Dr. Ron Ehrlich: Hello and welcome to Unstress. I'm Dr. Ron Ehrlich. Do you know, if you don't eat for a few weeks, you will probably eventually die. If you don't drink for a few days, there's a good chance you will as well. But it only takes 5, 10 minutes at the very most, most people wouldn't go more than three or four of breathing before you stop breathing and are dead. I mean, breathing is without a doubt one of the most important functions we perform and we do it from the moment we are born to the moment we die. And we know that the secret to good health is to keep breathing for as long ... well, the secret to a long life is to keep breathing for as long as you can. But the secret to a healthy long life is to breathe *well* for as long as you can. And what does that actually mean?

Well, my guest today is Dr. Rosalba Courtney. And she is an osteopath who after many years, let's just say over 30 years of clinical practice thought, well, what was the most important thing she could learn to improve in the health of her patients? Guess what, she did a PhD about seven or eight years ago on dysfunctional breathing. What is it? How do you measure it? What's the clinical significance meaning what's the everyday significance? And now, these actually are questions after almost 40 years of dental practice that I also thought was worth asking too. I included a chapter on breathing in my book, but we go into quite a lot of detail here. And if you think noses is just that thing on the front of you face to separate your two eyes, well actually, there are over 30 functions of the nose. And we don't go into all of them, but we go into quite a few of them.

And if you think breathing is just about oxygen, well, no it's not. There's a whole lot more to it than that. There's an awful lot we go through here. I thought it was a great conversation, I hope you do too. This is my conversation with Dr. Rosalba Courtney. Welcome to the show Rosalba.

Dr. Rosalba Courtney: Well, good morning Ron. Thank You.

Dr. Ron Ehrlich: Rosalba, we're talking about breathing today obviously and people kind of take it for granted, can I just start from a really basic point and that is why do we breathe?

Dr. Rosalba Courtney: Well, breathing is our most important function in that you can't go very long without breathing. Probably the primary purpose of breathing is, exchange of oxygen and carbon dioxide so you have oxygen for energy. But there's a lot more to breathing, breathing has lots of different functions that many people are unaware of that go beyond just the exchange of those gases.

Dr. Ron Ehrlich: I thought there were and that's was the lead-in because-

Dr. Rosalba Courtney: Yes. Of course. Of course-

Dr. Ron Ehrlich: We know that you if you don't eat, you could live for a few weeks and if you don't drink you could live for a few days, but breathing you've got, how long have you got before you're gone? Breathing.

Dr. Rosalba Courtney: It's not very long. Some people, the records for breath holding and getting longer and longer. And I think people have gone, some of the records are 10 minutes, I've even heard about 20 minutes. But most of us couldn't go longer than say five minutes and that would be it. Yeah. It's really fascinating. That kind of chemical side of breathing, which is the regulation of oxygen and carbon dioxide, there's another aspect to that which is really important that a lot of people aren't aware of which is that breathing is one of the major regulators of pH, of acidity and alkalinity. And your lungs work together with your kidneys to regulate pH, pH, of course, being fundamental to metabolic activity and creates the environment for different chemical reactions to go smoothly or not in the body. So, pH is very important.

Dr. Ron Ehrlich: A lot of people would be aware of that acid-alkaline thing and try to correct it nutritionally and that is a good way to do it obviously, and some even drink alkaline water, which I personally have a few problems with. But tell us about how breathing balances out the pH?

Dr. Rosalba Courtney: Well, if we talk about say dysfunctional breathing if someone's been overly stressed or life's challenges have just been too great, there are different sorts of stresses that if the body is being stressed, often the response of the body is to increase its breathing, to increase its ventilation. And if you increase your ventilation too much over a too long period of time, your body ends up becoming depleted in bicarbonate. And bicarbonate being your regulating system within your body, it's sort of a bit of a trajectory to get there. When you over breathe, first of all, you blow off carbon dioxide so the body becomes alkaline. But with their short period of time, your kidneys try to balance that out by excreting bicarbonate.

And if you keep over breathing and getting low in co2 and then your kidneys have to excrete bicarbonate to balance that, then over time you lose the most important buffering mechanism in your body, which is around bicarbonate. So, no matter what you eat, you just can't buffer the acidity that happens just as normal energy metabolism. So, you end up with a sort of a chronic cellular acidity that your body can't balance. The inside of the cell becomes acid and the response or the byproduct of that is just that the cellular energy production is affected and general health is affected in lots of different ways. When your body excretes bicarbonate, it takes other minerals with it like, for example, magnesium, potassium, sodium. The effects are quite far-reaching just on that biochemical level with breathing.

Dr. Ron Ehrlich: People do think about breathing as being about oxygen exchange, you breathe in oxygen and that attaches on to hemoglobin and then it gets transported around the body, but the transfer of that oxygen at a cellular level requires a really narrow pH level, doesn't it? That's part of-

Dr. Rosalba Courtney: That's right. Breathing more doesn't necessarily give you more oxygen because if you over-breathe what happens is that you blow off too much co2 and if you blow off too much co2, then the red blood cell doesn't release the oxygen to the cell. Breathing more can end up, if you're over breathing, can end up giving you less oxygen available to the cell. If you combine that with abnormal pH inside the cell, then you see how stress and over-breathing lead to a whole range of health problems.

Dr. Ron Ehrlich: It's interesting, isn't it? That nutritionally stress means that your blood supply in your digestive tract isn't working as well as it should. You could be on a fantastic diet, but under stress, you may not be absorbing your nutrients. Similarly, you could be on a great diet but if your breathing is out of balance and your pH is out of balance then that oxygen is just not going to get to where it's needed.

Dr. Rosalba Courtney: Yeah, so true, and the metabolism in the cell isn't quite as it should be. Breathing becomes this thing that you need to look at. It's so commonly ignored. They say that probably 1 in 10 people has this over breathing issue to the point that you can measure their carbon dioxide and see that it's low. And yet mostly that's overlooked because people don't measure it, you have to actually have someone look at the carbon dioxide levels in the exhaled nasal air and you'll see that the levels are low only when you measure. But there are other ways that you can see it if people are feeling ... when there's unexplained breathlessness, that can be one symptom that the breathing is dysfunctional.

Dr. Ron Ehrlich: Yeah. There's a whole list really, isn't it? You have done your PhD on this dysfunctional breathing issue, it's obviously a very, very big problem.

Dr. Rosalba Courtney: Yeah. It's a fascinating topic. It's really fascinating topic. And I've spent eight years doing my PhD yeah. I didn't run out of interesting things to learn in that time and I'm still learning more and more about it. But I'm sort of convinced that breathing is really one of the fundamental things for health. And commonly disturbed, often overlooked and it can be fixed. You can actually work with breathing and use it as a healing tool.

Dr. Ron Ehrlich: How long does it take for dysfunctional breathing to really start to make a difference clinically? Is it a matter of hours, days, weeks months or years, what sort of time frame do you think for these kinds of symptoms appear?

Dr. Rosalba Courtney: Right. Oh, that's a very interesting question Ron. I'm not even sure I know the answer to that.

Dr. Ron Ehrlich: It's okay, it's okay.

Dr. Rosalba Courtney: The way that I measure dysfunctional breathing would be looking at symptoms, I look at carbon dioxide and then I look at breathing pattern. And often, I'll find different levels of dysfunctional breathing and different types of dysfunctional breathing in people. But people vary in the symptoms that they have from that. Do you know what I mean? Some people seem to have over resilience, they can cope their breathing not being optimal and they don't necessarily have heaps of symptoms and they don't show aggravation of different disease states. I think it's sort of one factor that sits in amongst other factors.

Dr. Ron Ehrlich: When we talk about dysfunctional breathing, we probably should really go back one step further and say what is ideal breathing? Let's define what really well-balanced breathing is.

Dr. Rosalba Courtney: Right. Well, it depends on the person and the circumstances. I've actually got a definition of functional breathing, which is that functional breathing is

breathing that performs its some primary and secondary functions and it's efficient, adaptive, appropriate and responsive.

Dr. Ron Ehrlich: Okay, breakdown that down for me please, Rosalba. Primary function, okay. Let's go to the primary functions first and we'll get to the secondary functions. You've already mentioned it's the exchange of oxygen and carbon dioxide.

Dr. Rosalba Courtney: And carbon dioxide. Okay. Breathing is also a pumping mechanism. It pumps air, but also it creates pressure changes in the body that influence blood flow and the flow of lymph and creates different pressures that drive fluids around the body. It's got a pumping action, so you can think of it as a kind of a biomechanical pump as well as you've got the biochemical side, which is the oxygen, carbon dioxide, and pH. And you've got this biomechanical side where breathing is acting like a pump. But then breathing also interacts with lots of other systems in the body, so that would be its secondary functions.

Breathing interacts with them the mechanisms of voice production, speech and vocalization and breathing also has psychophysiological functions. It's the way that people calm themselves or change and regulate their mental-emotional state and their level of arousal, so that's a secondary function of breathing. And another secondary function of breathing might be that it's a rhythm, it's an oscillating rhythm that influences homeostasis and the function of the autonomic nervous system. I could go on, but they're the kind of things. Breathing is really at the center of body function because almost every system in the body influences breathing, but breathing influences lots of other systems in the body; digestive system, the lymphatic system, the circulatory system, the body's blood pressure regulating system and so on.

Dr. Ron Ehrlich: Yeah. We talked about over-breathing, but what's the range of optimal breaths per minute say?

Dr. Rosalba Courtney: Yeah. Well, that's where the appropriate thing comes. If you're breathing and you're at rest and calm, then the optimal speed of breathing for someone in their normal everyday state might be somewhere between 9 to 15 breaths per minute. But if you're breathing to put yourself into an ultra calm state and create optimal interaction between your breathing and your blood pressure mechanism and your heart rate and your autonomic nervous system you probably breathe 6 breaths per minute.

Dr. Ron Ehrlich: Really, there's something quite appealing to me when I hear you list out all those things like getting the best out of our circulatory system, our nervous system and optimal. Ideally, we should be breathing slower depending on the stress and what activity we're doing.

Dr. Rosalba Courtney: Yeah. Exactly. Well, the way I view it is that I think that you've got to just live your life. And if you're trying to always breathe at six breaths per minute, then you might miss out on some fun things in life you know. And also, it would be a bit artificial, enforced. But it's really good to have times during the day where you go to that optimal state. We need to go there. And their people who have always done things to take them there. For example, certain types of poetry, like the type of poetry that was done in the oral tradition,

the Iliad and the Odyssey and those poems that storytellers went around to villagers telling people. And then people would sit and listen for hours while the storyteller told the story in verse. And it would be kind of rhythmic and he would have to breathe that around six breaths per minute and the listeners would entrain into that zone. And also, hymns and rosary prayer and certain types of music and children's nursery rhymes tend to get people breathing at about that rhythm.

When you meditate, if you're focusing on your breath and really just relaxing and tuning right in, most people will tend to get to around that six breaths per minute type of breathing. It's a lovely place to go to renew, restore and rebalance yourself really.

Dr. Ron Ehrlich: The rate of breathing is important. Now, one of these topics, the more I learn about nasal breathing versus mouth breathing, the more amazed I am by how important that is. Can you talk to us a little bit about the difference between mouth breathing and nasal breathing?

Dr. Rosalba Courtney: Oh, yes. Some people say the nose was made for breathing and the mouth was made for eating and talking. And if you breathe through your mouth then you should eat through your nose.

Dr. Ron Ehrlich: Interesting thought. Try that at home, please.

Dr. Rosalba Courtney: The story that people say sometimes just to sort of say, "Look, see how ridiculous it is to breathe through your mouth." But the nose has many, many functions, maybe 30 different functions. And if you breathe through your mouth, you don't get those functions. You know a lot of these, Ron.

Dr. Ron Ehrlich: I do, but my listeners might not. Let's assume I know nothing.

Dr. Rosalba Courtney: Your nose, first of all, it cleans and filters the air, which the mouth doesn't do. Your nose has lots of mechanisms for filtering large and small particles. And it also has an immune effect, so it can kill certain viruses, bacteria and even fungi using lysosomes and a substance that it produces called nitric oxide. Your nose is a real cleaner of the air that protects the airway really and really the throat from these things that are in the air particulate matter and organisms that can assault our lungs and our immune system. And your nose also, it's a resonating chamber for the voice. It's important for creating certain qualities of voice. And your nose is very involved in smell, but there's an alternating function where your nose alternates your opening and closing one side more than the other, which seems to have brain and nervous system regulating effects.

And your nose actually communicates with the brain. There's some recent research showing that nasal breathing actually affects the brain so that the brain starts to oscillate at the same rhythm of breathing. And nasal breathing seems to improve memory and learning functions of the breath. And when you breathe through your mouth, you don't get that effect. Breathing through your nose has a sort of a calming, mind-clearing effect. And children who mouth breath, for example, will have learning and behavioral issues. Your nose also is important for a regulation of breathing. When you breathe through your nose, it makes your diaphragm

work better, give you a better breathing pattern. And it's involved in reflexes that help to open the throat, the pharynx. It's important for things like snoring and sleep apnea to breathe through your nose. And let me see what else is there.

Dr. Ron Ehrlich: Wow. It's fantastic, you mentioned about communication with the brain. And I think I did read that bit of research about empathy. There's a part of the brain called the amygdala. It was a fascinating piece of research and is that what you're referring to like that people who breathe through their nose seem to be more empathetic.

Dr. Rosalba Courtney: Oh, I don't even know about that.

Dr. Ron Ehrlich: I'll have to send you the-

Dr. Rosalba Courtney: Please, please do. That sounds very interesting.

Dr. Ron Ehrlich: But what about the diaphragm what was that term you said communication with the brain, and that I think that's fascinating.

Dr. Rosalba Courtney: Maybe we can put in the reference later, I'll send it to you. You might want to put it at the end of the podcast. It's really complex bit of a research where it had several layers to it, but they looked at people who were having severe seizures and they did some analysis of those people and then they also did some animal studies. But what they were able to show is that nasal breathing really affects those parts of the brain that are involved in memory and learning in the limbic system, which also has to do with emotional regulation. There is a link there with emotional regulation. This whole thing about smell and connection and memory and empathy, there's interesting stuff there too.

Dr. Ron Ehrlich: You also mention the diaphragm, which is another part of breathing optimally if you like.

Dr. Rosalba Courtney: That's right, that's right.

Dr. Ron Ehrlich: Tell us about, a lot of people don't use their diaphragm. And you're an osteopath. This is what's so interesting. I've mentioned this in our intro. But here you are an osteopath with clinical years and years, I won't go into how many... many years of clinical experience and you go off and do this Ph.D. in breathing. But the diaphragm, tell us about the diaphragm?

Dr. Rosalba Courtney: Well, the diaphragm is our most important respiratory muscle. A lot of people don't get how huge it is. You can't see it, it's inside your body and it separates the abdominal cavity from the ribcage. And when you breathe in, your diaphragm descends and flattens and it goes down into the abdominal area and presses on the abdominal contents and it makes more space inside the chest cavity so that the pressure inside your chest cavity drops and air can come in. It regulates the pressure changes that allow you to breathe and it works with other respiratory muscles to make that happen.

The nerve to the diaphragm is called the phrenic nerve, and the root of the word phren means mind. And when people are stressed and anxious, the diaphragm can actually get overstimulated and it goes into a sort of a spasm if you like. It descends and flattens and gets too tight. People go to breathe and the diaphragm isn't working very well so then they start to use their chest muscles and their shoulder muscles to breathe. And they can't really get an effective diaphragm actually. Diaphragm breathing, a lot of people think that diaphragm breathing means pushing your belly in and out, which it's not you know. Some belly motion can help your diaphragm to work. And certainly people should be able to breathe in this lovely 360 ring where when they breathe in, the lateral rib cage expands sideways and the front and back of your body also move out once so that the lower ring of the lower ribcage and abdomen increases its dimensions as you breathe in and decreases its dimensions as you breathe out.

But the thing is that many people try and diaphragm breathe by pushing their belly in and out. And sometimes that's counterproductive, they can't do it. It stresses them out. I spend a lot of time just training people to just slow and relax your breath, focus on the exhale and just give yourself time, make your breathing low, slow and soft and then gradually the diaphragm starts to breathe better.

Dr. Ron Ehrlich: We've just had a bit of a retraining program, just with that, I was just breathing as you called it.

Dr. Rosalba Courtney: That's good. That worked for you.

Dr. Ron Ehrlich: It's good, it's feeling good. But the other thing about using the diaphragm also is breathing is about a gaseous exchange in our lungs, it's nice to be able to use as much of our lungs as possible, isn't it?

Dr. Rosalba Courtney: Yeah. Yeah. Again, if you've got someone who's really already hyperventilating and over breathing and they just try and always breathe big breaths and the belief that that's all that is going to be better, it can actually work against them. It is a matter of appropriateness. I often say to people, "Look, if you don't know what to do with breathing, just always think... relax." The big thing about breathing is that people who are stressed will a little bit over breathe and tend to use their upper ribcage and chest. Breathing a little more slowly and making the breath low and soft will usually put you in the right zone.

Dr. Ron Ehrlich: And then I guess also the fact that this sheet of muscle or sheath the muscle separating the abdomen from the respiratory system also has this massaging effect too, which is kind of ... it's cool. Imagine being able to massage your organs.

Dr. Rosalba Courtney: That's right. Yeah. It helps to kind of pop the liver and help the limbs to flow. And it can regulate peristaltic activity in the gut. Some people with reflux and irritable bowel syndrome actually find that they get good improvement in those gut symptoms by learning to do proper, good relaxed slow soft diaphragmatic breathing. And there are a few research studies on that.

Dr. Ron Ehrlich: Yeah. Now, you've mentioned and I've heard you say this. And I remember last time I heard you give a lecture, which was fabulous I have to say, you mentioned nitric oxide. You've mentioned it again today. Tell us, because people know about oxygen, more or less and they kind of know about carbon dioxide, but nitric oxide is something quite exceptional. Can you tell us a little bit about nitric oxide?

Dr. Rosalba Courtney: Yes. I'm glad you emphasized the "ic".

Dr. Ron Ehrlich: Well, nitrous is one we use in the dental practice and it's a very different-

Dr. Rosalba Courtney: Sometimes people get it muddled up and they go, "Oh yeah. Nitrous oxide, I've heard about that. Isn't that stuff you breathe out of balloons, it makes your talk silly?" or something. But yeah, nitric oxide. Nitric oxide or in an O, one nitrogen, one oxygen and it's produced in a number of places in your body. It's produced in blood vessels and from some epithelial tissue, but apparently, this is what I've read that 60% is produced in the paranasal sinuses. Breathing through the nose is important for that local nasal nitric oxide production. And nitric oxide is such a fascinating chemical. The research that was done in the early 2000 era identified that there were 2,000 functions nitric oxide.

One of the interesting things about nitric oxide is that it's actually involved in oxygen transport and it sort of dilates things, it dilates blood vessels, it opens blood vessels up so it can help what's called perfusion, blood flow in different parts of the body including the brain. And people know you know that nitric oxide dilates blood vessels, so things that cause nitric oxide to break down can make blood vessels constrict a little bit. And if you stop the breakdown of nitric oxide, you can get better blood flow. For example, the drug Viagra stops the breakdown of nitric oxide, that helps people remember what nitric oxide does.

Dr. Ron Ehrlich: Yeah. That's got half the audience's attention or maybe the whole audience-

Dr. Rosalba Courtney: There you go. As soon as you mention that word.

Dr. Ron Ehrlich: That's right. But it's interesting, isn't it? You're saying this research was done in early 2000, so the whole work on this nitric oxide is relatively new.

Dr. Rosalba Courtney: Yes. I guess so. I was thinking it was old, but I guess, yes it is relatively new. But nitric oxide, it's a complicated interesting chemical. Do you know tissues that are inflamed will make more nitric oxide, but then again nitric oxide, it's all about nitric oxide regulation. You don't want too much, you don't want too little. And breathing nasally probably helps in nitric oxide regulation in the body. Nitric oxide is known to be a dilator of the bronchi, for example. Some people feel that it might have a role to play in helping keep the airways open in people with asthma. Although people with asthma and inflamed lungs sometimes have higher levels. It's just an interesting and complex chemical.

Dr. Ron Ehrlich: And you also mentioned it being antimicrobial as well, which would be pretty important in the airway I guess.

Dr. Rosalba Courtney: Yeah. You can see how the body maybe uses nitric ... the body has an amazing intelligence. It's making more nitric oxide maybe when it needs it, but when we get into bad habits like mouth breathing or over breathing, we might lead to disturbance of that nitric oxide regulation in our body. And it's known that nitric oxide is a neurotransmitter that regulates memory and learning. It seems to have a role in relaxing the gut in irritable bowel syndrome and so on. It's a fascinating that. Breathe through your nose to have proper nitric oxide.

Dr. Ron Ehrlich: Because one of the things that always surprises me is when I ask a mouth-breather, oh, we've got a blocked nose and we maybe put some micropore tape on the mouth and ask them to just calm down and breathe slowly, suddenly a nose that is blocked is unblocked. This is a kind of paradigm, isn't it?

Dr. Rosalba Courtney: I know. It's quite amazing, isn't it?

Dr. Ron Ehrlich: It is.

Dr. Rosalba Courtney: Yeah. Because there are some people where conscious, voluntary nasal breathing actually can retrain the nose to work better. And that's certainly something I've had experience with over 30 years. And there are some people where that doesn't work. They make this effort to breathe through their nose and they just get more and more distressed. And so, those people often need to see an ear, nose and throat doctor and get a proper diagnosis because they're usually very obstructed and they can't retrain nasal function.

But there is this subgroup of people who, I don't know what percentage of people is, but where consciously making the effort to close their lips, breathe through their nose and really doing it during all activities of daily life including exercise and also sleep, makes their nose start to work better and better. And we so desperately need research about this because there are many, many people around the world who are telling people to tape their mouths and breathe through their nose and then there are other people saying this is not a good idea, you shouldn't do it.

And the reality is that it seems to really work for some people and we just need some research about it to show how it works, to decrease nasal resistance because empirically this seems to be the case.

Dr. Ron Ehrlich: Now, I actually did see a piece of research which showed that putting tape on reduced the incidence of apnea and hypopnea. And apnea, as our listeners may or may not know,w is when you stop breathing while you're asleep and hypopnea is when you've got a restricted breathing. And it actually reduced it. I found a bit of research that actually did-

Dr. Rosalba Courtney: Terrific.

Dr. Ron Ehrlich: Yeah. I'll send it to you and I'll put it on our website. But listen, we have talked on this podcast a lot about sleep, I think it's the most important part of the day and it's a question of quantity, how much you sleep but quality being the breathing aspect of

sleep. And there are CPAPS and mandibular advancement splints, but I know you've just recently written a great blog post. And we can have links to your website on our podcast here and you said that there are some self-help measures that you can do in breathing retraining and throat exercises that could be helpful. Can you tell us about those?

Dr. Rosalba Courtney: Yeah. Sure. Yeah. Because a lot of people think that the only option with sleep apnea is to make a bigger airway with CPAP being the gold standard treatment and mandibular advancement splints being also accepted therapy. And they do work for a lot of people, and I wouldn't discourage people using them when they need them.

Dr. Ron Ehrlich: Just remind our listener what the CPAP stands for just in case they've tuned in.

Dr. Rosalba Courtney: Oh. CPAP stand for Continuous Positive Airway Pressure. It's using air pressure delivered through a mask to splint open the airway at night.

Dr. Ron Ehrlich: And a mandibular advancement splint is bringing the jaw forward and the tongues attached to the lower jaw and so it doesn't fall back and block the airway. But there is compliance issues and expenses with both of those, but I love the fact that you're offering some alternative that could be helpful or supportive.

Dr. Rosalba Courtney: Yeah. Yeah. Exactly. Alternative or supportive, supportive being really probably something that I'd like to emphasize because the thing is that with mandibular advancement, I'm sure you would agree Ron, it's like you want to be able to bring the airway forward, but more you have to bring it forward, the more likely it might be to give jaw issues. Would that be wrong?

Dr. Ron Ehrlich: Yeah. And look, we'll do a whole paragraph on that because if you've got clicking jaw, there's things you need to be careful with. But I'm more-

Dr. Rosalba Courtney: And with CPAP, you want to be able to use the lowest pressure that you can get away with, that still gives you the decent sleep. There's a whole body of research starting to develop about using functional measures, using things that improve the function of breathing and the function of the airway that can support people with sleep apnea and help them get better results with them CPAP or mandibular advancement. And in some cases where people just can't tolerate those therapies at all, they can actually on their own give really good improvements. And the rationale of the theory behind it is that people can have sleep apnea because of these functional issues. And the functional issues are things like you know neural input to the upper airway muscles, so there are some nerves that sometimes aren't communicating very well with the airway. The airway muscles aren't responding well in keeping the airway open during sleep.

And there's another important thing which is just the stability of breathing control. It's something called loop gain. And if people have low co2 and their pH is all out of whack, they're going to be more likely to have unstable breathing. And that will be something that can contribute to sleep apnea at night. Many years ago when I was helping people with asthma, with breathing retraining, I was starting to find that people with sleep apnea were

coming back and saying, "Hey, I just had another sleep study and that's really improved. I wasn't able to use the CPAP, but I've done these breathing exercises and actually my sleep apnea is better." In some cases, completely better. And at first I didn't really believe it, but the more I looked into it, the more I was finding research studies showing possible mechanisms, but also showing that certain therapies were helping. One of the interesting studies is about didgeridoo playing.

Dr. Ron Ehrlich: Yes. I've heard about these.

Dr. Rosalba Courtney: Yeah. It was actually published in the British Medical Journal and they had people over three months do about two and a half hours of didgeridoo playing a day.

Dr. Ron Ehrlich: Well, that's commitment.

Dr. Rosalba Courtney: Yeah. And they found that they had a 30, 40 percent reduction in apnea, hypopnea incidents. Also, there have been studies just done with diaphragm breathing retraining and some studies done showing that people who play double reed wind instruments or who play in an orchestra that they have much less sleep apnea. And there been a number of studies done with throat exercises, throat and tongue exercises showing that people can get 50% reduction of their sleep apnea symptoms.

Dr. Ron Ehrlich: Well, you've used that word functional methods. And it's so interesting to hear that used in this context because gymnasiums now who I think are tuned into what one should really be doing, they're talking about functional movements in their workouts. I know the gym that I go to and Aaron McKenzie who is my inspiration for movement and exercise talks about functional movements. And here you are using this term because if your breathing has been dysfunctional for a long time or if you've been overweight and now you've lost weight, the tone of the muscle is still not there and so we need to turn what was dysfunctional into functional. I love that term.

Dr. Rosalba Courtney: Yeah. It's a great term, isn't it? It's just saying yeah, making something function better. And to make something function better, you have to train it just like exercise training. Breathing exercises can be a type of training that improve the function of breathing and throat and tongue and swallowing exercises can train the function of those structures of the throat. That's the point. As an osteopath, the primary thing that Osteopathy is based on is that you need to influence structure and function. I'm always interested in seeing how the structure function equation works in all the different conditions. I'm a strong believer and taking care of structure, but also not ignoring function.

Dr. Ron Ehrlich: Now, I'm going to ask you about leaving our listener with some tips. But here's a question that I've asked almost everybody that I've interviewed, and it's fascinating to hear people's response particularly because you've been a clinician seeing patients for quite a few years now. You've been in practice for how many years Rosalba? Well, go on and tell us.

Dr. Rosalba Courtney: Oh, okay.

Dr. Ron Ehrlich: Here it is. I'll tell you if you tell me.

Dr. Rosalba Courtney: Oh, well, since late 70s, so what's that?

Dr. Ron Ehrlich: Yeah. It's a few years. Okay. Listen, I'll let them work that one out. But listen, in your experience, what do you think the biggest challenge is for people in our modern world on a journey to having good health, to enjoying good heath? What do you think the biggest challenge is for people?

Dr. Rosalba Courtney: Yeah. I think the biggest challenge, well I'm going to say breathing in airway.

Dr. Ron Ehrlich: I would have expected nothing less.

Dr. Rosalba Courtney: I'm just going to throw that one into the ring.

Dr. Ron Ehrlich: Yeah. Okay. Okay. That's fine.

Dr. Rosalba Courtney: Breathing and airway, think about that. It's always fundamental. I've spent my days thinking about those things and helping people to improve those things and seeings great outcomes from them. Well, not enough people talk about them, so I'm just going to throw that in.

Dr. Ron Ehrlich: Okay. Throw that one in. Which leaves us with the last few tips. If people were sitting here thinking, "Okay. I'm on board now, I recognize that breathing is something I haven't given much thought to, but here I am," what do you say to them, where they start before they come and attend a breathing retraining program somewhere?

Dr. Rosalba Courtney: Yeah. I would say if you're breathing through your mouth, take care of that first of all. And just become aware of your breathing, and if you're noticing that your breathing is excessively irregular or that you're breathing often too quickly and breathing using your your chest and shoulders, then your breathing is probably too amped up. You're probably reflecting your general stress within your breathing mechanism, and just take a step back. Breathe through your nose, breathe low, slow and soft. And if working to do that doesn't help you, then get yourself investigated a little bit further. And don't forget about the airway. If you haven't had a sleep study, 80% of people with severe sleep apnea are undiagnosed.

And sleep and breathing is so important, so it's very, very important to know how you breathe at night. If you're snoring, do something about it, don't ignore it. It's not just something that's cute or funny, it's really important that you do think about it. Have your sleep start to get checked out.

Dr. Ron Ehrlich: Great. Thank you so much. It's been terrific talking to you Rosalba, and I'm going to have links to your webpage and we'll have some of those articles up on our website.

Dr. Rosalba Courtney: I thank you very much, Ron. Thank you so much. Bye-bye.

Dr. Ron Ehrlich: Bye. Well, so much to think about, so much to cover there. We really covered some territory. And I came away from that thinking well breathing is really about regulation, it's regulating our body chemistry, it's providing us with a filtration system if we're doing that well, it's providing us with an internal massage system through our diaphragm if we're doing it well. But it's not just about regulation, it's about building resilience. And actually, that's the theme of this podcast, my book and that is to take control of your own health, to build physical, mental and emotional resilience to deal with the stresses of life. Breathing is just so fundamental now.

We mentioned a couple of research articles there, we'll have links to them on the webpage. I'll have links to Dr. Rosalba Courtney's webpage on our web page as well. If you're a health practitioner or if you're a member of the public and you want to just do some breathing retraining courses, Rosalba is so well placed to provide that. Not connected to any one school of thought, a very open mind and really informed open mind there. We'll have links to that.

And if you've just joined our podcast and you're wondering what it's all about, go back and have a listen to episode one. I particularly made that a short mission statement to kind of calibrate and focus you. Otherwise, go on to our Facebook page and leave us some comments or some suggestions. I hope you enjoyed it until next week, this is Dr. Ron Ehrlich. Be well.

You can learn more by visiting Dr. Rosalba Courtney's website here.