Paleo Solution - 340

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Robb: Hey, folks, Robb Wolf here, another edition of the Paleo Solution Podcast. Super excited for today's guest, Dr. Steven Lin. He is a holistic dentist practicing mainly in Sidney, Australia but you appear to be all over the world currently. And super excited for chatting with you today, Doc, how are you doing?

Steven: Thanks, Robb. It's a pleasure to be here. I'm well. As you said, I'm in London at the moment. I was just in the US, on the east and west coast. I've been skipping time zones a bit.

Robb: That will crush you.

Steven: It has actually crushed me.

Robb: Yeah, yeah, wow. So, Doc, you have a phenomenal background. I mean, clearly, dentistry is a challenging field to go into as a standalone item but you have really gone deep on this ancestral health kind of model. And when you and I were chatting, I believe at Paleo f(x), you kind of made a point that you've perhaps had some updates on the classic teachings and observations of Weston A. Price who was himself a dentist.

I think dentistry is really interesting that we've had some very influential people that have kind of bought into this ancestral health model pretty easily. And I wonder if some of that, is it dentistry, it's kind foundation tends to be a bit more preventative in nature versus responsive in nature? There are lots and lots of questions for you. Give folks just some of your background and how you got into this ancestral health kind of orientation with your practice.

Steven: Yeah. It's interesting you say that in terms of the preventative focus of dentistry because, for me, the kind of light bulb moment was practicing dentistry and kind of using my training in the health kit model. And after a while, it became quite apparent to me that I didn't have a lot of the answers the people were asking and the answer as to why I was seeing so many conditions as we do in the dental practice in terms of what people present in terms of their dental conditions amongst the population.

It's pretty alarming, to be honest, the numbers of dental disease are really quite high in society. We're talking about half of the kids having tooth decay, 75% of kids have malocclusion, so crooked teeth. And there's really not a lot of answers there as to why this is happening. And so it's interesting you say that dentists do

have a little bit more of preventative focus. But when I kind of went back to dig into as to why, and to find answers for why these diseases are happening, there weren't many and it actually took the accidental bump into Weston A. Price's work.

I didn't have any exposure to nutrition and physical degeneration through my training. It was an accidental reading the book actually that brought me to his perspective. And once I saw that I was like, "Wow, this is amazing." But to me, in my conventional… it didn't meld, it didn't make sense. And so what actually found is that since process time -- His work was lost for a long time -- we've had a lot of scientific understanding, really kind of thresh out why he was actually right in the end and there's actually -- I think there's a lot understanding to kind of go back and fill in the blanks between Weston A. Price's work and how the mouth really connects to the rest of the body and really how food is the primary driver of that.

Robb: Right. I think that if folks are unfamiliar with Dr. Price's work, it's really stunning. He traveled around the world, looked at a number of different kind of pre Westernized societies ranging from hunter gatherer to pastoralist to kind of subsistence farming. There were variations in these folks' health but it's kind of a standard feature, they tended to be healthier than the westernized population, like just about across the board.

In particular they had really remarkably healthy teeth, like virtually no dental caries, they weren't crooked, they were able to get all of their teeth in so there was no issue with wisdom teeth. This is one of the things that I always bring up. Dentistry in the Paleolithic probably sucked. So, you probably wanted to all your teeth to come in.

Steven: Completely, right? It didn't exist.

Robb: Right, right. And could you walk folks through a little bit of what his early observations were?

Steven: Yes. So, exactly as you said. The process what he was basically looking at was the intersection of where the industrialized diet meets these traditional societies.

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And it was actually probably one of the freeze points in time where you could capture this in so many places around the world because it doesn't exist so much more in today's society and the industrialized food movement had just kind of really started to mobilize in the 30s. And so he went to places like Africa, Australia, the Pacific island, New Zealand, South America, all of Europe. All of

these places, he showed something. He took something like 19,000 photographs. He took a much wider sample of gauging human health and he looked at their anthropological background. So, he looked at the skull and the jaw records in the areas that the local towns would keep and he would take -- So, he would measure dental disease for many hundreds of thousands of years before the point he was investigating in that time. But what he found was that there was nearly no tooth decay and no crooked dental arches. So, as you say, 32 teeth erupting as they do in the world and in any other place outside of an industrial city and the westernized world.

In fact, once we change our food supply, that's when our teeth and our jaw and our dental conflict changes. So this was his observation and his theory was this was connecting to many of the other chronic diseases he was seeing in his practice. He was seeing kids with tuberculosis and he thought that because they weren't developing their teeth right that there's something else going on. And so it was all based on the fat soluble vitamins and the natural kind of preparation of food.

Robb: Right, right. And that's an interesting point where I think kind of the Weston A. Price material kind of diverges from this classic Paleo diet type stuff where they were very much into the soaking, fermenting, sprouting of grains in particular, some legumes also, but where are you at on that spectrum? Like I've generally seen folks do better without the sprouted grains than with. Some people seem to tolerate them. It seems to hit a threshold maybe. What's your experience with all that?

Steven: I think it's really personal. I mean, what Price showed us was that civilization in traditional societies live very healthy lives and developed perfectly normal with well-prepared things like grains and breads. But today, we live in a completely different world. So, it's very hard. Unless you're preparing the things exactly as these people can -- And you got to remember that we've changed these season grains significantly since these times.

Unfortunately, we're not in the same situation as was Price was witnessing. I think that it's certainly something that we need to consider and it's not black or white. It's gray. And so we should take it on a case by case basis. But generally, we have to see whether it's a modernized source and prepared food or whether it's prepared with this traditional wisdom that he was kind of talking about.

Robb: Right, right. Where do you see some of the -- Is there any other kind of clear points that you've seen between his early work and then either validating or perhaps contradicting some of his early work or just better understanding now that we've got basically another century of 20/20 hindsight on what his original observations were?

Steven: Yeah, completely. I mean, the big one is the human microbiome project. The bacteria model of tooth decay is something we've kind of been dabbling in even since Price's time. He had the general idea of bacteria being in infection, of tooth decay being an infection of these bacteria that eat away at your teeth. He was measuring when people ate certain amounts of different foods. And he was measuring bacteria to some extent.

But since then we've learned that there's a whole ecosystem of bacteria living within the oral microbiome and the gut microbiome and that that's all part of our physiological ecosystem. That's a huge step forward. It really shows us, they really kind of filled in the blanks in terms of how we see how modernized refined diet will change our oral and gut microbiome and then how that translates to the disease over many years in terms of tooth decay and gum disease.

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So, that's one great example. But also, basically his work was talking about epigenetics, wasn't it? And that's something that we're only just getting a grasp with that now but it's the environmental cues that we're taking that are having a direct impact on our facial growth, on our breathing, on the calcium in the bones in our body. It's quite remarkable. And even to the point of understanding vitamin D in the body.

Vitamin D really wasn't well understood until 2000. And the fat soluble vitamin system, I think, is one of the physiological nutritional recommendations that we don't understand very well. And that's something that Price was primarily talking about. Chris Masterjohn put together that -- he was talking about K2 in 2007. So, it's something that we've still got a long way to go but we've also understood at the same time since then.

Robb: Yeah. It is interesting that empirically he had this sense about what we needed to do and so you could maybe argue that clinical practice hasn't really changed all that much. We have a deeper understanding of why it is that those recommendations work. But can you think of any examples where this information has really changed what we do clinically? I mean, I know some of Chris Masterjohn's work more recently talking about the variable need of vitamin D based off of genetic kind of makeup is pretty good eye opener for me. I was definitely in a much more one size fits all camp with regards to vitamin D levels. Can you think of some other kind of nuances that this information would change what we do on a clinical fashion?

Steven: Well, it completely shifts what we call prevention in the dental office. And right now, the core basic pyramid of the prevention to treatment model is we see

brushing, flossing and plaque removal and fluoride application as the base level of what we should be doing to maintain our dental health. And really what process works and what we really haven't built into it into a health kit model in applying to oral health is the nutrition is the engineer. Nutrition is what's causing the disease processes. It's driving the core processes that are running your risk of disease and prevention.

What we call prevention is actually intervention. So, brushing and flossing, like you said, Grog the caveman, he didn't have toothbrushes, did he? And animals don't have, any mammalian tooth that grows in the wild, they don't have tooth decay and they don't have crooked teeth. It all happens naturally. So, understanding how the dental complex works naturally really is what Price was getting it. And that's the core message moving forward, I think.

Robb: I just wanted to throw this out to you but I've kind of noticed both of my daughters, teeth seemed to be coming in straight but there's a lot of spacing between them. When I was looking back through a fair amount of Price's early work, that seems to be pretty consistent with like appropriate insulin levels, appropriate micronutrient, vitamin ADK and all that type of stuff. We don't see that same type of crowding, I guess, as what you would see in other situations.

And we're generally Paleo-ish but we'll do some decent amount of butter like all the sweet potatoes end up getting basically like soaked in butter and stuff like that. Where does the dental crowding part of this story kind of come in? I know that that's kind of an outgrowth of actually the whole formation of the jaw. So, we've gotten even a bigger picture there. But what's the story with dental crowding in kids?

Steven: Completely. I mean, I think one of the most missed messages, we're in the middle of absolute crosses in terms of nutritional deficiencies across the human population, is that our jaws and our teeth aren't developing properly. And what you're seeing there in your children is that you're seeing the normal development in the jaw bones. What's a really big step forward in the dental industry has been the connection of airways and sleep dentistry. And so what we're starting to understand here is that teeth are actually connected to our jaw bones that connects to your nasal airways and that control the whole architecture of your skull, your craniofacial system, your airways, it's all connected together.

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And so, for instance, when you have a kid that has a high palate and has crooked upper teeth, they've also, by definition, got a cramped upper nasal airway. And so what this does is it makes, it predisposes them to breathing correctly. So what

I'm seeing in my practice and what we're seeing absolute epidemic of are kids with long faces who have open mouths at rest, who have skinny palates and crooked teeth and they're not breathing right.

Robb: So they go into that stress response breathing where it's all chest ribbon and intercostals instead of diaphragmatic breathing? Wow.

Steven: Completely. It's all connected. And the amazing thing is there's a whole field of myofunctional orthodontics now that once you correct a kid's function and they're breathing, once you get them breathing through their nose -- sometimes you have to because they usually get nasal allergies and they're congested because their gut bacteria are out whack. But once you get them breathing through the nose and once you get them using their facial muscles and all their orofacial musculature correctly, teeth straighten naturally.

So, you can straighten teeth without putting braces on them at all. Just through function. And that's something that really shows that we're doing something very wrong in terms of if kids' jaws aren't developing properly. And in your case, with your children, that's something that's really rare. I don't see kids now that -- We just don't have people develop jaws that fit 32 teeth. Either they've got to have braces in their teenage years or later on they have to get their wisdom teeth out because their jaws haven't developed properly. It's reaching out a completely to the airway and everything else and affecting many of the current diseases.

Robb: Right, right. I had to have my wisdom teeth removed. I was otherwise pretty lucky, like reasonably straight teeth. I did manage to get both the two upper, two lower teeth knocked out kickboxing and managed to put them back in basically, pulling them in and bit down on a wet towel and pushed them back in. That was a little bit of mileage on them. But otherwise, I was pretty lucky. But I have always remembered the Pottenger's Cats story and I knew that I probably had some epigenetic signaling from a hyperinsulinemic mom, some not optimum gut biome, insulin load for me. And so I was really curious how a better circadian rhythm, better probiotics scenario, just generally better food would actually manifest for my kids.

And so far, it seems to be pretty good. Both of them are tall and skinny. Both of them, when we've taken them in to their first dental check up, the dentist was like, "Wow, they look really, really good." They have no, virtually no tartar buildup and all that type of stuff. And I still think we could be better on things like cod liver oil and probably even a little bit more butter. Like if I was really neurotic about it and we try to sneak in some organ meats here and there. Usually, we'll take a quarter pound of liver and then mix that with a full pound of ground beef and then make patties out of that. The girls will smash that.

But we're not -- I wish we were better about it but that's about the best we can pull off between two kids and two working adults. That's about the best we could do. I mean, is there any other advice for the kids' side of things that you could think of? We feed them kimchi. We make sauerkraut at home. What else should we be doing?

Steven: You're pretty much covering a lot of it there. I mean, broths are great.

Robb: We do that, yeah.

Steven: Yeah. So, if they're having broths, if they're having fermented foods -- Cod liver oil is great. Kids, their bodies are really hungry. The more fat cells you can get them, it's only going to do them good. So, yeah, you're pretty much covering the bases there. And the problem is, though, is that you're talking about 99% of what the population aren't doing now. So, this is a big -- The big problem is that when you have parents that are feeding kids completely the modern western diet, there's a whole range of problems starting with sugar and flour and vegetable oils that have -- You could completely reprogram things in order to get things back to where you're at with your kids.

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And it's that simply you feed the kids the right thing and their face and develop as they should. So, it's really, it makes me really happy to hear what you're saying there about you've got kids that are developing as they should because this is just isn't happening.

Robb: It's funny just John Welbourn and I were talking about this because he's like, "Do your girls have like pretty wide spaces between their teeth?" And I'm like, "Yeah, I think that's normal." And we started digging around like we're both on a Skype call and we started pulling out the Weston A. Price stuff and looking at kids' teeth as they developed and they were talking about, yeah, that's a sign that they're not crowding and if you start seeing the crowding this is a sign of this, that and the other.

I mean, we've tried to do the best that we can. I mean, I'm pretty geek on this stuff and it's sometimes hard for me to really tick all the boxes to do this. And so it's kind of mind boggling how this just happened in the past. But, I guess, that's just because we didn't have the default option of all these processed foods. They just didn't exist. You did the other things, yeah.

Steven: Yeah, completely. And one other factor that probably we don't really think of and it doesn't really fit into nutritional guidelines is the physical function of jaws.

It's the whole muscular-skeletal system, the temporomandibular joint. So, in order for it to develop properly you have to use it and you have to stress it in ways that make it send it signals to grow the bones and to grow the musculature properly. And the best model for that is breastfeeding. Because a child, a newborn wakes, it has its soft palate. And what breastfeeding does is it forces it to push the tongue, use its tongue muscles to push to the roof of the mouth where the tongue should be.

So, the tongue should be at rest pushing at the roof of the mouth. So, what that does is it squeezes nipple and then that helps to extract the milk out. But what it also does with these tongue muscles is helps it to breathe through the nose. So, not only is it broadening the palate because it's pushing the nipple against these kind of soft waxy palate that newborn babies have and broadening that in its normal developmental way, it's actually taking the kids to breathe though its nose.

So, when you breathe through your nose you actually help -- The force of actually breathing actually broadens your nasal sinuses and broadens the palate as well. That's all helping the child's upper and lower jaw developed. And that goes right, right, left. Chewing. So, we need to chew collagenous and fibrous and gelatinous foods as they appear in nature. So, one other thing, you might want to get your kids chewing on something that makes them really kind of rip and tear like a big raw carrot or a big (audio cut out).

Robb: We do both of those, yeah. It's been a little dodgy with the jerky particularly with the youngest one because she goes so wild on it that she'll pack her whole mouthful like a squirrel and I'm over there like fingers swiping her. She's turning purple. We've had a few go rounds with that. But I was just reading an article on choking and kids and apparently it's just endemic and it doesn't matter what food you feed the kids. They just screw it up every once in a while so you have to kind of watch that. But we've been pretty good on them enjoying carrots and jerky or biltong. I guess, we're doing okay on that.

Steven: Yeah, you're doing great, Robb. You're pretty much and you're feeling the, I like to kind of think as the full characteristics of food where you have physical function, the microbiome element where we're feeding the oral and gut microbiome. We're feeding nutrients of fat soluble vitamins to maintain calcium balance. And the epigenetic factor is where we're making sure that our food is well sourced and sending the right messages to our own genes. The unfortunate thing is this message really is in the minority in society. Most kids' teeth aren't developing and it's really a big problem.

Robb: Right. Are you game for like a pretty hot topic question?

Steven: Yeah, let's go.

Robb: Can a kid raised as a vegan child, vegan mom, vegan child, can they develop normal dental architecture?

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So, there's a little bit going on there. Like they could get a lot of potential nutrients from the mom if the mom really has her Is dotted and Ts crossed but…

Steven: Yeah. That's right. So, I mean, there's definite -- What Price kind of showed was that these fat soluble vitamins are most easily obtained from these animal products. Exactly like you said, there are ways to eat a vegan diet where you get most of the whey. I would say that it's possible. I would say that you really need to be judicious to make sure you're getting enough of the fat solubles. In terms of recommendations, I always try at least, say, cod liver oil or butter oil, whether that's feasible. You can get K2 from sauerkraut or natto. So that's another option. It's possible but I would say you're kind of pushing yourself into quite a modular space there.

Robb: Right. Okay, okay. That makes sense. It was just in the back of my head. I was thinking if the kid is breastfed until they're like five. So, yeah, okay, okay. So, on this gut biome side of things, we've got, clearly we have a microbiome that inhabits all kinds of different areas of our body. Like I just read an article the other day that bacteria in and around the breast tissue may predispose both men and women towards higher or lower rates of breast cancer.

So, like just the endogenous bacteria that live around the breast tissue can kind of push things one way or the other potentially. There appears to be an oral biome which is maybe protective against dental caries and a different type of oral biome that is maybe pro-inflammatory towards dental caries. How are you tackling all that type of stuff? There's a lot of discussion about identifying what the gut microbiome is, for example, and then we're going to do XYZ protocol and reset it, weed and seed and feed or whatever. What are you doing on the oral side of that? Are you doing any type of analysis of what is there and trying to prune or otherwise encourage growth? What's happening on that front?

Steven: Yeah. This is really interesting. I mean, this is basically what I'm trying to, my message in terms of how we, what we can learn from the mouth. Dentists spend their day with their hands in the oral microbiome. And the thing is that so much of the research is focusing on the gut microbiome. We really don't have comparatively a lot looking into the oral microbiome.

It's interesting that you brought up bacteria around the breast because, I mean, what we learned from breastfeeding is that when a child is a newborn they acquire the oral microbiome via breastfeeding. And that's far as system where the mother transfers their gut bacteria to her mammary glands into her breast milk to the child. So, the mother has a system built in to convert her own gut bacteria to the child's oral microbiome. And the first weeks to months, the oral and the gut microbiome in the child remains similar.

But the oral microbiome is the -- It's the body guide to the gut microbiome, isn't it? And we don't really kind of seed in that way but that happens throughout life. You swallow thousands and thousands of bacteria every second. So, when you've got a system that's out of whack and gum disease and tooth decay, that is translating to a gut microbiome which is more likely to be in dysbiosis. So, what's really interesting is that we've kind of really had this idea of the infection theory of things like disease like tooth decay and gum disease where there's bad bacteria in there hanging around.

But the microbiome perspective shows that bacteria actually perform and functions in our mouth normally all the time. The idea should be to balance the ecology and not kill out the bad bacteria. Because the bad bacteria, what we call, they live there in the normal. So Strep mutans which is one of the best known bacteria that's cause for tooth decay, that lives in the normal microbiome. But the problem is it gets out of hand. And we've known the mechanism for years.

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And that's simple carbohydrate sugars. And that's because once you introduce simple carbohydrates to the environment, it changes the metabolic activity. So, there's studies now that look at the metabolite and we can measure the whole system of bacteria living in the mouth and how that changes over time. And what tooth decay is, in fact, when we change and when we lose diversity in the environment then you get a metabolomic change.

So, once the population change happens then you get this shift in PH. And what bacteria actually do is they're actually participating in mineral, in transferring calcium and minerals into their own plaque and into teeth. They're actually helping us out in terms of putting calcium from our saliva into our teeth because our teeth are in constant mineralization and demineralization equilibrium. And bacteria is participating in that.

And so what tooth decay is when we via a poor diet that causes dysbiosis in the system and you get these fat metabolizes take over then you get them -- What happens is they've lost the minerals for their own plaque and their biofilm and they have to take from the tooth. The bacteria don't want to take from the tooth

in the first place because they want to keep the equilibrium going. But once we change the system that's when tooth decay happens. And I think that's a great model for micriobiome diseases happening all over the body, is we're seeing this loss of balance instead of this infection theory.

Robb: So, like in the gut, we have leaky gut and then in the mouth we almost end up with like leaky tooth.

Steven: Well, yeah. Completely. It's amazing, right? We've really kind of looked at the very, very endpoint of the disease process. But it's in fact, a huge dietary driven imbalance in the entire population.

Robb: So, let me ask you this. Again, if we look at kind of traditional cultures, we've seen cultures that eat higher carbs, cultures that eat lower carb, all of them are pretty healthy. It's been my experience that as people get broken by modern living and whether that brokenness is at the gut level, at the mitochondrial level, a lot of people end up benefiting from eating on the lower carb side of things, maybe even ketogenic at least part of the time.

What do we need to do, like what's kind of a way to analyze where we are currently and then what do we need to do? Because for some people, sweet potatoes, just metabolically doesn't work for them. It still sends their blood sugar too high. They have an inappropriate insulin response. They can't really manage the blood glucose all that well. What are some -- Do you think it could be a deal where so long as we make sure that our blood sugar is responding well that it's probably the appropriate load for the oral microbiota? What are your thoughts around all that?

Steven: Yeah. I mean, it's interesting. The point you're touching there in your show, people are very different so we really need to take an individualized approach to everyone. But generally, when taking -- The way I kind of look at the body, the way I see the body as a dentist and when you look at cases like Pottenger's cats, the first things that go wrong are in the mouth. And so when we're eating the wrong way, in Pottenger's cats, the first generation of cats in the processed diets they had inflamed gums and they had crooked teeth.

Robb: Right, right.

Steve: Yeah. So, the mouth is kind of the first step. And so what I've seen in terms of -- Once you increase your fiber intake, once you absolutely reduce the simple carbohydrate, refined carbohydrates, then things really start to kind of rebalance. Then once you kind of eliminate the disease causing parts of the diet then you can start to build it with the fat soluble vitamins. And Price was really kind of insisting on this being the core principles of eating. Once you put the fat

soluble vitamins in there, remove the harmful aspects, then balance is starting to get reestablished itself. And in the mouth, you really do kind of see quite a fast improvement especially with a person on a western, standard western diet.

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With more chronic problems like digestive issues and all those lifetime problems where they've had dysbiosis, we do need, you do need to play around with them. People need to look at the different programs like your gaps and like your programs that do kind of take specific approaches to healing certain conditions. But the principles are all the same. It's removing the amount of foods and replacing with the traditionally raised and prepared foods. There's a little bit of tinkering but I think generally the model fits for most people.

Robb: Right. For me, it's kind of weird. I kind of noticed that fruit, like I've never had a cavity before. I've got one or two little thin spots apparently but, knock on wood, I've never had a cavity. But I noticed that fruit will kind of -- I guess, because of the sugar content and maybe the acid load, as a consequence of that, it will kind of get those sensitive spots a little bit fired up.

Steven: Yeah. Everyone has their own reactions. Sensitivity can be something that we from time to time feel. But fruit generally, you have to remember that we're not really designed to have a lot of fruit. Our digestive system really isn't, when we moved away from apes, our large intestine kind of shrunk so we don't have a digestive system to ferment all these fruits. So, after a couple of pieces a day, most people will start to feel a bit sensitive in their teeth especially if you have a fruit juice. Fruit juices are absolutely -- it's a sugar tsunami. So, look, generally, I try and get patients to limit their fruit but at the same time natural whole fruit is just fine.

Robb: Right, right, yeah. The main spot that I get myself in deeper water is during the summer when the watermelon comes in season and then I can sit down and basically eat like ten pounds of it until I'm pooping like a goose.

Steven: Exactly.

Robb: Well, awesome. Well, Doc, I want to be respectful of your time. Where can folks track you down on the interwebs? And then also where will you be presenting here in the near future?

Steven: Yes. So, they can find me at drstevenlin.com and at Dr. Steven Lin on Facebook, Instagram and Twitter. And so I'll be running my nutrition seminars on the East Coast probably in Los Angeles and New York in March 2017. So if they keep an eye and sign up to my email list I'll keep them up to date with that.

Robb: Fantastic. Well, Doc, I look forward to seeing you again in real life. Are you going to be in Paleo f(x) this year?

Steven: Definitely, absolutely. I can't wait. It was a life changing experience.

Robb: Ton of fun, really good barbecue and some pretty good margaritas. So, you can't go wrong with it, yeah. Well, Doc, we will get all of your contact info and your website in the show notes. Again, thank you for coming on the show, really a fantastic perspective on the kind of ancestral health interface with dentistry. That was fantastic. I look forward to seeing you again.

Steven: Completely, Robb. I appreciate it. It was great fun.

Robb: Okay, Doc. We'll talk to you soon.

Steven: Okay. Bye.

Robb: Bye.

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