable to function. They're really highly challenged and they freak out. They're on the verge of a panic attack. The next person goes, "Hey, this is kind of cool. You know, I really like this. This is really great, you know." And so they have a whole different response to it. And so, one of the things we're always looking at is how people relate to the physiological changes.

A lot of people think that fast breathing, for example, is going to essentially arouse you, and maybe become anxious or something like that. And that fast breathing isn't a good thing, and that slow breathing is really where it's all at. After all, slow breathing is about the parasympathetic nervous system. You probably know about that. And then the fast breathing, "Oh, that's the sympathetic nervous system, so you need to get to a sympathetic mode." Well, in reality, when you really look at it, this is just a correlational finding, that people who breathe fast, more of them are anxious than people who breathe slow.

But then you have to ask yourself the question, "Why do people breathe fast in the first place?" When people get worried about not getting enough oxygen, they start doing whatever they can to get more air. They open their mouths, they breathe faster, they do all kinds of things. The fast breathing is correlated, say, with negative arousal. But the fact of the matter is there are lots of people out there who feel relaxed when they breathe fast. They take small, fast breaths, and they feel so peaceful.

Dr. Joseph Mercola:

Like you.

Dr. Peter Litchfield:

Like me. Like right now. Look at me right now.

Dr. Joseph Mercola:

Yeah, you can have really healthy CO2 levels if you breathe fast, if you know what you're doing.

Dr. Peter Litchfield:

Absolutely, absolutely. Look at the system. There are reflexes that regulate the CO2 level. There are sensors in the brain, in the arterial system that are sensitive to carbon dioxide and to the pH of various fluids. The oxygen, the system is sensitive to oxygen in the arterial system. Not in the brain, but in the arterial system. And the system, these reflex centers, regulate the breathing on this input about carbon dioxide concentration, pH, oxygen and so on. And it wasn't designed to go out of whack because you get stressed. It wasn't designed to go wrong if you're challenged in your life. The only time you can breathe well is when you're completely relaxed and feeling good? The rest of the time your respiration is a basket case? That's ridiculous.

Dr. Joseph Mercola:

Yeah.

Dr. Peter Litchfield:

In working life – For instance, in our work, we did a lot of work with the special U.S. forces, and that's what they're really interested in is in crisis, people are breathing properly. They don't just implement a breathing technique to make things right in the middle of a challenging situation in

the military. You need optimal respiration and acid-based physiology, regulation, which is what we're making reference to, at all times. Breathing is regulating acid-based physiology in your body. It's amazing. Breathing is incredible. And so many people think it's all about oxygen and you got the, "The bigger the breath, the more oxygen you're going to get." When in reality you're going to get less oxygen because you're getting all that vasoconstriction in the coronaries, in the brain, all over the place, is what you get. So, anyway-

Dr. Joseph Mercola:

Let's stop here for – And just go-

Dr. Peter Litchfield:

Sure.

Dr. Joseph Mercola:

Just review-

Dr. Peter Litchfield:

Sure.

Dr. Joseph Mercola:

-the acid-based physiology. Not in depth, but the reason why it's so important. You mentioned earlier that it's a 10-to-1 ratio in excess you have, which is your reserve capacity to overbreathe. And the reason you have that is you may need it. It could save your life.

Dr. Peter Litchfield:

That's right.

Dr. Joseph Mercola:

Your body has to have the capacity to change your pH almost instantaneously because if it didn't, you would die, 100%.

Dr. Peter Litchfield:

Exactly.

Dr. Joseph Mercola:

The only way you do that is through your breathing.

Dr. Peter Litchfield:

Exactly.

Dr. Joseph Mercola:

So why don't you take me there? Because that's such an important point because people don't – Why is this the case? Because you have to have it to survive.

Dr. Peter Litchfield:

Yeah, you absolutely do. See, carbon dioxide forms carbonic acid, and there's a very – I'm not going to go into it.

Dr. Joseph Mercola:

Yeah, we don't want to go deep.

Dr. Peter Litchfield:

There's a very simple-

Dr. Joseph Mercola:

We don't want to go deep.

Dr. Peter Litchfield:

There's a very, very simple little equation which is, say, we're talking about your blood, the equation addresses how much carbon dioxide is in the blood and how much of a – There's an electrolyte that's very important that regulates acid-based balance in your body also and it's called a bicarbonate, and it's the relationship between the carbon dioxide and the bicarbonate. Now, the carbon dioxide is controlled by the way you breathe. So, as soon as you step into the picture, as soon as you start to take over and you take the control away from the reflexes, we don't know where you're going to end up.

You might be okay because you can link it. We're always coordinating these things. Like when I'm eating and talking, I'm breathing. They have to be coordinated and linked. This is behavior. They get linked. Sometimes they get out of sync and then people are really in trouble. They're struggling whenever they eat. Their breathing is all wrong. When they're talking, the breathing goes wrong. They get real lightheaded when they're talking. They can't function. They get lightheaded because they're overventilating. They're constantly trying to take another breath while they're talking to people. And then they get real concerned about communicating with people. They don't talk anymore. They withdraw. They don't want to be involved because as soon as they start talking, they just get completely in trouble. They have no idea why.

So, it's because "I'm stressed" or because "I have social anxiety" or something like that. And they make up a reason, like we all do. We all come up with reasons why we have symptoms. But in reality, what's going on there [is] they're losing carbon dioxide. They're getting completely

disoriented, can't function. I worked with a man with a Ph.D. in mathematics once, and when I had him overventilate, he could not count backwards by sevens from 200 and he's a Ph.D. in mathematics. And he said to me, "I can't believe this. Is this for real? Is it real? I can't count."

So. here this person is, they're socializing and they're reaching for all this air. Maybe they think that's good too. They have all the belief systems that we have to address in it all because that causes – It brings all kinds of issues to dysfunctional breathing. But I wanted to get back to that one thing. I was thinking about those symptoms and how people learn to respond to symptoms differently. That's something that we have to address because people develop fears of breathing because of the symptoms, that when they overventilate and they get these symptoms, now they're afraid to even think about breathing. They don't want to talk about it. They don't want to attend to it at all because as soon as they do, everything goes wrong.

Dr. Joseph Mercola:

Why don't you elaborate on those symptoms because that's a key. It'll give people a real good idea if they're suffering from overbreathing. And most of you watching this are. It's sometimes, not continuously, but when you're triggered.

Dr. Peter Litchfield:

Yeah. What I was saying right there, that those particular symptoms, they're not going to kill you, nothing's going to happen to you. So, what we do is we do desensitization work. So, people to-

Dr. Joseph Mercola:

Yeah, but let them know what the symptoms are. Headache was one, nausea could be another one.

Dr. Peter Litchfield:

Oh, yeah. I have a list of symptoms if you'd like to hear some of them.

Dr. Joseph Mercola:

Yeah, yeah. Just let people know because then they have the barometer to know if they themselves specifically are impacted by this and they most likely are. So that when you encounter one of these behavioral triggers that you probably don't know you have, you're-

Dr. Peter Litchfield:

That's right.

Dr. Joseph Mercola:

-going to have these symptoms. And the reason I mentioned this is I've treated so many patients in my medical career and I had no idea of this. And it's typically the patient comes in, you can't find anything wrong with them, yet they're having legitimate symptoms. They're impaired, they're disabled almost.

Dr. Peter Litchfield:

Yes.

Dr. Joseph Mercola:

But no one has looked at their breathing, no one.

Dr. Peter Litchfield:

That's right. Right.

Dr. Joseph Mercola:

So, these are some of the clues. If you have these symptoms, then you are going to want to find someone who understands this. And that someone who understands it probably isn't a medical doctor.

Dr. Peter Litchfield:

Yeah. They don't look at it because they don't think of breathing as a behavior. They don't look at the psychological side of it at all. It's just breathing's a reflex and you do it the right way automatically and if you have a problem, you go see a pulmonologist because you have COPD (chronic obstructive pulmonary disease), or asthma or something. Well, let's look at some of these symptoms now. It's really important to understand also that this low CO2 level, there's a name for it, and this is important. A lot of people think about hyperventilation. Let's not go there. This is what we call hypocapnia. It means too little, "hypo," hypotension, hypertension. Hypocapnia, that's carbon dioxide, "capnia." So, hypocapnia means too little carbon dioxide.

Now when that happens, it produces a lot of symptoms of its own, but it exacerbates symptoms brought on by other causes. It may actually trigger the symptoms that are associated with other causes that wouldn't otherwise be triggered. In other words, the breathing's like a threshold. It can reduce the threshold so you can get all these symptoms associated with other causes for those symptoms. So, it's not that it's either a learned breathing problem or it's an organic problem. These things interact constantly. So, let me go over some of these symptoms here because there's such a list of them, it's fascinating to hear this.

First of all, abdominal symptoms. Nausea, vomiting. I mean, really, seriously. Serious vomiting. Bloatedness, if you can believe that. And in nausea, for example, in pregnancy, all women who are pregnant are hypocapnic. They have low CO2 levels and it's always blamed on hormones. Now, it doesn't occur to anyone that there's pressure on the diaphragm that's creating air hunger.

And we've worked with a lot of pregnant women who basically raise their carbon dioxide levels and symptoms go away because those symptoms aren't necessarily a part of pregnancy.

They're symptoms of the way that you're breathing while you're pregnant. And then there are symptoms that may be exacerbated, pregnancy symptoms, by the way you're breathing as well, like brain fog. Women who are pregnant and they go to work and they can't function very well, and, "Oh, that's because you're pregnant," and so on. Well, when they're all hypocapnic, how are they going to function when all that blood leaves the brain, what are they going to do at work? So, a lot of our people who are trained breathing behavior analysts will work with pregnant women to learn to keep their CO2 levels up so that they can function. But anyway, let's go on with the list here.

Autonomic changes. We can talk about acute fatigue. We can spend some considerable time on chronic fatigue and what contribution breathing can make to that theoretically. Headache, muscle pain and weakness. And one thing about headaches, I would like to mention to you – This is really important. For me, this is really important. Let's say that there's a person who has a high-pressure, high-stress job, and whenever the stress gets high enough, they get a lot of headaches and they have to go home, they struggle with it. Headache is a major issue for them. And so, then some corporate trainer says, "Gee, stress is the issue. It's too much stress for you."

Meanwhile, the rest of the people around there might not be getting headaches, even though they may be just as stressed. So why is she getting the headache? She's getting these – I'm thinking of a particular person, a woman, but why is she getting those headaches? Well, she may go through stress management training, and what happens is she learns to relax and the probability of the headache goes down. She doesn't suffer from headaches nearly as much. And everyone says, "Yeah, you see? The cause of the headache was the stress." But in reality, in this example I'm giving you, this woman has learned to respond to stress by taking bigger breaths. And when she does that, she loses carbon dioxide, she gets vasoconstriction in the brain, she gets hypoglycemia in the brain, she gets hypoxia in the brain, she gets a headache almost immediately.

As soon as she relaxes, well then the trigger for the habit is gone because the trigger for the habit is the stress. So, the solution to the problem is to look at the breathing habit so that she can be stressed and not get a headache. If you're working in a high-stress job, you can't get a headache. So, the idea is you can be stressed and still be okay from that perspective, not be disabled. That's a really, really important thing to understand. That is the behavioral side of what I'm trying to talk about here.

So anyway, going back to this list. Cardiovascular changes like palpitations, tachycardia, arrhythmias, angina symptoms, ECG (electrocardiogram) abnormalities, cognitive changes like attention deficit. That is going to really bring on issues around that. Learning deficits, poor memory, brain fog. Well, I could give you so many examples of that. Inability to think. Symptoms around consciousness, like dissociation, disconnecting from your environment, disconnecting from people. There's state changes, there's dizziness, there's fainting, there's confusion and, believe it or not, hallucinations in people who really do this extremely.

Then there are emotional changes associated with the reduction of blood flow in the brain. But you can get triggering of anxiety and exacerbate performance anxiety, for example, if you start to

breathe that way, you can exacerbate that anxiety. And of course, you're not going to be able to function as well because you can't focus on what you're doing and then that in itself increases the anxiety. Phobia, worry, crying, movement kinds of things, diminished coordination. I could give you lots of interesting cases around in aviation and pilot behavior, how they're overventilating when they're flying.

Dr. Joseph Mercola:

That's because you're a pilot.

Dr. Peter Litchfield:

This is true. Diminished coordination, reduced reaction time, balance and perceptual judgment. For example, in physical therapy, people give – They do balance testing. That's a big thing these days in physical therapy. And a friend of mine who does our work, she's really a major contributor to the field of physical therapy, demonstrated that when this particular man that they tested, they did a balance test on him, he was an older man and so they expected he wouldn't do very well and he flunked. So, my friend Denise came forward and said, "Now wait a minute. Let's take a look at his breathing." And she looked at his breathing and his CO2 level was really low. So, she worked with him for about five minutes, got it up to a normal level, had him repeat the test, and he had no problem.

So, you look at the diagnosis that was made where behavior wasn't considered, it's just all about, can you walk across the floor and still be standing up? That's it, without understanding the other behaviors like taking over the breathing when you're doing that. Then other things here would be around the subject of muscles, tetany, hyperreflexia, spasm, muscle weakness, muscle pain, difficulty swallowing. I'll tell you, that's a really common one. When people go in and test taking, they find themselves – they feel like they're going to suffocate. They're going to take a test, and they're getting this very uncomfortable physiological change where they can't focus on what they're doing while they're taking a test. Very, very common. Chest discomfort.

Then performance[-related], like sleep apnea, anxiety, rehearsal problems in athletics where you're trying to – Maybe you're a diver and you're trying to rehearse what you're doing as you go off the diving board, but you can't remember what you're thinking about. You can't link together your thoughts. Or maybe it's focusing, knowing a sport where you're trying to shoot a gun, for example, but you really can't focus very well on the target. This is true of a lot of police departments who've taken up our work where they in essence work with their cadets to be sure they're not overventilating when they're shooting.

Other things [like] tingling in the hands and the lips, numbness, trembling and so on. Psychological shifts, this is really very interesting. Personality, self-esteem changes, memory and so on. And if you look at something like personality shift, probably you've all known someone, you go out and have a drink and that person has one glass of wine and they seem like a different person altogether, a completely different person, total personality shift. The same thing can happen with overventilating. You're having a profound effect on the physiology of the brain, and you can see real shifts in personality.

Respiratory changes, like shortness of breath, airway resistance. So, if you have asthma and you're worried about air and you're trying to get more air, you get bronchial constriction. So, you get [an] increase in resistance and maybe that addresses your theory about yourself that you knew that you were going to have an asthma attack, that you knew you were going to have these asthma symptoms because you know there are allergens in the air. But what you're doing is you're taking these deeper breaths and you're getting bronchial constriction, for example.

So, a little bit more. Smooth muscles like in the brain, in the heart, in the gut. There's some really interesting research around vision and ocular blood flow and hypocapnia, that is low CO2 levels, some really interesting stuff on that. Placental vasoconstriction, that's the No. 2 reason for miscarriages, is peripheral – according to these studies, correlational studies, which are limited in their meaning. But nevertheless, the placental vasoconstriction can come on easily by overventilating. No question about that.

The No. 1 reason [for] that [is] stress. But what is it about stress that causes the problem? Maybe what it is the person has learned a dysfunctional habit with the breathing and that's what's contributing to the problem when you talk about stress. It's really about how you've learned to respond to the stress. Anyway, there you go.

Dr. Joseph Mercola:

That was a pretty good long answer to my first question.

Dr. Peter Litchfield:

Yes.

Dr. Joseph Mercola:

So, there's so many different ways we can go.

Dr. Peter Litchfield:

Yes.

Dr. Joseph Mercola:

I want to bring up two points that we can review. One is the most important point first. It really impressed me in taking your work because you use a lot of clinical examples and you begin to appreciate that you, specifically, and the people you train many times but they may not be as gifted as you, are masterful, masterful detectives of human behavior. You've got this down to a science and you know the questions to ask and the patterns to evaluate, and it's just like watching a detective story unravel as you expose and identify what is causing the person's problem. It's just almost magical to see you do that. And it's so impressive, and I'm sure many of the people you trained to have the capacity.

But it's something to consider when you have these oddball, bizarre conditions that have many of the symptoms, which is why I wanted you to read those list of symptoms — the nausea, the headaches [and] vomiting, even. If you have those, you got to consider it's a breathing pattern dysfunction, and you're going to need some – The reason we're sharing this is you have to have the data to allow you to identify that this is even a consideration, because it wasn't a consideration for me just until very recently. I never was exposed to it, like almost every other doctor, and I'm pretty sharp. I look at all these different – But this is not part of the medical curriculum.

Respiratory physiology is, but they absolutely don't integrate the behavioral component, which is the key, the absolute key to not only identifying, but developing a process that can abort that behavior and correct it. So, that's one that you can expand on. And then the other is they say, "Well, how am I going to figure this out?" Well, the reason you're able to do that is that you can actually measure the CO2 with a tool called a capnometer, and very precisely, very accurately and easily actually. The only non-easy part is the cost of the equipment, but it's really convenient. It's not much bigger than a pack of cigarettes, actually.

And there are a number of them out there. But you've developed one that I've used and own, actually. So, maybe you can just elaborate on that and the process that one would do if you are concerned that you may have a dysfunctional breathing habit.

Dr. Peter Litchfield:

Well, being able to measure carbon dioxide is obviously the best of all worlds if it's possible for you. There are other ways you can look at overbreathing without a capnometer, but it's quite limited. It may be that you're not aware of how you're being influenced, so it's very difficult without a capnometer. But ultimately, the idea is not to need a capnometer. The idea is you learn. You've learned habits, you identify what those habits are, their components, their motivation, their outcomes, and many others. Your belief systems and all kinds of things around it so that you can learn about who you are from a breathing perspective.

And the ultimate goal is that who you are from a breathing perspective is different. You're not the same person anymore from a breathing perspective. It's not about a breathing technique. This is about learning techniques, about how you become a different being when it comes to the way that you breathe and your habits optimize respiration, your habits optimize acid-based physiology. Now, I'm measuring that. If you want to essentially go somewhere to have your CO2 looked at from a perspective of habits that you may have learned, you can rent a device, which makes it-

Dr. Joseph Mercola:

More affordable.

Dr. Peter Litchfield:

-affordable for many people. But then again, if you have a capnometer yourself or what we call a capnotrainer, this is really different in a certain way than a capnometer. A capnometer

technically is used in medicine, in surgery and in critical care, emergency medicine and so on. But a capnotrainer is used to learn about your breathing. How are you breathing? How is it affecting you? What habits do you have? How can you learn new habits? That kind of thing. So, you can rent these devices and you can also buy them. There are different versions of them. There are professional, basic and personal versions of them. They're all software-based, and you can operate these things on your cell phone and on tablets and Apple computers, PC computers, whatever, and really get to know your breathing in detail. Now, we do have a book, by the way-

Dr. Joseph Mercola:

If I could just interject here about the device.

Dr. Peter Litchfield:

Yeah. Sure.

Dr. Joseph Mercola:

I don't know the professional ones that have all the computer embedded in the capnometer, but they would be large and clunky and very expensive. But because you're using a different computer, your cell phone or another tablet or PC or even a desktop, you're able to keep the cost down. And the capnometer that you're describing is a sensor device. It allows you to input the air into this device and it will accurately identify that and send that information to the electronic device. So, it keeps the cost down relatively much lower. I mean, how much more would they be if you had to deploy that computer circuitry in the device?

Dr. Peter Litchfield:

I couldn't guess. I don't really know.

Dr. Joseph Mercola:

$10,000, probably.

Dr. Peter Litchfield:

Here's the device. You can see it's very light, very simple. You can put it in a pocket.

Dr. Joseph Mercola:

Easily.

Dr. Peter Litchfield:

You can monitor yourself while you're sleeping. You can monitor yourself when you're doing exercise. You can check out how you're breathing in challenging situations, where you're concerned because you're getting these strange symptoms and maybe it's because of the way

you're breathing. You can check it out. And you can use it in so many different things, whether it's public speaking or whether it's at Mathletics or in some professional context, like as I say, flying an airplane, for example. It becomes very helpful for you to learn about how you breathe when and where and how you can essentially bring that online in a way that optimizes your respiration. You don't want to walk around compromised from a respiratory point of view. There's no point to this. It really needs to be optimal.

Dr. Joseph Mercola:

Aside from behavior, it will definitely seriously impact your biology. Low CO2 numbers are not healthy. It will compromise your mitochondrial function.

Dr. Peter Litchfield:

Absolutely.

Dr. Joseph Mercola:

You don't really go into that in your course deeply, but that is an absolute consequence. You do not want to do that.

Dr. Peter Litchfield:

Right.

Dr. Joseph Mercola:

This is something you want to take care of for sure.

Dr. Peter Litchfield:

Yeah, absolutely. So, it's something if you're interested, you can really do it, but it involves a commitment because it has to do with you being really interested in learning about how you breathe and how it's affecting you. So, what breathing behavior analysts do is they help you do that. Now, you can learn to do it on your own. We actually have a book out that can walk you through that, where you can learn to do it on your own. I mean, you don't have to have some professional to learn about breathing. Anyone can learn about it. It's yours. I mean, you're doing it every day all the time. You don't want to be afraid of it. "Oh my God, I have to talk to an expert to be able to control my respiration." I mean, it's yours. You do what you want with it.

So, the idea is to try to help you make sense out of that and optimize your functioning. And so many people just don't realize that they're breathing dysfunctionally and the symptoms that they have and they attribute them to all kinds of other things completely unrelated to breathing. And so do the healthcare professionals because they don't know about it either. They're trying to figure out where these symptoms are coming from, but they don't think about the breathing.

Dr. Joseph Mercola:

When you mentioned early on, you implied but didn't really go into it, and I just want to expand on that now because I think it's an important point, is that your body knows what to do. It absolutely knows what to do. The only time you get into problems with it is when you usually subconsciously override it [crosstalk 00:51:36].

Dr. Peter Litchfield:

Right. Unconsciously override it. It happens constantly.

Dr. Joseph Mercola:

[inaudible 00:51:37] would probably be more accurate.

Dr. Peter Litchfield:

Yeah.

Dr. Joseph Mercola:

So that's the trick. Since I've taken your course and in the last dialogue with you, I've engaged in another study deeply, very deeply. And one of the core tenets of this study, which is more about consciousness training, one of the core tenets is to trust yourself, trust yourself. Your body knows the answer.

Dr. Peter Litchfield:

That's key.

Dr. Joseph Mercola:

That is so fundamental to everything, not just with life and everything. I mean, that's the key.

Dr. Peter Litchfield:

It can generalize by metaphor to other things. If you can learn to trust that breathing, that it's going to happen, you don't have to do it. That's a huge impact on people.

Dr. Joseph Mercola:

Yeah.

Dr. Peter Litchfield:

I've seen it over the years. It's amazing.

Dr. Joseph Mercola:

I'm confident that's one of the reasons why you're so successful at what you do, because that is a core tenet of life. And you're teaching that and it's changing people's lives because you understand that.

Dr. Peter Litchfield:

That's totally fundamental. That's what we work on, is helping people build trust in that system. And that's what I was talking about at the very beginning about partnering with your body. That partnership is vital. So, you're not a victim of your body. You're in the body. This is who you are. You own this. You own your breathing. You're not a victim of your breathing. And that's often a problem. People think they're a victim of all of this.

Dr. Joseph Mercola:

Yeah. I just want to share my experience with using the capnometer because I had a really nasty breathing habit most of my adult life, almost my entire adult life. I don't know how I picked it up, but I'm assuming I did in the past because of what happened. But essentially, I exercise a lot. I've been exercising since 1968. That's 55 years, I think, close to it. And when I would exercise, I would overbreathe, which I think is common, but actually certainly it was happening for me.

Dr. Peter Litchfield:

Very common. Very common.

Dr. Joseph Mercola:

So why should I be any different? When I would measure it, when I was working out, I would get hypocapnic big time. Now, I probably adjusted to that condition so I didn't have any significant symptoms. I wasn't impaired in any way, other than my physiology was going south because my CO2 levels were too low. So, having that device and using it while I'm working out and monitoring my CO2 levels in real time allowed me to learn how to modulate my breathing. Now I don't need it because I've gone through the experience. And you don't have to wear the sensor for the rest of your life. You just need to understand the process and then your body becomes retrained to a new pattern.

Dr. Peter Litchfield:

Exactly.

Dr. Joseph Mercola:

Yeah.

Dr. Peter Litchfield:

Exactly. A lot of times, these breathing techniques that are out there generally just don't address habits. And they may, by accident, address a habit and then give credit to the technique somehow

rather than understanding it's about some kind of embedded learning that has occurred in the process. That fear, that fear was addressed. But they may think, "Well, it's the slowness of breathing. Breathing slow is really good. And so it's parasympathetic, parasympathetic nervous system, and that's why it worked." When in reality what it was about was that you lost your fear associated with the end of the exhale, for example, because of the technique they were using. But people aren't focusing on it that way. It's all physical. They aren't looking at the experiential side of it, which is key to understanding breathing behavior.

Dr. Joseph Mercola:

You had mentioned that this world-class breathing expert actually was going to the emergency room every month. I'm not unfairly criticizing this technique because I've endorsed it and I've interviewed experts in the field about it, Buteyko breathing, which is generally regarded as one of the better approaches to this type of breathing technique that you had mentioned. But you shared in your course many examples of really skilled Buteyko practitioners, that was their full-time job, who had serious dysfunctional breathing by themselves.

Dr. Peter Litchfield:

Correct.

Dr. Joseph Mercola:

So why don't you elaborate on that? Because I think that's an interesting point.

Dr. Peter Litchfield:

Sure.

Dr. Joseph Mercola:

We're not picking on Buteyko. Almost every breathing technique has this as a consequence, though, because they're not addressing the behavior.

Dr. Peter Litchfield:

They're not addressing the behavior. They're not addressing the habits. If you don't address the habits, they're still there. They don't just disappear because you do something else. So, when you look at Buteyko, Buteyko can be very helpful to people. I don't have any doubt about that. But first of all, Buteyko really addresses people who chronically overbreathe or have chronic hypocapnia, where they breathe that way all day long. So, they habituate to a lower level of carbon dioxide. So, when you raise the carbon dioxide level, people get uncomfortable. You try to bring it up to normal and they get very uncomfortable. They're not happy. And so Buteyko addresses that, okay? But most people with breathing problems do not have chronic hypocapnia. Most of them have acute hypocapnia, like those ambulance runs. Those aren't people who are overbreathing all day long. Those are people who suddenly overbreathe, and they have these wild symptoms and they call for an ambulance.

So, most issues around breathing, when it comes to hypocapnia, are acute. It isn't chronic. So, the first thing is that Buteyko is really limited to that. And secondly, you have to ask yourself the question, if you're a Buteyko worker, which generally doesn't seem to happen, in my experience, is where did that hypocapnia come from in the first place? Why is this person breathing like that, that you now have to train them to habituate to a higher level of CO2? How did that happen? What's the history of that? And if the history is that, "This is a way I can control my wife," [like] I was talking about that school teacher who felt like beating her partner over the head, if you're overventilating so you can get angry to control your environment, what good is Buteyko going to do? That person isn't going to raise their CO2 level. They want it down so they can get angry.

So, you have to address the motivation behind the behavior and what the outcomes are that sustain it. Just because you can habituate to a higher level of CO2 doesn't mean you've addressed the problem. The problem is the habit. And so, it glosses over that so that you don't get to that. That's a really important consideration. You want to identify the habit, help the person through it, help them understand where it came from and what they can do now about it. And that may have a significant philosophical impact on them as well, their belief system about their physiology, the trust, as we were talking about earlier, in their system and so on. So, it's limited because you're not addressing [the] history of the breathing. You're not addressing any of these various factors that we've been talking about. You're just looking at the CO2 level. "My God, it's too low. We need to raise it." Another problem with Buteyko is that they don't measure it.

Dr. Joseph Mercola:

Yes.

Dr. Peter Litchfield:

They don't measure it.

Dr. Joseph Mercola:

Well, some do, but it's not part of their core curriculum.

Dr. Peter Litchfield:

Right. Some do, like people we've trained do.

Dr. Joseph Mercola:

Yeah, yeah.

Dr. Peter Litchfield:

We have a lot of people who graduated from our program who are Buteyko workers and they measure it. And so, you can measure it. And then when you think you've been successful with your client, you need to see that the CO2 went up. If it didn't go up, it's still down, you weren't

successful. So, it's very important to be able to assess it right from the start because Buteyko, when they do their testing, they're looking at correlational findings.

We look at this BOLT (body oxygen level test) test they have. It's really about if people are a certain way, they're more likely to be suffering with hypocapnia than if they're another way. So, it's just a correlation. It doesn't mean you're overbreathing. It means there's a significant chance that maybe you're overbreathing. So, you're not really measuring any physiology. You're not really looking at any behavior or anything like that. So, it's just this technique where you try to build up this tolerance, as they call it. I don't call it tolerance. It's about habituating to a higher level. That's a physiological process, habituation. There are hundreds, thousands of articles on habituation. It's a well-known phenomenon. It's not just about CO2. It's about all kinds of things.

But on the other hand, they really do a great job because when people get into that transition time that's extended, they get comfortable with allowing the breath to sit out there for long periods of time so they can build trust when they do that. And they may find the reflex in it, because identifying the reflex is what ultimately really builds trust because you can feel it kick in. If you can find that reflex, then you've won a significant part of the battle. And there's a good chance that can happen because of what the Buteyko people do.

Dr. Joseph Mercola:

Yeah.

Dr. Peter Litchfield:

You can desensitize the anxiety, and the air hunger can dissipate by doing that, so that's helpful.

Dr. Joseph Mercola:

Yeah. And they teach you to listen to your body, which is just an absolutely exceptional skill that, sadly, most people never are able to achieve. But if you can direct your efforts and make those as goals to really pay attention to what your body's telling you and learn to trust it, it's designed to make you better. And if you ignore it, you're just asking for trouble, you're just asking for trouble. So, I want to expand a bit on the hospital runs because you mentioned it, but I think many people just might gloss over them. 60%, 60%. Now, what I want to emphasize is that when you pick up the phone and call 911, most people aren't going to want to do that because they know the consequences of that.

Dr. Peter Litchfield:

Most people aren't.

Dr. Joseph Mercola:

The consequences of that could be medical bankruptcy. It's the most common cause of bankruptcy in the United States because you could get a bill for $2,000, $10,000, $20,000,

$50,000 for picking up that phone, $50,000 for an ambulance run. So, you are not going to do it unless you think you are dying.

Dr. Peter Litchfield:

Right.

Dr. Joseph Mercola:

I mean, these people are severely, severely handicapped. There's no way they're going to pay $50,000 if they didn't think they were dying, most of them, not some of them. I mean, not every one of them, but almost all of them, I'm sure. So, this is a serious, serious problem. More than half of the ambulance runs are due to this problem. So, this is screaming that this is a huge issue that's pervasive in our population. And virtually no one understands it.

Dr. Peter Litchfield:

It's the tip of the iceberg.

Dr. Joseph Mercola:

Yeah, it's the tip. Yeah, almost everyone has it. I had it.

Dr. Peter Litchfield:

Right. You can take it to so many places. I mean, it's a huge iceberg underneath that so few people, as you say, are going to call 911. I mean, it's a very embarrassing thing to do aside from it being expensive.

Dr. Joseph Mercola:

Yeah.

Dr. Peter Litchfield:

They don't want to do it. It just gives you a sense of how immense that iceberg must be.

Dr. Joseph Mercola:

Yeah, yeah, yeah. One of the reasons I started my site was to identify intervention strategies, techniques that would really help a lot of people that virtually no one understands or recognizes. And the people who do don't really have the skillset to make that widely appreciated. So, you're the perfect type of person I wanted to interview because you really have a powerful, powerful tool and can help so many people, so many people. The point I want to mention while I'm remembering, too, and I'm hoping you'll be willing to do this, in the course I took with you, you had a lot of clinical examples, and I think it would be useful to include one with this article. I can

think of a woman, I think she was 19 years old – I discussed it with you specifically. I was so impressed with the results of that. It illustrates a number of variables.

One is the adept skill of which you specifically navigated her through the process to understand what was precipitating this problem. And the woman was, she was only 19, but she had the wisdom of someone much, much older. She was really, really sharp and figured it out right away, better than almost any of the examples that you had. So, if you'd be willing to put that together, the pre, the initial assessment that you provided, and then the post, the miracle that occurred after your intervention. So, I'm assuming that's okay to do that?

Dr. Peter Litchfield:

Sure.

Dr. Joseph Mercola:

Okay. Good. That would be really helpful.

Dr. Peter Litchfield:

I could give an example, because what it's all about is having a conversation.

Dr. Joseph Mercola:

Yes.

Dr. Peter Litchfield:

And it's about helping people focus on their breathing experience. It's not about looking at an instrument. It's not outside in. It's inside out. That's how we refer to it. It's inside-out work. I help the person explore themselves from a breathing perspective. And you have to keep very centered in doing it because you can go astray so quickly and easily. People, when you talk about breathing, it gets to be very personal, extremely personal. So, we have a form we use. We have a number of different forms, but one form that we have, it gets a little history that could be relevant to the breathing. And then there's a checklist that we use with symptoms or physiological changes, whatever you want to call them, deficit symptoms. And then we look at – on that same form, the client that I'm talking with indicates the situations. There's a list of situations.

So, they indicate the situations in which these symptoms occur because you know, tingling in the fingers can be for a lot of different reasons. It might not be breathing. So, it's important that one understands that all those symptoms that I listed previously, there's all kinds of things that can bring on those symptoms, not just breathing. So, it becomes important to understand when they're related to behavior or not. And that comes out in the conversation.

So, I use that form to interview them, and I just go all through the form. We end up, in the first part of the form, looking at their history that they describe in some detail. And so, they're communicating, they're interacting, and I'm asking them questions and so on. And then we get

to the checklist, which is really the key here. When [and] how often they experience these symptoms, where they experience them, how they respond, how they interpret them, what their own sense of what those symptoms are about, and all of that kind of thing.

And we're looking at the CO2 level all of the time from the very beginning to the end because the CO2 level would change radically during this time, depending upon the person. And that gives us information as to the triggers for this kind of breathing. I was interviewing, say, this person about a particular thing there, and as soon as we started the interview, her CO2 goes from normal to way down. And I've noticed symptoms on the checklist that maybe she gets dizzy a lot, and when she gets dizzy, she gets frightened. So, I see we're talking right now and I see the CO2 level go down. I say, "Are you feeling dizzy right now?" And she says, "Yeah, as a matter of fact, this is exactly how I feel in these kinds of situations." "Well, look at your CO2 level. Look what happened here."

This is what we call transactional psychophysiology. We're interacting with the person around their physiology, and they're seeing what's happening while they're behaving in the way they are. And so, we explore that together. And then we do all kinds of testing together depending on who the person is and what the issues are.

A good example might be, I'll give you a quick case example, but we'll have them overbreathe on purpose. Now, this isn't as simple as it sounds. You need to do it the right way. There's a real right way to do it, and there are wrong ways to do it. We have someone overventilate on purpose. And what happens when you do that, they start to get symptoms, and they start to get deficits, and they're there and they're focusing on their experience. They're not talking, I'm the one who's doing the talking. I'm asking them questions to think about the answers, not to interact with me, but just to think about the answers to the questions. And I'll ask questions like, "Are there any emotions coming up right now? Are there any memories that are being triggered right now? Does this remind you of anything in your current life circumstances? Does this remind you of something that happened to you in the past?"

And I have a lot of information before I do this. I have this form. So, they're not just random questions. They're really specific. They're about that person and their lives and what we've uncovered together. And then what often happens is that they're very surprised. I mean, it's amazing what you get when you do this. I mean, it's incredible. And then what often happens is that they're trapped. They can't get out. They're breathing that way. And the CO2 level simply does not come up no matter what they do. And this is what happens in their real-life situation.

Dr. Joseph Mercola:

When they call the emergency.

Dr. Peter Litchfield:

When they get trapped.

Dr. Joseph Mercola:

When they call the ambulance.

Dr. Peter Litchfield:

Right. They call the ambulance. They're trapped, they can't get out of it, and what the hell is going on and so on. It's really, really difficult for them. And so, we can see that they get trapped and they realize that they're trapped because they can see the CO2 level. "I'm trapped. I still have all these symptoms." And then as I work with them, I use certain kinds of experiential paradigms that I implement so they can raise the CO2 level. And then all of the symptoms go away and they're amazed, like, "My God, I can't believe that. They just disappeared, just like that." Someone will say something like, when I brought up their level, helped them bring their CO2 level up, they say to me, "My God, it seemed like I wasn't even breathing. I mean, I feel so much better, and I was hardly breathing at all. How can that be?" It's because their belief system was [that] they weren't getting enough oxygen and they couldn't possibly be okay breathing in these very small kinds of breaths.

In fact, this is what allowed the trap to break open so they could allow those reflexes to operate, to allow it to trust the system so they get to where they need to be, from a respiratory point of view. And this may all happen in one short session, if you know what you're doing. It's about having a conversation. I could give an example.

Dr. Joseph Mercola:

Well, let me just interject something while I'm remembering. You have a rescue method available to you when you do these treatments, but you've only had to use it once in your clinical training. And I think it would be helpful to discuss that because many people watching this will not have the resources or not be motivated enough to seek out the resources we're going to identify in a moment. But it's a good test, and that's the paper bag test. And many people know of it, but you have to implement it properly. You just can't take a big shopping bag, or a plastic bag, and do this. So there's specific details, but if you breathe into the bag, you will raise your CO2 levels and many of these symptoms will disappear. And you can use that if you have the symptoms you discussed earlier — the nausea, the vomiting, headaches [or] tingling in your fingers. And if it disappears, it's CO2. You were over breathing. So why don't you discuss the strategy-

Dr. Peter Litchfield:

Right, if it disappears, you know for sure-

Dr. Joseph Mercola:

Yeah, 100%.

Dr. Peter Litchfield:

-what's going on. It's interesting, I remember I was skiing one time in Taos, New Mexico, and I was waiting in line. It was in a hotel, and the person in front of me was complaining about

altitude illness to the hotel clerk. And the hotel clerk said, “Look, you just need a paper bag and you’ll be okay.” And I said, “My God, this guy doesn’t know why he’s saying that, but he knows it works.” You see, it’s not about lack of oxygen. All these symptoms that this man was having had nothing to do with a lack of oxygen. It had to do with the fact that he was hypocapnic, and that’s why the paper bag works.

Dr. Joseph Mercola:

Okay. Tell us the details, the size of the bag, how you use it, because people-

Dr. Peter Litchfield:

Yeah, first of all, you never want to use a plastic bag, you’d suffocate. Never, ever, use anything like that. Always a paper bag. And if it’s too big, it’s not going to work. If it’s too small, it’s not going to work. And so generally, about 15 inches deep and about 6 inches wide is what we recommend. But then – I was trying to think of the centimeters. I know it in centimeters too, but-

Dr. Joseph Mercola:

That’s okay, most people here are using the imperial system, so it’s not a problem.

Dr. Peter Litchfield:

But anyway, so it’s very important that it would be porous. A paper bag is porous. You’re not going to suffocate. And you put it over your nose and your mouth, and it brings up the CO2 level up to a certain point, and it stops there. I could give you numbers, but it wouldn’t mean anything to you because you haven’t been trained to know what numbers are the right numbers and so on. But it’ll raise the CO2 level substantially, and typically within a very short time, you’re okay.

I remember a woman that we met in Georgia, in the United States, my partner Sandra and I, and she had this irritable bowel syndrome kind of problem with major anxiety around it, major anxiety. And she owned a bed and breakfast place. And so she wanted some advice. She found out what we did, and I said, “Well, here’s some things you could do.” There’s not much I could really offer her, but one of them was a paper bag. And about four months later – and I have the original email. It really is an amazing email. She wrote back and she said her whole life had completely changed. She no longer had to suffer with these episodes. She hadn’t had any for months, and she couldn’t believe it. But of course, she was dependent on the bag. She wasn’t learning a new habit. She just grabbed the bag when she needed it, unfortunately.

Dr. Joseph Mercola:

It’s a pretty safe Band-Aid though.

Dr. Peter Litchfield:

Yeah, pretty safe Band-Aid.

Dr. Joseph Mercola:

And inexpensive.

Dr. Peter Litchfield:

Very inexpensive. But that was years ago before the kind of technology we have these days, that's back around 2000, something like that.

Dr. Joseph Mercola:

That's a remarkable story. Absolutely remarkable. You changed this woman's life in a simple three- to five-minute conversation, right?

Dr. Peter Litchfield:

That's unbelievable. But I could give a simple example of how we do this kind of interviewing. You probably remember that example of the athlete I talked about who-

Dr. Joseph Mercola:

Yeah, why don't you share here, that'd be great.

Dr. Peter Litchfield:

Yeah. Okay. Well, I'll try to keep any reference who she might be out of the picture, but this was an athlete, a very accomplished athlete, and she had a real breathing problem. A friend of mine wanted me to see her because my friend said, "I think maybe what you're doing can help." She was her best friend. My friend was a woman, and her friend was a woman. And so I said, "Sure, I'll talk to her." And so, I had a CO2 device and I went there to my friend's clinic and I saw her friend there, and I asked her, I said, "Well, what's your problem?" And she said, "Well, I miss work constantly because I can't get enough air, and I just struggle getting enough air, and I have to cancel all my appointments." She's a healthcare provider and, "I miss one or two days of work every week. This is terrible."

"So, what have you done?" "Oh, I've gone and seen various doctors and I've gotten prescriptions that are antianxiety. They tell me it's an anxiety issue or a stress issue because they can't find anything wrong with me, but I just can't get my breath, and [there's] just so much air hunger," and so on. I said to her, "Well, when does this happen? Can you identify anything about it?" And she said, "No, I really can't. It happens anytime. I don't know when it's going to happen." And I said, "Well, you were telling me that you miss a whole day of work. Every time you tell me about this, it's about how you miss a whole day." This is the beginning of breathing behavior analysis. "Well, you said this happened at the beginning of the day."

"Well, I never really thought about that," she said. I said, well, "Do you have this problem when you wake up? You wake up in the morning, you can't get enough air?" She said, "No, no, I'm fine." "And then you eat breakfast?" She said, "Yes, I have breakfast." I said, "What about that?"

She says, “Well, I’m fine.” “But then when does the problem occur?” She said, “Well, I guess it’s just right after breakfast. I never thought about that, just after breakfast.” So somehow eating, so simple, right? Eating had something to do with breathing. She never thought of it. No one had ever asked her about it, nobody.

And then she said to me, “Hey, this happens to me sometimes after I have lunch.” I said, “This seems like there’s something to do with eating and breathing.” And she said, “Yeah, that’s amazing. I’ve never thought of that.” It’s so obvious. So, then I said to her, “So what do you do? You eat breakfast, you can’t get enough air. You’re struggling. What do you do all day? You just sit around. What do you do? You read books. What do you do?” She says, she practices breathing techniques to get larger breaths, to get more air, to try to get rid of that air hunger. And she has a book that she references about how to do this. And I said, “Well, does it work? Does it work for you?” She says, “No. In fact, it gets worse.” Of course it gets worse. Also, she’d come in, I had this capnometer there, and she said, “Well, it’s nothing to do with my carbon dioxide, because I had a friend who tested me and she tested me and it was all normal.”

And I said, “Well, right now it is normal. I’m looking at it right now, and it is normal right now, but that doesn’t mean it’s normal all the time.” She said, “Oh, really?” I said, “Let’s see, let’s see.” So then I said, “Would you like to look at your breathing? We’ll look at your carbon dioxide while you’re breathing.” One other thing she said to me, she said – I said, “How long does this last? By dinnertime, are you still suffering with a problem?” And she said, “No.” I said, “Well, what makes the difference?” She said, “I go and I do a workout at the end of every day. When I do my workout, I feel great.” And I said, “You mean to tell me, that you’re at home and you can’t get enough oxygen, but when you go to the gym and you start working out, then you can get enough oxygen? That’s kind of interesting. You can get more oxygen when you’re working out than when you’re sitting.”

So, she found that rather interesting, and she pointed out to me that, “Maybe what I should do when I have this problem, is just go to the gym.” It’s a different trigger of a different habit. So I sat her down, we were working with a capnometer, and I said, “Would you want to do a little work with me and we’ll have you over breathe a little bit and see where it takes us?” She said, “Sure.” So I worked with her and I got her CO2 down to what we call a moderately low level. And suddenly she bursts out and says, “This is exactly what happens to me, and I’m not going to be able to get out of this for the rest of the day,” she said. I said, “Now wait a minute. You’re going to be okay.” We always give people positive feedback. “You did a great job getting down here to this low level.” And she said, “Well, I did exactly what you told me to do.”

And I said, “Well, I told you to do what you told me you do when you’re trying to deal with the problem, and that is to take larger breaths. Isn’t that true?” She said, “My God, I can’t believe it. What I’ve been doing at home is what you just coached me into doing, and I had exactly the same response.” So then I worked with her to get the level up, which we haven’t talked about, but to get the level up. And I got it up, and she said to me, what I mentioned earlier, “I can’t believe that hardly breathing at all solved my problem.” She couldn’t believe it. And then she understood why her friend never found a CO2 problem, because her friend just hooked her up, connected her and measured her CO2 level as if that’s her CO2 level, when breathing is regulated by habits, you see? So, these different habits occur at different times. When her friend measured it, the trigger wasn’t present, she wasn’t eating. It’s all about eating.

Dr. Joseph Mercola:

So that's a great illustration. And some people might be skeptical and say, "Well, he just pulled one out of his hat from 50 years ago or 30 years ago." But no, I've seen you do this in new scenarios, where the advisors you're teaching to learn this skill bring in their clients and you help them learn how to do the interview and identify the same thing, and almost identical circumstances. And some novel awareness that they had no clue was triggering this. And you identify it through your skillful detective work, and then you initiate a program to rescue them, or at least help them learn to trust their body.

Dr. Peter Litchfield:

That's it, that's it.

Dr. Joseph Mercola:

So the whole system clicks in. It goes on automatic control, and they can circumvent the habit that triggered this.

Dr. Peter Litchfield:

What becomes important is that the hypercapnic symptoms become triggers for optimal respiration. So as soon as you feel an initial symptom, the system realigns itself.

Dr. Joseph Mercola:

Yeah, it's perfect-

Dr. Peter Litchfield:

And that's learned. That's a learning thing.

Dr. Joseph Mercola:

Yeah, and you wouldn't do that if you didn't have a deep knowledge of behavioral psychology.

Dr. Peter Litchfield:

Correct.

Dr. Joseph Mercola:

You merge those two disciplines together to provide an enormous benefit that isn't obvious or intuitive at all, and is essentially unknown by the medical profession, unknown. There are very, very few clinicians. I personally don't know any who understand this. They're out there, but there's not many.

Dr. Peter Litchfield:

From my perspective, the reason I got into breathing was because this was a way to teach people about how physiology is a learning system. It's a programmable system, and we need to look at the programming when we work with people, not just at the body from an anatomical perspective, we need to look at how it's been programmed. It's like working with a computer and you don't pay any attention to the software. You just work with the motherboard and all the other components, but you never look at the operating system and the software programs that are on there. That's why I got into breathing because it was such a popular thing, and it really is relevant to all of us. And that was a way to try to get the word out about the whole subject of behavioral physiology, is that physiology is a programmable, learning, intelligent system.

Dr. Joseph Mercola:

Yeah. You've done a masterful job of focusing that awareness onto breathing, which is crucial for all of us. Without it, we'd be dead. So very few people watching this will be able to connect with you personally, but you've trained a lot of clinicians who essentially know this work really well and can help people. And most of this work can be done virtually, so you don't have to travel far to different cities.

Dr. Peter Litchfield:

All of it can be done virtually.

Dr. Joseph Mercola:

Yeah. So, the way that process works, you identify a clinician you want to work with, and there's plenty of them out there, and you don't have to but usually you rent the capnometer and you fill out the paperwork. I didn't do this because I didn't perceive I had a problem. I just got the capnometer and took your training course and learned it myself. I had access to you, so I had an unfair advantage. But essentially this process, this intervention, this behavioral psychology intervention to correct the dysfunctional breathing is available, it does exist, which is very exciting. It's not inconvenient to implement, and it's a pretty simple process. Why don't you-

Dr. Peter Litchfield:

Can I mention one of those techniques?

Dr. Joseph Mercola:

Yeah, mention one, since we're getting close to the time where you have to leave.

Dr. Peter Litchfield:

Okay. Well, one technique is very simple. It's called negative practice.

Dr. Joseph Mercola:

Oh, yes, negative practice.

Dr. Peter Litchfield:

And what you do is you become an expert at performing the bad habit. So, you're not a victim of the bad habit. You own it. You take ownership of it because you can do it whenever you want to. And if you can do it whenever you want to, you can disengage it. So, you learn to do it, disengage it, do it, disengage it. And there are specific ways of doing this. We use biofeedback in this whole process. That's an important part of it. And so, then you're not afraid anymore of the symptoms because you can turn them on, you can turn them off, you don't really care. It's not a big deal.

And in that process, you get highly reinforced. Again, that's how physiology works. The outcome of what it does determines what it can do within the potential it has. And so, then the idea is that there's a positive outcome for restoring a good respiration. On the other hand, it can be much more challenging because if someone is overbreathing to get angry at their husband, I mean, this is a more complex issue. You have to address that. So, it can be very simple or it can be quite complex, but nevertheless, it's [a] negative practice thing. It works wonders for people, for public speaking or whatever it is. It's just fantastic.

Dr. Joseph Mercola:

It's the core of the program. So, how about you run through the process of identifying – if someone's interested in doing this work, because I suspect many people will be because almost everyone watching it has some type of breathing dysfunction. Now, maybe it's not significant where they need this type of intervention, but most people would benefit. So, how do they find someone who's skilled with this training?

Dr. Peter Litchfield:

Okay. Well, what I recommend is you go to the following website, and then this website is connected to many people who provide breathing behavior analysis services, and that's very simple. It's www.capnolearning, C-A-P-N-O learning, capnolearning, carbon dioxide learning, www.capnolearning.org.

Dr. Joseph Mercola:

Remember dot org, don't put dot com. Org, O-R-G.

Dr. Peter Litchfield:

Right, ".com" you'll end up someplace else if you put "com." That's a link to something else going on. But ".org" is really important. If you're interested in getting a book about what we call capnolearning, which is really bringing behavioral science, physiology and technology together, there's also a book you can order. There's a journal called The Breathing Science Journal, and you can go there. It's a nonprofit organization, so if you buy the book, it's a contribution to the nonprofit and the website is www.the, T-H-E, BSJ, Breathing Science Journal, theBSJ, so www.thebsj.org. Then if you're interested in professional training, you're a healthcare person and you really like to get involved in this work, what I suggest, if you're interested in that, is get

the book first and kind of confirm that this is really what you'd like to do to be sure, or maybe even get an instrument with it if you're going to be doing that.

But when you're ready for professional training, you can go to www.bp – bravo papa – bp.edu, [www.bp.edu]. And there you can go for – we have a professional certificate in the science of breathing behavior analysis. We have certification as a breathing behavior analyst, and we have a diploma program in breathing science, professional diploma program. Again, that's for healthcare providers or people who've had a lot of training. It might be in athletics, it might be in performance training, not just healthcare. And then lastly, if you're interested in an instrument and what that's about, you can go to their site, which is www.betterphysiology.com, and there you can learn all about the instrument and what the differences are between the different options there are there, if you're interested.

Dr. Joseph Mercola:

Yeah, for most people, there's essentially – just to cut through the confusion of the different options. It's pretty much all the same unit, all the different options have that same device you showed earlier, the sensor, but the only difference really is a software package. So, the base program just connects to your cell phone and nothing else. Then there's another one that would connect to your computer, and then one that allows you to – what's the-

Dr. Peter Litchfield:

The professional one?

Dr. Joseph Mercola:

No. There's two versions of the other one. One's the computer-

Dr. Peter Litchfield:

We have the personal.

Dr. Joseph Mercola:

Multi-user, multi-user.

Dr. Peter Litchfield:

We have [a] multi-user option.

Dr. Joseph Mercola:

Yeah. So, if you're only going to use it for yourself, then that's all you need. If you're going to use [on] anyone else, then you need to get that option. So anyway, it's pretty straightforward. I love the software, I love the concept, I love the idea that you put this all together and provided a very, very helpful intervention that literally is so less expensive and virtually no risk, no damage.

You can't hurt people with this and it solves so many problems. It could have been 10%, 20%, 30% of the people I was seeing. I never knew it. And these are the cases that you just don't know what's going on, you never figure it out.

Dr. Peter Litchfield:

When you think of the cost, just think of what the cost has been for symptoms that you've been having for years and years and never had a solution to. It's just amazing to me. Honestly, I still find it difficult to believe those statistics that I present in various places could possibly be true. It just boggles my mind. How can that be true?

Dr. Joseph Mercola:

So, I applaud your efforts to listen to your body, to follow your passion and develop this extraordinary intervention that can help so many people. So, good work. You're helping a lot of people.

Dr. Peter Litchfield:

Well, thank you. I appreciate it.