

Dr. Ron Ehrlich: Hello and welcome to “Unstress”. I'm Dr. Ron Ehrlich. The gut is important. You probably got that message but it's not just important around the time you heard about it, it's always important. We've done some great shows Dr. Robert Roundtree, Dr. Jason Hawrelak, Cliff Harvey, professor Grant Schofield to name but a few.

Well, my guest today is going to go back to basics and we'll take us on a food journey through our body. We take it for granted that we eat, and stuff just happens but if we're going to take control of our own health, I think it helps to know some basics. My guest today is naturopathic doctor Nirala Jacobi - The SIBO doctor.

Now SIBO – S I B O stands for small intestinal bacterial overgrowth. What's that you ask? Well, listen and learn. I hope you enjoy this conversation I had with Nirala Jacobi.

Welcome to the show Nirala.

Nirala Jacobi: Thanks for having me.

Dr. Ron Ehrlich: Nirala, we're going to be talking about SIBO, but I want if you might share with us with our listener a bit about your own journey to this point.

Nirala Jacobi: Well, how far back do you want to go?

Dr. Ron Ehrlich: Well, let's not go from the moment of birth but let's fast-forward to your professional journey.

Nirala Jacobi: Okay. Well, interestingly enough my moment of birth was quite influential in that. I actually had some sort of I wouldn't eat for a whole for a long, long time and about a year and so I was virtually written off by doctors and my mother was very anxious and worried and that sort of then I grew out of that and survived but I always had digestive issues in some form or another so that led me then into studying naturopathic medicine at Bastyr University in Seattle and becoming a naturopathic physician. And we really look at the gut or the digestive tract as the root of the tree.

So, we often focus on digestive symptoms and disorders and also looking at systemic issues whether that's rheumatoid arthritis or headaches we often start in the gut. So, I was very, very focused on the digestive tract already but I've never heard about SIBO until about 2010-2011 when two fellow naturopathic doctors talked about it at a conference and I was immediately intrigued because I'd never heard of this condition and it explained so much as to why some people didn't improve with some of the protocols, I put them through.

Dr. Ron Ehrlich: I mean obviously we're going to talk about SIBO, but I'm just intrigued because you know I have two grandchildren and watching and so exposed also to a lot of infant's young babies and this whole issue of from birth wouldn't eat. I mean wow, what was going on?

Nirala Jacobi: I know, it's one of my most treasured pleasures now is eating. I don't have any obviously any memory or even cellular memory of that, but I remember very much the anxiety that my mother brought to this situation and so, I also know how much our nervous system and our fight-or-flight really influences our digestive tract.

Dr. Ron Ehrlich: Because like if somebody presented to you with a young child that wasn't eating, well, I mean before we go into SIBO or maybe that's a segue into it, what sort of things are you looking for when a mother presents and says my child just won't eat and I've got all these sorts of digestive colleague the story, what sort of advice you give young...?

Nirala Jacobi: Well, obviously I would start with are there breastfed or bottle-fed, what was the circumstances of the birth where their caesarean, where there that traverse, were their antibiotics involved. There's a lot of history that has to be sort of ferreted out person. In my case, I wasn't fed which I'm sure had something to do with the fact that I just refused to eat but children don't starve themselves for no purpose. But yeah colicky babies very often you do have to look at formulas, there's often sensitivity to some ingredient in the formula or some microbiome dysfunction that occurred if the mother was on antibiotics during childbirth. And so those kinds of things I'd look at.

Dr. Ron Ehrlich: Yeah, yeah it's because it's an interesting one that people often don't associate what the mother is eating with child breastfeeding and it has a big effect but we got distracted for a moment and my listeners we've done quite a lot of programs on the gut and I think my listeners are pretty familiar with the idea of the gut is a second brain and the immune system very important but you mentioned this SIBO, S-I-B-O, as you said, is relatively new phenomenon. Not a lot of people may be familiar with it. Can you give us SIBO 101 and tell our listener all about?

Nirala Jacobi: SIBO it's actually been around for a long time. It's not actually a new phenomenon. We just have a new word for IBS really. So, IBS or irritable bowel syndrome is a condition where people suffer from either diarrhea or constipation or a combination pattern and a lot of bloating a lot of digestive symptoms of discomfort and sometimes pain. And so, for the longest time, IBS sufferers were just told to eat more fibre and learn to live with it. And until about 2005 I believe Dr. Mark Pimentel from Cedar Sinai in Los Angeles really started to investigate this phenomenon of a bacterial overgrowth in the upper digestive tract or the small intestine where it's supposed to be relatively sterile, not sterile completely but certainly not the kind of bacterial abundance that we normally see in the colon.

So, really the short story of this is that SIBO is a condition where bacteria that normally found in the colon, so these are not pathogenic bacteria that you get from food poisoning but they're just over growing in the small intestine that lots of reasons why that occurs. And my job is to I actually teach a lot of practitioners about this condition and how to properly diagnose it and treat it and so forth.

But it is a condition that's very common if you consider that there's about 11 percent prevalence of IBS globally so that means 11 percent of the population has some form of IBS. And we estimate that 60 to 80 percent of those people have potentially had SIBO. So, it's a huge number and the problem is if you have a bacterial overgrowth in this small intestine

every time you eat something it gets fermented by bacteria that then produce gas and that's the burping and the distension and the flatulence and just the absolute misery that SIBO patients can experience.

And it really also interferes with nutritional absorption because the gases can cause all sorts of damage to the absorptive surface of the small intestine and generally wreak havoc and basically cause also systemic symptoms where we start seeing fatigue and headaches and brain fog and inflammation or worsening of other inflammatory conditions. So, it's a really pivotal piece to the puzzle. So, I think that there a lot more awareness needs to be brought to this and we are seeing a huge interest in this topic alongside anything got related it seems to be very hot but it is and I think when you think about the potential number of people that are walking around out there not knowing that this can be cured essentially is part of my mission really.

Dr. Ron Ehrlich: Because we've had this very adversarial approach to bugs microbes for over a hundred years and we've now come to well, I don't know with love but certainly respect them and yet this location, we talk about from types friends or foes but the location here is what is so distinguishing about it, isn't it? Because bugs relatively speaking the small intestine shouldn't have that much of a microbiome.

Nirala Jacobi: Exactly, it does as you come from the stomach. I mean we do know that there are those sorts of very Hardy bugs that pretty much are we kind of call them extremophiles and I think something like H-pylori would probably qualify because it can survive the incredible bat of acid that is your stomach. There are bacteria that can be found in even extreme places but if you if you don't have H-pylori you know normally you're not supposed to have like really any bacteria from the stomach to the duodenum and then as you go through the jejunum and then the ileum which is the other section of those small and testament, as it approaches the large intestine you are starting to see numbers climb but it's not supposed to be very high.

Just to give you an idea it's something like if I were to take a teaspoon of your small intestinal content it really shouldn't grow much over about 2,000 bacteria per mil about that. And in the colon, it's something like two billion. So, it's this incredible difference of concentration of bacteria. And that's really important because if bacteria are fermenting your food and you're not you don't have access to that obviously you are deprived of nutrition and you also are left with the by-products which are gas that's very damaging further damaging to bile acids.

Dr. Ron Ehrlich: And this is the Fantastic Voyage of food as it passes through us because the oral microbiome is pretty, I mean there's over 700 different species and all of that and the more diverse the better and it passes into the stomach, we're meant to chew it up and make it smaller so that it goes into the stomach and things start to break down there. And as it goes into the small intestine what happens to the food and what's the journey of food ideally?

Nirala Jacobi: Okay. So, first, you know digestion really starts in the mouth. We have salivary amylase. That's an enzyme that it's this phenomenon of already beginning to think about food that starts this journey. We all know if you really visualise a lemon for more than ten seconds you start to salivate because you can imagine the sour taste. But also, if you're

smelling foods and so forth and then obviously mastication or chewing is really important, and it mixes that food with us with a salivary amylase and it hits your stomach where it meets this vat of acid which I often tell my patients is like battery acid. If I were to stick my finger into your stomach it should get digested all the way down to the bone and the miracle really is that we don't digest our own stomach.

I think we have this vat of acid that is sort of sheltered in this sack of mucus that your stomach also makes to protect you from autodigestion and then as you've kind of mixed all that food with acid it triggers a release of your pyloric valve so that the food can pass into the small intestine where it's met with the buffering agent bicarbonate from the pancreas that then buffers the acid and then also its releasing digestive enzymes so we have proteases and by praises and further mu lasers that break these macromolecules into smaller into smaller pieces. And then we have a vial that is triggered when fat is present in the food so if you're on very high heat or genic diet you're just dumping massive amounts of bile into your digestive tract.

That's kind of like a soap dispenser if you will because if you know water and oil don't mix very well so the bile is there to emulsify and sort of create these smaller droplets of fat. And then where are we we're still in the small intestine then as this bolus of food then transverses further down it's met with brush border enzymes which are the tiny enzymes that are sitting on top of the microvilli, the shaggy carpet that is your small intestine that then breaks these dipeptides and so forth into its much smaller and absorbable forms.

And so, this is where the rubber sort of meets the road because that's often damaged with SIBO, it is that last part is the gases really do damage the brush border surface and so very often this is the sort of triple threat of a bacterial overgrowth is that you have gases damaging, the absorptive surface you have a loss of brush border and then that food is sort of available for further bacterial fermentation.

Dr. Ron Ehrlich: And then we're in to...?

Nirala Jacobi: Then you're sort of, it's all well mixed you've extracted as much as you can and then you can then it passes into the large intestine where no nutritional absorption other than vitamin K and B12 and a few things and water is extracted but really that you've left the absorptive surface and now that compost is all going into the large intestine where fibres that are residual from our meals are fermented into short chain fatty acids and those are very beneficial for us. And so, a healthy microbiome is really that's where it is. Its sort of like that last bit is where most of the action happens with the microbiome or for all intents and purposes, of course, other things still happen in the small intestine. The small intestine is really where most of your immune system is and there is an interface with the microbiome there as well.

Dr. Ron Ehrlich: Fantastic. Well, now we've set the scene. Now we've set the scene because this small intestinal bacterial overgrowth who is at risk, we've already identified a little eleven you know 11 percent have IBS globally, that's huge. What do we get? Seven and a half billion people. But this is a huge problem. Who's at risk?

Nirala Jacobi: So, one of the main risk factors for... Well, actually let me just go back to this perfect picture of digestion. One of the things that happen in your small intestine between meals is something called the migrating motor complex which is a fancy word for what we also call affectionately the housekeeper wave.

It's sort of a very strong imperceptible sort of weight you don't really notice that it's happening, and it sweeps all the remnants out from your previous meal, it sweeps everything towards the large intestine. And this strong contraction is actually quite powerful enough to empty the small intestine of any kind of residual food and bacteria. So, that is something that can be damaged by food poisoning. So, imagine you have a food poisoning where it's either a salmonella or E. coli or some of these sorts of stronger food poisoning bugs. And those bugs all share something in common, all the food poisoning bugs typically do *Campylobacter* those kinds of things secrete something called cytolethal distending toxin. Let's just call it bacterial toxin that looks basically a body has to create an antibody to it in order to defend itself from it. And it often then causes something called basically an autoimmune process where your body accidentally makes something that actually attacks the migrating motor complex instead of this bacterial toxin. And so, what is the consequence of that is that this powerful housekeeper weight is no longer working and that's a damaged migrating motor complex as a result of a previous case of very severe food poisoning.

And they have done studies but with American soldiers where they looked at the effect of stress and the development of IBS and the effect of food poisoning and IBS and by far the most predictive after was food poisoning. So, that gives you an idea of how powerful this cleansing wave and how much it does for us in terms of keeping diseases at bay and overgrowth of bacteria at bay. So, if you can liken that to imagine that your digestive tract is a flowing river everything is supposed to move through and if you have a paralysed section that's just sort of sits there then algae can grow pretty, pretty quickly and that's what how I explained it to my patients. And that's really common. We estimate that forty to fifty percent of people with me with SIBO potentially have this damage to the migrating motor complex for which they then receive something called prokinetics. It's a type of medication that aims to help with this cleansing wave.

Dr. Ron Ehrlich: And I guess the opposite of this migrating motor complex in the extreme would be vomiting.

Nirala Jacobi: That's retrograde flow yeah. It is also involved in that if it really perceives in yeah, I mean it does get activated during a bout of food poisoning and this is not just like well, you eat, you had a bad meal and you feel kind of crook for a day or two this is violent vomiting and diarrhea that's very memorable. So, for those listeners who think I must have that but it sadly in America, I mean or in Australia, we don't have the blood test available yet to actually check for these two antibodies that are created during this process. But in America it's it is available, so if you have an American business that is something that you could bring up with your practitioner. But the other, so that's like an area of what I call disturb motility is a big cause of SIBO but other causes that mustn't be overlooked could be simply something like caesarean birth or like your mother well it's really the mother that is at risk here but any kind of surgical intervention whether that's removal of your gallbladder, caesarean section or a hysterectomy or even endometriosis the laser surgery that's performed. All those carry a

risk of adhesions meaning that your body is trying to heal itself, but it forms scar tissue in the abdomen and if it sits on the small intestine and pulls it sideways in any fashion, it can create this kink in a garden hose situation where things aren't allowed to flow through properly. At any time, you disturb that flow you can you're at risk for bacterial overgrowth.

So, that's another really big risk factor and other diseases like hypothyroidism is a big risk factor for SIBO and other autoimmune diseases like scleroderma diabetes is a big one so there are certain diseases that just inherently are very risky with SIBO the development of it. And then also digestive deficits if you're somebody and I mean your podcast is called "Unstress" so I'm assuming a lot of people, it resonates with them that they that they're perhaps in a bigger or higher state of fight-or-flight. And what happens is if you are in a fight or flight and constant adrenaline state and you know this is that your blood flow gets diverted from your digestive tract very effectively and to the bigger muscles because in our evolutionary history that was very advantageous to run away in times of fight or flight. But that chronic state was never meant to really be present in your body and if it is present there all the time it does really do a number on your digestive tract by not producing stomach acid enzymes, you name it because your body is thinking hey it's not time to digest.

Dr. Ron Ehrlich: And I imagine that medications must play a big role in this because antacids you know of course, what is the solution in modern medicine to happen reflux or indigestion? Of course, we just give you an antacid or a proton pump inhibitor has that effect does that affect us?

Nirala Jacobi: Yep.

Dr. Ron Ehrlich: There is a rhetorical question there.

Nirala Jacobi: Yeah, interestingly enough that yes, proton pump inhibitors for sure I do pose a risk for very obvious reasons. So, other medications like opiates anything that slows the digestive tract down is definitely another risk factor for the development of SIBO.

Dr. Ron Ehrlich: Well, you say that it's not for obvious reasons that the protein pump or the antacids our affecting the acidity in the stomach which could presumably allow those microbes in the small intestine to flourish.

Nirala Jacobi: Yes, and the reason I am not, well, then it gets a bit more complicated because we have two types of gas that's produced by bacteria one is called hydrogen gas and that is predominantly produced by certain gram-negative bacteria like e-coli and Klebsiella and the other one is called methane which is mainly produced by an organism called methanol bravo vectors mighty and there will be a quiz at the end of this.

Dr. Ron Ehrlich: I'm making notes, I have to make all these questions right.

Nirala Jacobi: So, is actually an organism that again produces methane. And methane is quite paralysing to the motility of the digestive tract. So, we mostly see constipation with these patients and proton pump inhibitors like Prilosec or Nexium or Somac those kinds of things have shown to actually not increase the methanogens type SIBO, but it does increase the

hydrogen type SIBO that's more associated with either diarrhea or a mixed type of stool pattern.

Dr. Ron Ehrlich: Wow, okay. It's a big problem. You've listed the people at risk which kind of yeah is not a surprise. If you look at the numbers involved this starts to make sense. What do we do about it? How do we approach and how do we approach this problem?

Nirala Jacobi: That's a great question because a lot of people in Siebel forums online these massive amounts of support groups and patients looking for answers and we do the best we can through my website called The SIBO Doctor. There's a lot of education that we do around this, but it is sort of like a tsunami of people that are looking for answers. What I tell mostly the practitioners that I do teach is that the SIBO is a consequence of a problem it's that by just getting rid of bacteria you have not cured the underlying cause to SIBO. And it's possible that people were relapsed and we actually do see a quite high number of relapses. And that's because of this migrating motor complex is damaged or you have adhesions, really you will just relapse because the problem has not been addressed.

So, we really go through a very individualized section by section of here's what you do for this. So, for example, if somebody has adhesions from let's say extensive endometriosis or abdominal surgery, I send them to somebody who's very skilled in visceral manipulation which is an external type of treatment that aims to very gently free the adhesions without triggering further adhesion formation. So, that's just an example. If it's a motility disorder like the migrating motor complex has been damaged or let's say your vagus nerve is involved because of a previous traumatic brain injury which is very common you know all of us have flown probably over the handlebars of a bicycle in childhood or here in Australia a lot of footy players and so forth, it doesn't actually have to be that that severe the traumatic brain injury but you can have motility disorders even from that. And if it's bad you need to really work with what I've already mentioned which are prokinetics or substances that aim to really promote the motility to keep that river flowing. And if it's digestive deficits, well, that's the easiest of all of them. If the medication section and the digestive deficit section are the easiest to treat because if you really do get that right that you won't really look at relapse necessarily.

Dr. Ron Ehrlich: Just revisit that Pro kinetics again for me because you mentioned in passing. Just again explain that term.

Nirala Jacobi: Okay. So, prokinetics are either a prescription or a herbal mixture of substances or herbs that stimulate the migrating motor complex or stimulate peristalsis. And basically, they work with the enteric nervous system. The prokinetics that I usually recommend that a more conventional would be something like Resotran or prucalopride which is actually a really fairly decent conventional prokinetic as with anything you can there are side effects with anything sort of conventional. And on the herbal side, we have weaker acting prokinetic, but they are much less fraught with side effects and those would be bitters and artichoke and ginger and those types of things.

So, I tend to sort of individualize it depending on how somebody got their SIBO. There is sort of like a little quiz people can quiz themselves if anything in the symptom picture that I've mentioned kind of resonates that would be floating after meals is a really, really, really

common complaint. Abdominal pain different bowel patterns some really classic IBS symptoms if you go to SIBO test and do I have SIBO. There is a quiz that you can just take and see if you score very high.

And then for underlying causes because I also have a handout for that, if you know you have SIBO is really helpful we just created it's another free download on the SIBO Doctor. So, we really are out there to educate people about this.

Dr. Ron Ehrlich: Yeah, well, we'll definitely be having links to that. What about antibiotics? Does that play a role in this bacterial overgrowth?

Nirala Jacobi: Well, what we know is that antibiotics disrupt a normal microbiome. What we also know is that IBS is highly associated with a disrupted microbiome. Even if you're like so for example, you're not supposed to have very many bacteria in the small intestine as we mentioned but if they're not diverse, if what you have there is just sort of mono called years of you to know single organisms are just a few handfuls versus a real plethora of a healthy rainforest, you are much more prone to IBS. So, I'd say yes, it is there is a link there but we typically in terms of treatment we do recommend very, very particular antibiotics that have a sort of microbiome sparing effect on the large intestine. And so, there are antibiotics that do that and for treatment, that's recommended, or herbs of course also are very clean.

Dr. Ron Ehrlich: Now I know you have your own podcast called the SIBO Doctor and you've had some amazing guests on there and I'm sharing that with my listeners. What are some of the surprising connections? It's been quite a diverse group of people you've spoken to. Have there been some surprises there that you've learnt about the influences on SIBO?

Nirala Jacobi: Yeah, absolutely and you know it is a practitioner podcast but it's amazing to me how many people patients have listened to it. Because people are more savvy nowadays, they're definitely more medically switched on and they're looking for answers. So, it's always surprising to me but we have a very high level of sort of we keep the conversation at a practitioner level. But as you know you have your you have a podcast it's such an indulgent and so wonderful to be a so basically have a guess and you just it's your show you can ask anything you want.

So, that part has been super, super enjoyable yep and so I've basically invited all the guests I want to see on my podcasts. And so, they're definitely from the very get-go I was astounded how much knowledge there is out there about all kinds of different things that absolutely pertain to zero anything from histamine and tolerance to even salicylate sensitivity to like I said traumatic brain injury is another one, Lyme disease. Lyme disease also has a connection to the development of SIBO through the enteric nervous system.

Dr. Ron Ehrlich: Sleep?

Nirala Jacobi: Listen actually we haven't had a sleep expert on it but anything yes, I mean if you're talking about also sleep apnoea for sure can be part of that picture, but I just really enjoyed talking to these incredible experts.

Dr. Ron Ehrlich: Yes, I know. I often say isn't it so just as you said indulging every week, I get to speak to somebody who knows far more than I do, and I ask them questions and they answer them, and I learn and learn and other people listening. I hope you enjoy it but I learned.

Listen if we were going to leave our listener with three, four or five tips for what you know that that they might be a problem with this, you mentioned your questionnaire but what are some of the things people can do diet wise to some tips you might give?

Nirala Jacobi: Okay. So, if you're listening and you have a lot of symptoms of IBS and SIBO, yes, you can basically do the quiz and see if you really have that. You can also do a breath test to see if you have that let's usually how we diagnose SIBO is by a very simple home test that you can do.

Dr. Ron Ehrlich: And we're looking for one of those two gases, the high action and methane.

Nirala Jacobi: Yeah, that's correct and so an astute practitioner can then say yes, this is well, I mean we do tell you whether or not it's present or not but then you really working with a practitioner is I always recommend that because if you don't know what you're doing, you can spend a lot of money in the New York minute and not feel a whole lot better. I always say get somebody that's very SIBO qualified.

We also have a database on our list of people that have had some training through us and then really kind of embrace the fact that it's going to be a short-term diet change, a short term meaning about three months and we usually remove fermentable fibres also known as FODMAPs you may have heard that term. And that was through Monash University here as they did such a great job with researching that.

But the diet that I usually recommend is a combination diet called the biphasic diet and it has a section that's very strict and a section that's less strict and you go through that process and then using antimicrobials for about six to well, about six weeks and then it's sort of re-evaluated whether it's cured. And so yeah, the diet often can already tell you whether or not you have this because if you feel a whole lot better just on the diet alone then that means you're depriving bacteria of certain foods. You can't cure it with diet alone but it's a good step to kind of see if you respond well to that. And that's also a free download on the SIBODoctor.com.

Dr. Ron Ehrlich: Alright, now, listen just finally and taking your step back from your role as a health practitioner because we're all on this health journey together individually and together, what do you think the biggest challenge that people face today on their health journey throughout their lives in our modern world? What do you think that might be?

Nirala Jacobi: Oh, my God. That's a whole podcast in and of itself because there are so many challenges that we face as humanity I think that we can't separate ourselves from the world at large. We have so many challenges whether that's an ever-increasing toxic load to every single one of us because the amount of solvents and pesticides and industrial solvents is not going down, it's actually continuing to go up and ours is the health of our soil I spoke with a

soil expert not to bum everyone out here but it doesn't look good in terms of how are we going to feed the world going forward if we have ever declining amounts of topsoil. So, those kinds of things the deforestation of the lungs of our earth will affect us around the world, ever-increasing climate our temperatures will also affect nutrient density in our plants.

So, those kinds of things. Not to mention electromagnetic radiation. Its sort of like the news is not good Ron. I know you know that.

Dr. Ron Ehrlich: I think that's what this program I'm sure yours is about is that by making informed decisions you can make a big difference.

Nirala Jacobi: Yeah. And so, for example, what I usually recommend to people is like it's absolutely imperative that you eat organic. This is not even a question anymore. We do know that we just won't get as much of a load if we if we reduce our food intake of sprayed foods. That's a must for... Well, not a must, I always just strongly recommend. So, that's number one for sure. Then also making sure you really do take care of your nervous system which probably resonates a lot with your listeners because it's a stress of podcasting. So, if you live in a constant state of fight-or-flight, the amount of organic food is going to

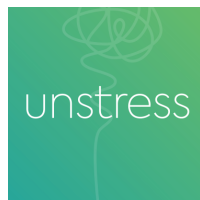
be doesn't matter, you really have to take care of your nervous system in order to be really healthy and that is that's a whole another topic but that would be one of my recommendations.

I think also realising that we are very privileged in this country and we really need to sort of be more aware of how other things affect us. For example, palm oil. It's one of my big subjects is, other passions are to reduce the use of palm oil in silly things like shampoo and in foods and so forth because that's the direct correlation with deforestation. That's why Papua New Guinea Africa and Borneo are being deforested at an alarming rate because of our addiction to junk food and those personal hygiene items. So, those kinds of things I think will make a big impact because if people stop buying those products right there is something you've done for the day. This is just being informed. So, yeah, I don't know if that does air it off the topic but...

Dr. Ron Ehrlich: No, no, no and that's a great note to finish on. So, thank you so much for joining me today. I certainly enjoy talking to you and we're going to have links to your all those quizzes and website as well. So, thank you so much for joining me today.

Nirala Jacobi: My pleasure Ron.

Dr. Ron Ehrlich: We hear that term diversity again. The more diverse, the more resilient, the healthier we are. It's true of our oral microbiome, it's true of our gut microbiome and our soil microbiome. I actually feel it's a great metaphor for our multicultural global society. Celebrate and encourage diversity to build social resilience and a healthy society but I digress. We have some great podcasts on this subject. Go onto my website dronehrlich.com and click on podcast then search for nutrition. You will see a more complete picture of all those issues. And while you are there, check out the show because there are some great new eBooks, the practical guide to the five pillars of health and wellness, individually or bundled



up into one great bundle. There're some great webinars where we explore why public health messages are so confusing and there is now even an online course. And of course, leave a review. That's it for this shameless self-promotion. Until next time, this is Dr. Ron Ehrlich. Be well.

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