

Ep #56: Investigating the Link Between Oral and Overall Health with Dr. Susan Maples



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Welcome to *Practicing with the Masters* for dentists with your host, Dr. Allison Watts. Allison believes that there are four pillars for a successful, fulfilling dental practice: clear leadership, sound business principles, well-developed communication skills, and clinical excellence. Allison enjoys helping dentists and teams excel in all of these areas. Each episode she brings you an inspiring conversation with another leading expert. If you desire to learn and grow and in the process take your practice to the next level, then this is the show for you. Now, here's your host, Dr. Allison Watts.

Allison: Welcome to Practicing with the Masters podcast. I'm your host, Allison Watts, and I'm dedicated to bringing you masters in the field of dentistry, leadership, and practice management, to help you have a more fulfilling and successful practice in life.

Dr. Maple leads a successful insurance independent dental practice in Holt, Michigan. She brings preventative and restorative dental expertise, a passion from [inaudible 00:01:08] Total Health, a master's degree in business and marketing, and 30+ years of experience in private practice. In 2012, Susan was named one of the top 25 women in dentistry, and one of the top 8 innovators or, slash, disruptors in dentistry, and recently received the Lucy Hobbs Mentor award. She is the author of *Blabbermouth! 77 Secrets Only Your Mouth Can Tell You To Live a Healthier, Happier, Sexier Life*, and the developer of the Hands-On Learning Lab, and SelfScreen.net. Susan is also co-investigator in an award-winning diabetes research study.

Susan I know there's a lot of stuff you're up to and it's awesome. I read your book in preparation for this call.

Susan: Haha, thank you.

Allison: [crosstalk 00:01:57] a lot we could talk about. Then of course you and I talked, and then I realized there's even more we could talk about.

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Susan: Yeah.

Allison: I'm excited to have you here. I know everybody's excited to hear you speak. I did highlight some things that I'm really excited to talk about. Like I said, anybody on the call, if you want to raise your hand, just star Q and Susan says she will answer any questions.

Susan: I kinda feel like those of you who are on the call, given advantage, we could take it any direction you are interested in to make your time most advantageous. I'm normally used to standing up for seven hours at a time on this, so I really haven't prepared anything for tonight other than what's in my brain and the work that I've done. My career, my job, turned into my hobby. This is really just fun for me and happy to take it in any direction that you want.

Allison: I love that. I could tell that when I'm talking to you. When we started talking about, you know something, I mostly go I'm like, "Caries? The lady wants to talk about caries?"

Susan: I know, oh gosh.

Allison: You're [crosstalk 00:03:01] all excited about it. He [crosstalk 00:03:04]

Susan: Oh my gosh.

Allison: Yeah. There's a lot.

Susan: What I find traveling around the country is that dentists are really not all that in tuned with even what's going on with the four diseases we pretend to prevent, which is caries, periodontal disease, oral cancer and occlusal disease. And really living in kind of the past in terms of hanging on to old school thought on so many things. I'm totally happy to visit

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dental disease as well as all the connections that show up when we look in the mouth and try to navigate what's going on with the rest of the body. Also how the rest of the body manifests oral disease. Yeah. Sky's the limit.

Allison: Yeah, so I thought we would just start, because I normally would never have thought to ask you about this as I flipped through the book. I kind of skipped over it 'cause I really was thinking, okay caries and perio ... Is just something that, you know, we don't really need to talk about. As I was looking through it and talking to you I thought, "Well, maybe we should start there," because I never would've asked about it, then we'll naturally flow into the sugar, and acid/alkaline conversation and our responsibility in it. If you want to it, well then go for it.

Susan: I'll start there, that's certainly fine. Let me just start with the big picture. We're in a declining health trend in America. We're 17th out of 17 industrialized countries for health. We are, at this point, scheduled by the center for disease control to be 1 in 3 diabetic by 2050. By then we will also be at 42% obesity, lifestyle related illnesses like no tomorrow. A lot of this of course is related to sugar, which has always been in our acumen, because when sugar came on the radar as something that's not good for the body, it showed up first as tooth decay. Instead of saying, "Oh geeze, we probably shouldn't have so much sugar," we just threw fluoride in the water and called it good. We've ratcheted up the bliss point in all of our food supply so we're sugared up like crazy.

Addressing sugar is not only a caries issue, but certainly a insulin resistance, pre-diabetes, diabetes issue as well as metabolic syndrome, fatty liver disease, and the list goes on. We can talk a lot more about it's relationship to heart disease and any other thing you want to talk about, but let's go back to caries because along with the lifestyle related illnesses caused

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from a screwed up food supply and the fattening of America and chronic inflammation from food sensitivities and chemicals and all sorts of stuff, we have a health care system that is no longer health care, it's sick care. You go to the doctor for a problem, and you're given a pill. The pill for an ill has really accumulated into a number of prescriptions that we think are really awesome. All the medications for hyperlipidemia, all the medications for anti-anxiety and depression and the list goes on. With each one of those, about 400 of the most commonly prescribed medications cause dry mouth, and then dry mouth tips the acid based chemistry equation out of whack.

Here's the deal. We start out with a sterile gut, we pass through the birth canal with our mouth open, face down if we're lucky enough to have a vaginal delivery. We pick up the moms bacteria from the poop chute, from the alimentary canal, and we start to populate our gut. We don't populate our gut with bacteria that's transmitted from the mouth, hence strep mutans, the one bug that we know of that eats sugar faster than we do and produces acid. As an infant, we get this inoculation from moms or caregivers saliva, and we get a population in the mouth. Without it, we don't get caries. There are 700-800 bugs that live in the mouth, or a couple of them that produce acid, but this one is the heaviest one and it's all over our culture.

Depending on the amount that you have and how often you feed it sugar, we get an acid based chemistry equation that leeches calcium out of the teeth to buffer the acid created by the bacteria.

Then you have to take into account that we're eating a bunch of acidic food and drinking a bunch of acidic drinks because all the food supply is acidic to keep the bacteria counts low on the shelf. I'm talking about commercial foods. Also, we're drinking very acidic beverages. Here's the deal. PH is from 0 to 14, battery acid to Clorox bleach, right? 7 is where tap water and

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saliva live, right in the middle. Our bodies are designed for homeostasis at that equilibrium of 7. If you remember from dental school, every time you ratchet down one point, you get ten times more the acidity. 7 to a 6 is ten times more, a 6 to a 5 is a hundred, 5 to a 4 is a thousand, then ten thousand, then pH of 3 is a hundred thousand times more acidic. When you're talking about Mountain Dew or even Dasini bottled water or orange juice, those are all really really low. Plus many of those have sugar, if you're unlucky enough to have a bunch of strep mutans in your mouth they feed that and it produces acid.

Any time we get below 5.5, start leeching calcium out of our teeth to buffer the acid. It's really obvious why the caries problem is so high, right? We have medications that alter our saliva flow so that it tips the acid based chemistry equation to the left, or to the acidic side. We have acid going in. We have, guess what, acid reflux like crazy. 60% of Americans are urping acid up, that's a whole 'nother issue. Then we have strep mutans eating sugar as fast as we eat it. We're eating 22-40 teaspoons of sugar a day, which is how much we consumed in 1800 in a year. We have a major caries problem. 1 in 3 of our three year olds, 40% of our four year olds, 90% of us have had an experience of caries. By the time they're in fourth grade I think its like 84%. It's a major issue, and not something to be taken lightly since it's expensive, it's painful, it's costing kids 51 million school hours and adults 126 million work hours a year. So it's kind of a big deal.

Allison: Wow. It is kind of a big deal. This may be a really dumb question ... I knew that acid caused your body to leech calcium, like inside of your body from the bones or whatever, I didn't realize ... So when we see acid erosion on teeth-

Susan: Yes.

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Allison: Is that what that is? Okay.

Susan: [crosstalk 00:10:11] Yes. Interestingly enough, yes, that's another form of erosion. If you're not having a pool of strep mutans that's producing a high level of acid right at the area where you're getting caries, you get all over generalized erosion. Here's something more interesting. When we are consuming, we have a pretty acidic diet, which acidifies the body and we actually, Allison, leech calcium out of our bones to buffer the acid in our bodies, which is really leading to osteoporosis.

Allison: Yeah.

Susan: Then we pee the calcium out through our kidneys and we get kidney stones, right? Things that you're eating and drinking that are super acidic, and especially a meat based, animal protein based diet with a lot of acidic beverages, that really is wrecking havoc with our entire system. There are two remedies for acid reflux that really help people, by alkalizing the tummy, or the gut, that are very acidic in the mouth. One is lemon, and one is vinegar. Oftentimes you're told, "Well you drink a glass of lemon water," and people are walking around with lemon water, and doing a shot of apple cider vinegar. If you're putting that in your water and sipping on it all day obviously you're going to leech calcium out of your teeth, while still it alkalizes or balances the gut. That's one that's a little tricky and patients will ask you, "Well I thought I was supposed to be having vinegar," "I thought I was supposed to be having lemon water." So when we're looking at erosion we need to be asking the questions, "Do you put lemon in your tea?" All those kinds of things.

Allison: Wow, that's cool. I never knew that it leached calcium out of our teeth, I just thought ... I don't know what I thought, but I did not know that. That's interesting. Cool.

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Susan: It's really good to look at the pattern of erosion too, because for instance bruxism in the presence of acid is going to create obviously a much higher erosion level. If you're looking at the linguals of the teeth and you're trying to decide, "Is this bulimia?" Or, "Is this acid reflux in the presence of bruxism?" Look at the pattern of it and see if you can see where the teeth are, in presence of it. If you're seeing erosion on the occlusal surfaces of back teeth, the lingual surfaces of teeth, we're often thinking about stomach acid coming up in some form. Most people are only treating that as needed ...

We can talk about acid reflux, but the proton pump inhibitors people are on, all the PPI drugs that are over the counter now and people are taking them every single day. The broad-based warnings say that we really shouldn't be consuming them for more than two weeks. You eat anything you want, so they disguise the reflux. At the same time, they block the absorption of really important minerals like dietary calcium and magnesium and B12. We end up seeing lots of problems in the body from those particular drugs. Probably best to go back to the H2RAs, the Histamine 2 Receptor Antagonist, that we had before we had the proton pump inhibitors, so you can look at that class of drugs. Anyway, didn't mean to flip over to acid reflux but that's kind of in the same genre.

Allison: Well you, just for me and since she said a lot of dentists don't even know some of the stuff you're talking about, apparently I don't either.

Susan: You're funny. [crosstalk 00:13:40]

Allison: I thought I was all smart here. What are some example of the PPIs and the H2RAs, which drug are you talking about when you're talking about those two?

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Susan: Okay, so the H2RAs, let me look them up really quick because I could just read them. Most people are really enjoying this class of drugs that allows you to sit down and eat your pepperoni pizza, that you know causes that level of sensitivity, and not have a problem. They're having some really bad long term effects, and if you look up the long term effects, we're talking about things like nephritis, and as I said, black-

Allison: Are they prescription drugs? All of the ones you're talking about?

Susan: Yeah, so- [crosstalk 00:14:28]

Allison: About Roloids and Tums and stuff like that to stop some problems also.

Susan: Those are antacids, those are a little bit different.

Allison: Right. Okay.

Susan: PPIs are Prilosec, which is Omeprazole.

Allison: Oh, got it. Okay.

Susan: Prevacid, Nexium, all of those. Protonix regard ... The H2RAs are the older class of drugs which are the, see if I can find them in here in my notes so I can ...

Allison: Then you're saying H2RAs are better, because the PPIs [crosstalk 00:14:59]

Susan: They're considered better for long term use, yeah. Again, if you were just going to take them as needed for an occasional ... When you think about heartburn, unfortunately, when you think about a canker sore in your mouth and it hurts, because now you've really broken a sore into the mucosa and that's where the nerves are exposed and it's really painful, that's pretty

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advanced, right? Most people really are ignoring the silent factors of reflux before they actually get to the painful part which is heartburn. Heartburn and regurge, those are pretty advanced. We're looking at silent factors such as, patients show up with a hoarse voice, enamel erosion and tooth decay. Post-nasal drip, a chronic cough, a lump in the throat, indigestion, burping, bloating or nausea. The things that are sort of the low-hanging fruit before you get to the ... We could pick those things up before we get to the painful part. When you take these PPIs, they literally take all that away and you can eat whatever you want. But there's a reason why the body is urping food up. God never designed the food to come up, it was supposed to go down, right?

We have to figure out, "Why is it that you're rejecting your food and what is it about the food." Sometimes we lead patients through a food based cleanse where we're trying to figure out, "What is it that you are sensitive to?" Jamie Koufman, who wrote the book "Dropping Acid" a great play on words for acid reflux, talks about the fact that we don't want to refer to it as GERD, that's just gastro ... We're talking about airway reflux, the mouth is part of the airway. When we think about that, getting into the bronchial tubes and the lungs, really it's a great big source of asthma for kids. We're really looking at, "What is it that's causing that?" [A piece 00:17:03] suggests about 20% of us are sensitive to gluten in some form, but there are lots of other foods that you might identify that cause that problem in you, and I'm sure there are people even listening on this call who suffer from reflux, because 60% of us do and we're dentists, we're not inhuman, right?

If you're going to be on something long term, you want to go back and look at Tagamet, Zantac, [Acksed 00:17:31], Pepcid, those are the H2RAs, the group of drugs we had for reflux before the proton pump inhibitors.

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Allison: Okay. Thank you for that, yeah.

Susan: Sure.

Allison: Yeah, perfect. Cool. So the acid ... Oh my gosh, yeah. I see a ton of that and I don't know if we want to get into the sleep apnea stuff right now.

Susan: We can.

Allison: Do you want to say a little bit of that?

Susan: Sure, you know-

Allison: I think a lot of people on the call may know quite a bit about that, but some people really don't know about it.

Susan: You can look at what apnea causes, when you think about it, doubling your risk of heart attack and stroke and things like that, we kind of know that, we all said "No that, it causes some mental fatigue." If you lose 90 minutes of REM stage sleep in a night, your cognitive abilities are [inaudible 00:18:20] 35% the next day. We often don't think of it as almost a 1 to 1 relationship with acid reflux. Every time the diaphragm has one of those spasms where you're gasping for breath, you're really creating a positive pressure on the stomach which really creates that, urping up through a straw, that positive pressure that brings acid up. That's another thing we almost always see, acid reflux with sleep apnea. The other thing, is we see almost a 1 to 1 relationship in people over fifty with Afib, so we're really looking at contributing to heart disease and risk of heart attack in a fairly major way.

Apnea, when you go all the way back to infancy, we're really looking now at just not how to manage airways, which a lot of dentists have jumped on board because they thought it could

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be quite lucrative to be able to make sleep appliances. Until you're realizing that you're managing these people in a different way than we always had, because we've always wanted to get [inaudible 00:19:25] healthy and stable in the sack and then now we're distracting them foreword.

Aside from that, when you're looking at infancy, we really want to ... I hope all of you are into infant oral health exams because the American Medical Association, Pediatric Association, Pediatric Dental Association, ADA, everybody has the word out that we ought to be seeing kids under the age of one. Partly because as I said one third of all three year olds have tooth decay so it's way too late. Especially for a disease that's 100% preventable. Besides tooth decay, we're really really using that to reinforce the idea that nursing helps a child create a better airway. Kids have to work 60% harder to get milk from the breast than they do from the bottle. No I didn't mean 60%, I misspoke. 60 times harder. Which means the tongue becomes strengthened and conditioned, takes its rightful place at the top of the mouth, expands the maxillary suture, that palatal suture on its own, and lives higher and brings the entire airway up and makes a bigger box for the tongue, forever.

We're really looking at sleep disordered breathing in infants. Looking at tonsils ... Kids shouldn't snore, and about 10% of kids do, so we pick those up, and about 1% to 6% of them have actual sleep apnea. I should say ... Instead of apnea lets say obstruction, that causes lack of neural development. When kids don't sleep, when they have obstructive events or apnea, they get hyperactive. About 24% of ADHD is actually undiagnosed sleep apnea. We get sluggish and tired, they get hyper and misbehave. They have bed-wetting, they have behavior problems, they have cognitive learning deficits and grade issues.

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We're really able to save lives by looking at ... If they say that their child can't nurse, well, there may be a lingual frenulum that could be easily released with a laser procedure, so a child can latch and all of a sudden you're changing, not just their ability, because many of the moms are pumping milk and giving it to babies through bottles, but we're really changing the child's growth and development of the head and face by doing that. When we're looking at adults who have sleep apnea, we're looking at, not tongues that are too large, but the box that's too small. The scalloped tongue, the Mallampati score of [fringal 00:22:07] grading of three or four, the deep overbite, the low airway, even the anterior posterior relationship with the soft palate laying almost back against the posterior pharynx.

All of these things that we can see without ever asking a question on daytime sleepiness. The retrograde mandible, the invaded [inaudible 00:22:29] the space between the Adam's apple and the chin. All of that we tend to think of lifestyle related because, my goodness, we certainly know that overweightedness causes some of this problem, but it's only about 50%. I am a really big believer that if we don't want to have to do surgery and palatal expansion and all of that on adults to solve a problem, then we're just forced to manage airways, which is a drag, nobody likes a CPAP. They don't really like the oral appliances either and it can create, especially for people prone to TMJ problems, can create some very significant issues. So gotta start young, recognizing this and helping kids with growth and development very very early.

Allison: I don't know how many people on this call see kids ... Just for the sake of saying it, I just want to remind you guys that you can ask a question by pushing star Q if you would leave them a question.

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Susan didn't you say, "I don't see kids," didn't you say something about the pediatricians are really, I mean not pediatricians, but pediatric dentists, are really getting- A lot of them are too busy-

Susan: Ah, the infants.

Allison: Yeah, for the infants, and then what about pediatricians, do the pediatricians know all this stuff?

Susan: Yes, and actually pediatricians have been much better at getting the word out than dentists. When you ask dentists in seminars if they're seeing kids under the age of three ... They don't. They kind of raise their hand halfway, "Well, if there's an emergency." If they call the office and say, "My child's one, or six months and I was just told by the pediatrician we need to find a dental home, would you see my child? Your our family dentist." They say, "No, we don't see them until three or two and a half or whatever, three and a half, then they're forced to look on the internet. If you're not doing infant oral examinations ... That's really a lot of counseling, and I'm happy to share with you the checklist we use for that it's, we actually schedule full hour, but we ask all caregivers to come. It's the best marketing thing you can do for attracting new families.

If you just want to see adults, but you're getting close to retirement and you know you want to sell your practice, you want to grow a practice relatively quickly on attracting new healthy families. Start there. If you've got that on the internet that you're doing a really good infant oral health exam, guess who's fault? The pediatric dentist. Guess why? Because of that. So when you lose an infant to pediatric dentist, you've lost them until at least twelve, sixteen years old some of them. Now you're losing a lifetime of that patient.

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If my neighboring dentists don't do it and they come to me, and I ask Mom, Dad, Grandma or babysitter to come, and they're sitting around learning about this and they're like, "My dentist doesn't even see us until three." We've got all this information, they're looking around going, "What else are we missing?"

Allison: Right.

Susan: Our office typically will get a whole family from that.

Allison: I would be totally impressed if my dentist started talking about all this stuff.

Susan: Then you also get a chance to paint fluoride varnish, and get them going on that. Talk about fluoride in the water, the difference between topical and systemic fluoride. Looking at what to do in case of an emergency and how're ... There are a whole bunch of, bunch of things that you can really really talk about there, which is helpful.

So yeah. We're really big on kids. This children's learning lab has been huge. We do science experiments for every child at every visit, so by the time they graduate high school, they've had about sixty different science experiments around whole health. Consequently I now have ten of my patients in dental school. I have twenty-seven practicing dentists, and just found out that two more of my patients got in this week for next year. It's really been fun to mentor these kids. Yeah. Pretty awesome.

Allison: That is awesome.

I probably am going to change gears because-

Susan: Yeah, do.

Allison: I mentioned perio, maybe talk about perio and then get into the inflammation and chronic inflammatory conversation?

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Susan: Sure. I sure thought you were going to switch to the sex section the way you were stammering there. Everybody loves that part of the book.

Allison: If you really want to talk about that, I can-

Susan: No no no, it's fine. Let's talk about perio, an angel-

Allison: No let's talk about sex!

Susan: Oh gosh, Allison, really. We'll get to that. We'll start with-

Allison: There's a song about it.

Susan: When Mike [Creatine 00:27:16] and I were in school at University of Michigan, we learned that periodontal disease was the number one least diagnosed disease and people were losing teeth, and we got in the tooth saving business. We can still save teeth to some extent, but living with chronic inflammation is something is something that, turns out, is not so good for us. It's been on the cover of every major magazine, this isn't new. We also don't have a corner on chronic inflammation. One third of us are insulin resistant, that's a chronic inflammatory response, sleep apnea's chronic inflammation, so is acid reflux, anything that has a chronic irritation to the body that doesn't go away.

Certainly the stress of the bacterial load that hangs out in deep pockets, whether the bacteria moved there after the pockets formed or the bacteria caused the deepening pocket, we're still not even sure about that. The catabolism of bone that causes a crevice that accumulates bugs that are not necessarily ones we want living in the mouth can wreck havoc. These bugs actually set up a bacterial challenge to the body, but you have to understand that it's the hosts immune response that really allows this to become [pronisive. 00:28:35] Locally, we get

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vasodilation to bring in inflammatory fighting cells, like white blood cells. Macrophages for instance, eat bacteria and spit out cytokines that tell the whole body, the whole circulatory system, we have inflammatory products, by-products, right?

When that doesn't turn off, you've got a spillage of bacteria into your bloodstream from a cut on your finger and it's gone in a week it's one thing, but when it never turns off, it sets up an issue. The body basically doesn't like this, and so we're talking about the influence on the interior of all of the blood vessels. What happens is the inner layer of the arteriole wall, which is 10-16 layers thick and very very active, constantly in repair, gets weak spots. We're talking about the entire circulatory system. If you cut out all of the vessels and cut them open and put them out on the floor they would cover six tennis courts.

We're talking about influencing a very large organ. This endothelium gets pockmarks, kind of like a tennis court that's old, right? So the water pools in those areas, their weak spots. Those areas also allow the penetration of things like bad cholesterol. We get LDLs gathering on the interior wall, or the lining of the vessels. We tend to think that our atherosclerosis is ... If you can't say one word you just say another word. You get atherosclerosis, but also we get bacteria from the site itself that are strong. Some of these guys are called the traveling oral microbiome. They actually move away from the gingival site, course through the body, enter the wall of the vessel, and they can multiply within other cells.

For instance, fusobacterium nucleatum. FN. I call it the FN bacteria, it's not a good one. If it's there, it's traveling through the body, it can worm its way into these little weak spots in the vessel, and make babies and make a little nest. When it gets to a large enough pressure area is kind of ruptures, like a pimple on the inside of the artery wall, and you get an immediate

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thrombosis, or a clot. Now we find when we do bypass surgery on heart patients, we take out these clots and they're teeming with oral bacteria that's in much higher concentration than in the circulating blood supply, in an area where there's no atherosclerosis. No thickening of the vessel wall, no plaque.

We actually find these little nests of these dangerous bacteria showing up throughout the body. In fact, in one 35 year old asian woman, 39 weeks pregnant, has a stillborn baby, the baby's delivered, it's a bacterial infection, we always assumed the bacterial infection from the stillborn baby was from the vaginal canal or the colorectal canal. Instead we find this bacteria was isolated only in the mouth. Now with being able to identify bacteria with DNA transcribing, we are now able to figure out where this bacteria came from. This was a patient that had only pregnancy gingivitis. No catabolism of bone.

Allison: Wow.

Susan: Let's go back to periodontal disease now, not just chronic inflammation. We're so used to thinking, in fact I was honored, this week I turned 57 and thirteen of my dental students came up to Bellaire, Michigan to [Shorts 00:32:20] Bar to have my birthday dinner with me which is so cool. They were so excited, they were saying things like [inaudible 00:32:25] and they were saying, "We get to do perio this week, on each other!" Well you can't do perio, and you don't have periodontal disease so you can't do perio on each other, so let's go back.

"First of all, what do you mean by doing perio?" "Well you know, subgingival scaling!" They go. So that's the whole deal. This is a disease with a multifaceted ideology, and you can't solve that with a sharp instrument, we have to stop thinking that way. When you're thinking about this, I want you to think about three more factors for periodontal disease, not just bacteria. One is

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genetics. About 5% of all of our diseases are genetic. We tend to think we inherited a lot of these diseases. When people say, "Heart disease runs in my family," I say, "Well so does the doughnut in the morning and the Mountain Dew at mid-morning break," right? I know. I'm a little cynical.

Honestly I think we hide behind genetics, but there is a genetic test that tests for seven genetic DNA factors for periodontal disease and those are also many of the factors that influence heart disease. That's through oral DNA labs and it's called Celsus One and it's a brand new test that is absolutely fantastic. I don't usually give that test because as I said, it's only going to be for about 5% of people. So if you see really early onset disease or severe disease in young people, or they're not responding to some traditional therapies, that's something we consider. Almost always before periotherapy, we're doing a DNA test for the bacteria themselves, to see which of the dangerous bacteria are above threshold. We can do specific antibiotic therapies to address those. We don't want to be doing broad-base antibiotics, every time you put someone on an antibiotic you wipe out their gut flora, put people at more risk for superbugs and dentists are prescribing more antibiotics than ever, which is very sad, considering the trend in medicine is to prescribe less.

The other two factors that I really want you to consider is diabetes, because I mentioned 1 in 3 of us will be diabetic by 2050, we already have 105 million, that's about 1 in 3 pre-diabetic or diabetic patients, most don't know. In fact, 77 million pre-diabetics don't know out of the 86 million. We have the huge problem there, and when I say 1 in 3 of us will be diabetic, that means its incumbent on us to know their glycemc control, that glycemc status, because it really wrecks havoc with periodontal. It's called bi-directional.

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If you have hyperglycemia, you're going to have a problem with periodontal disease. You're going to have advanced onset, you're going to have early bone loss, you're going to have an inability to control that no matter how sharp your instruments are, and no much you do perio. With a periodontal disease that's active you're also not going to be able to control your hyperglycemia. When you see people really struggle to ratchet up their oral medications and finally get on insulin or whatever, they're having a hard time controlling the hyperglycemia, we look for things like chronic infection, chronic inflammation, and periodontal disease is one of those areas if it doesn't hurt.

Again we have to manage with the physician both glyceimic control, and periodontal disease at the same time. We're going six minute, point of care, finger stick blood testing. We will shortly be able to do saliva testing for A1C but it is part of our protocol if a patient has risk factors for diabetes, we're going to know the A1C level, which is the three month measure of the average blood circulating sugar.

The other aspect of periodontal disease we really need to be aware of is, you're not going to win with a smoker, period. You just aren't. You can have [white type 00:36:31] tissue and nothing to scale and you're still going to get horizontal [inaudible 00:36:35]. When we think about managing periodontal disease in a patient who's a smoker, you might as well give up and go home with your sharp instruments if you're not addressing smoking fixation. In my mind, I am not treating perio disease unless I'm working with the patient on figuring out what's the best way for them to quit smoking, what are the logistics, writing prescriptions for Zyban, writing prescriptions for Tabex, working with an acupuncturist. Offering these different options, and then maybe postponing treatment until the patient is willing to take on that challenge so that we can work together with them. Both in support of them, but also have

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better luck in the resolution of the arrest of that disease. The protocol for periodontal disease now is really full-mouth disinfection which is very different from [crident 00:37:34] scaling and root planing. That's a whole 'nother lecture, but ... And then post-testing for bacterial presence to make sure that we have it all after the patient is really not bleeding anymore.

That's been a very interesting subject, periodontal disease.

Allison: Yeah. Can you talk a little bit about the salivary testing? What are they using it for now, what, like you just said in the future, they're going to be able to the A1C, right?

Susan: Yeah.

Allison: What is going on with the salivary testing right now?

Susan: One of my pet peeves by the way, as an aside, is that the world of dentistry has associated oral systemic connection with, or they say the oral systemic link, meaning there's one link and it's periodontal disease to heart disease, and that bothers me. As you can hear, everything from chronic systemic inflammation from food sensitivities, to HPV infection, oral cancer and [inaudible 00:38:31] health exams.

There are many many many links between the mouth and the body. In terms of salivary diagnostics, we kind of own the spit world. I sat last night with my physician study club, called The Wellness and Profession Study Club, we meet once a month at my house for dinner, and we have a very progressive group of physicians of all sorts at that table. There's a rheumatologist, a cardiologist, an endocrinologist, neuromuscular osteopathic manipulated physician, and all of them. Only one is doing any salivary diagnostics at all and they're using it for cortisol or stress levels. We in dentistry are already using it far beyond them and I love that because it's going to give us a real strong

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hold. We should be able to own this, I hope, and be able to help a lot.

I think we have a right and responsibility to help in the declining health care crisis, and the area of being able to do early diagnostics by a single drop of saliva. [Terracide 00:39:32] will be huge considering the entire health care system has moved from health care to sick care. Prevention is a very small part of medicine these days, and 75% of the illnesses we're treating are preventable illnesses. We are truly the preventionists. We have six month preventative relationships, and even though we'd watch the decline of the four diseases we pretend to prevent, which I've already named, we watch those diseases get worse ... Did I say decline? What I really mean is, all the diseases we're pretending to prevent have gotten worse. If we're really preventionists, we really need to be looking at, "Why is that?" It's not because we're really doing anything really wrong, whether ... Some things we're doing are a waste of time, polishing teeth is ridiculous. We're not really doing things wrong, we're just looking at a systemic body, that is decreased immune response, which means we're watching the decline of the mouth as well along with the rest of it.

If we really want to be excited about prevention in the future, we should think about saliva. In the very near future, we're going to be able to test for early detection of things like oral cancer, pancreatic cancer, imagine. Breast cancer, early. Ovarian cancer, Sjogren's Syndrome, heart disease, type 2 diabetes, lung cancer, Alzheimer's, cervical cancer ... Crazy to think. Right now we can test for HPV, which we're doing this year in 2017 my office is doing a great big push for HPV oral cancer awareness. We can test for 51 different HPV strains, 25 of them have been associated with oral cancer. HIV-

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We can test for, of course I had mentioned, the genetic tests, the seven different genetic factors for periodontal disease, some of which correspond to heart disease. And of course the perio [ID 00:41:44] which we right now are testing for 10 different pathogens in one saliva sample, which helps you really create antibiotic specificity for knocking down some of the bugs that are creating the biggest havoc. When you're not having good luck with that and the A1C is controlled and the patient doesn't smoke, then we're really looking at yeast, we're looking at candida, but not just candida albicans spikes. We might see white, thrush, or red tissue. The candida that doesn't show up so we can test for several strains of that in a drop of saliva.

Those are what we're really using right now, and again what's coming is huge. If you ever get the chance to hear David Wong, in fact we've hired him for the 2018 American Equilibration Society meeting in Chicago. We're taking a total health approach to that meeting, we're bringing in some amazing speakers and David Wong will be there so plan it on your calendar to be at that one, and of course [inaudible 00:42:45] is a meeting not to miss. David Wong's [inaudible 00:42:48] he's off on some of those big programs. If you get a chance to hear him speak on salivary diagnostics, this technology is already present, we're waiting FDA approval on so much of this and it's going to be very very simple for us to be able to do that. Even chairside, where right now we send in our saliva samples, and then the samples are dropped in a portal in our computer. We're getting results back pretty quickly.

Allison: I guess we really don't know [inaudible 00:43:17] because the FDA takes as long as they take, huh?

Susan: Yep, that's right.

Allison: Okay.

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Susan: Pretty cool stuff though.

Allison: Super exciting, yeah.

Well since you mentioned HPV and nobody else is asking a question, I think we can talk about sex now.

Susan: Oh, okay. It's funny, when I wrote the book ... My mom was a psychologist and sex therapist. I think she would've been disappointed if I left sex out of the book but, the mouth is a sex organ for sure. You mentioned HPV, oral sex is definitely here to stay but unfortunately the first occurrence of oral sex is happening between the ages of 10 and 13, sorry for those of you who have kids those age to break the news. It's considered very casual now ... That's in itself another story but there's a section in the book called, "Sexual Health and Satisfaction." There's six chapters on that, but the one that everybody turns to when I'm doing a radio interview or television interview, they turn to erectile dysfunction. The chapter called, "Floss or be flaccid," everybody seems to be intrigued by that.

Allison: Sorry, yeah.

Susan: How is it that periodontal disease actually affects erectile dysfunction? That's kind of a funny one. Back to the chapter called, "Oral Cancer from Love and Other Drugs," let's talk about HPV. We have a massively increasing sexually transmitted disease rate. 30% a year increase, every year. We've just surpassed cervical cancer with HPV related oral cancer. By 2020 we will have more middle aged men with oral cancer from HPV than women with cervical cancer, which really begs the question, why have we focused so much on vaccinating girls, and boys have sort of taken the back seat? It's been very interesting.

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Pardon the pun on the back seat, where most of the oral sex for kids is taking place, but ... I didn't mean it, just slipped out.

This is a particular virus where every one of us has been exposed. It's sort of like the common cold, if I put scotch tape on the back of your arm and pulled it off you'd have HPV virus there. It's everywhere. It's of course not a stable virus, it's adapting and growing so we now have 51 identified strains. Even though HPV 16 and 18 are the two most responsible for cancer, we do see lots and lots of strains of it and 25 of them have been associated with oral cancer.

Here's how it works. This particular virus, if you're host immune response is low when you're exposed to it, you can instead of clearing the virus, have the virus move in to take a home in your tissue. Unfortunately it moves in to the back of the throat, the posterior tonsillar pillars and the posterior pharynx. This is an area, and it's not moving into that area because you might think that's because where oral sex is occurring. I know a lot of people, I ask, "Why do you think it's there?" They all go, "We know why." Nope. It's because that tissue is rough and bumpy like the tissue of the cervix, and so it allows more penetration, or more collection of the virus in those areas.

If you as a person are a smoker, a chronic drinker, chewing tobacco, other kinds of food sensitivities, acid reflux, producing more mucous because of any kind of sensitivities, of course you're going to be more susceptible to that. We see that more, again in smokers than not but, if you have that virus move into the tissue, and in the cellular level change the DNA of that cell, that is going to be more subject to cancer. It doesn't turn to cancer overnight. Just because you have a positive HPV test doesn't mean you have cancer, but because we can't detect it, before [inaudible 00:47:15] mouth, right? We could see those areas and feel them.

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In the back of the mouth, you're going to miss it. It's the patient that wakes up with a lump in their throat and they can't figure it out, and they find out they have oral cancer and now you're 50% survival rate in five years. Right? 40% in ten. It's a devastating cancer, because it's in the area of the mediastinal nodes, we get a lot of metastasis we get lots and lots of horrific outcomes from treatment. We become dysphagic, lack of swallowing, lack of ability to talk, all of that. It's a horrific death. It's not a cancer you ever want or want to see in your patients.

By having our patients gargle and spit into a cup, we can detect HPV presence. If it's present, we have to test again in a year, because it could be the patient is busy clearing it, or it could be that it's there to stay and if it's there to stay, that's when we consider it sustained infection. That's when we really want to up the ante with probably, we don't have a protocol developed on this, but probably annual scopes just like if you had had a precancerous polyp removed from a colonoscopy. All of a sudden you're upping the ante on how often we're looking there, right?

Allison: Right.

Susan: That kind of a thing.

Allison: Yeah. That makes total sense.

Susan: We also want to get the word out to kids that oral sex isn't safe sex. If you wonder about the vaccine, the vaccine covers only 4 of the 25 that have been associated with oral cancer, although it does cover 16 and 18. The new vaccine, which has only been out a couple months, has four more. So again, 8 of the viruses are covered in the new vaccine that kids are starting to get right now, which is pretty nice.

Allison: Yeah.

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Susan: We also don't know-

Pure conversion or how long you [inaudible 00:49:13] for, so if there's a bit of a false sense of security. You want to think, "One and done, I'm vaccinated for a lifetime," but we don't necessarily believe that either. There's a lot of work to be done in terms of eradicating this. At least we need to grow the awareness. This is one of the areas my team wasn't great at talking about, so we did 100% awareness campaign. We have lips drawn up that says, "I am informed," and then there's a stamp that says, "I've been tested," they write their first name on it and they plaster them in the hallway to our office so we get the whole hallway full. We do one big awareness campaign a year, and this year it's that.

The test is costing ... We're charging \$130. It's interesting. I've written a couple articles and we get people coming from all over just for the test to come into our office 'cause they've been worried about it for one reason or another.

Allison: Oh my gosh. I mean, you make me want to go do the test. I mean, why not?

Susan: [crosstalk 00:50:16] I know. We all did it as a team and we had to think about it too, yep.

Allison: It's nasty, you're right. I've had a couple patients with oral cancer that were way too late. I hadn't seen them in a long time, and all of a sudden they show up with softball, or ... It's bad, I agree.

Susan: I sat on an airplane with-

I had a neck cancer specialist from Henry Ford and he said he can't believe what's happened in 11 years. He said, "When I got here, there were four of us on staff and we were lightly booked,

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now we have twelve, and if you have cancer, diagnosed, can't be seen for 3 to 4 months." He said it is unbelievably growing. This is the largest segment of cancer growing, and it's the largest segment of growing cancer in younger age groups too. We have to get involved in this, no question about it.

Allison: I don't know if it's the only cancer, but isn't it either the only cancer or one of the few where the statistics are getting worse over time instead of better? We're not-

Susan: That's what I mean, yeah.

Allison: Yeah. Yeah, yeah.

Susan: It's growing like crazy. I'm impressed by the fact that if we know it's HPV cancer it's more treatable, but still there're oncologists all over the world that aren't recognizing that [inaudible 00:51:42] cancer needs to be differentiated between HPV and non HPV, and treated accordingly. Again, if you've got someone with oral cancer make sure they're being seen by a very sophisticated cancer centers that deal with oral and [inaudible 00:51:55] cancer with large universities or learned people. The outcomes are better, but we have to identify it first. Yep, kind of a big deal. We're going to see it. I think you may have-

-your whole career on that seeing cancer but you won't finish your career that way, sadly enough.

Allison: Yeah. That's sad.

Susan: In the BlabberMouth! book, I go into Michael Douglas' story, which is very interesting and I'm so happy that he was a spokesperson for this to help create that awareness.

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Allison: Oh yeah, that's right. I forgot about him. I did read the book but I don't remember, I guess 'cause I was skimming quickly to try to get it through before we got to our call. I didn't remember that part, but yeah.

Susan: You avoided the sex section.

Allison: Well, I did apparently have issues with that.

Susan: I'm kidding. Okay.

Allison: Hold on, Bethany has a question, real quick. Thank you Bethany for getting me out of this conversation. Bethany, your line is open.

Bethany: Hi, how are ya?

Susan: Hi.

Allison: Good.

Bethany: Hey Susan. I did have a question about when you were talking about breastfeeding, and how it changes the shape of the mouth. Clarify for me, do kids you breastfeed have less snoring, less orthodontic problems, even as teenagers? Is that what you were saying?

Susan: Yes. The thought is that if the tongue becomes stronger and increases the [balt 00:53:26] of the palate, basically the size of the box that it lives in, in other words, by broadening the-

Bethany: Yeah.

Susan: -palate, we are not needing to do palatal expansion. Also when it's happening young like that, we're really lifting the tongue up and the whole airway development is better. It was very interesting talking to David [Grimm 00:53:49], saw this

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physician last night, 'cause he's really dealing with that too. It's very interesting work. It influences the growth and development forever. You can expand the palate when the six year molars come in, we're all accustomed to that. We do lots and lots of palatal expansion, right? We wonder why is the [inaudible 00:54:09] so small all the time? We got lazy tongues.

Bethany: Yeah, so there's a generation of kids that I was in that were all bottle fed and I just, you know ... That's amazing. There's so many reasons-

Susan: How old are you?

Bethany: 48.

Susan: Okay. So you're closer to my generation, I'm 57. We were all bottle fed too, because the mothers were told that was better for you.

Bethany: [inaudible 00:54:35]

Susan: Also, we were in a generation of four bicuspid extraction, because they banded all the teeth, and the bands around the teeth took up a half of a chews width, and so if there was a chew size, jaw size discrepancy or any crowding, the orthodontist made it easy by four bicuspid extraction.

Bethany: Yup. That's what happened to me.

Susan: And then retracting everything, right? So we have a smaller box, which forces the tongue to be further back. Now during the day we're able to keep our airway open by using our muscles but at night when we go into REM stage sleep we get paralysis of the muscles, and collapse of that airway. So of course if you have a smaller box that's pushing everything back further, you're kind of screwed. Sorry.

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Bethany: Yeah. Well thank you, I appreciate that. I just wanted to say thank you for bringing all this to our ... This is high end ... Cutting edge, this was awesome.

Susan: Cutting edge. Yeah.

Bethany: What you're doing for the dental world, and bringing to the awareness is so powerful and the students that are going to dental school because of you, I just want to commend you for that. And thanks for being on tonight, appreciate it. Nice to hear ya.

Susan: Oh, thank you so much. As I said, it's my hobby and my job and I love it. I'm in the process right now of creating an online learning platform called Total Health University, it'll be available to dental offices. Hours and hours and hours of modules that are separated into less than thirty minute segments for teens to study over the course of the year. We're very excited about that. I know that even when I stand up for seven hours, people are sort of drinking through a fire hose and wondering where do I go next.

I want you to know that this is all learnable. I'm really really powerfully strong into the idea of implementation, not just knowledge, because there's no point in learning all this if you can't move it into the hearts and minds of your patients, right? I'm very excited about bringing that to you, it's gonna be available in about a month, and it'll be purchasable through Henry Schein's. Think about doing that with your team if you want to take a total health approach. While I'm at it I just want to mention, that because the world is declining in health and there are people who are willing to spend money on health, those are the patients we want, and those are the patients who are attracted to a cutting edge total health practice. They will seek you out, so this is a real marketing push as well as an ability to

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help save lives and reroute peoples' futures. There's no reason for people to feel sick and old at young ages. We can help them feel healthier, stronger, leaner, and more alive in even six months. It's such a wonderful opportunity for us.

Bethany: Thanks Susan.

Allison: I know I got into dentistry to change peoples' lives and I'm sure most of us, we got into dentistry at some level we wanted to be healers, or helpers, or some of us had our own issues that led us to do it. It makes me sad when I think that we've lost ground, but I'm excited about what you're doing in the future of dentistry. I'm excited that this whole conversation about the whole systemic connection is being brought to the surface, and that positions of [inaudible 00:57:59] are talking, and we're having these meetings, it's fantastic. It's exciting.

Susan: Thank you. [crosstalk 00:58:07]

I know we're getting to wind up here, I thought I might just end with my story really quick if I've got a couple minutes left, can I tell you?

Allison: Yeah. Bethany I'm going to leave you, are you good?

Bethany: Yeah. Thank you.

Allison: Okay.

Susan: I grew up with two parents who smoked two packs a day each, and many of you grew up with parents who were smokers as well, if you're in my genre you might have also. I was actually born in an oxygen tent. Spent three months there and then struggled to stay home because I was in a very smoky environment. Of course those days ... Believe it or not, they told my mom that if she increased her smoking it would relax

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nervous mothers. So after I was born in this oxygen tent she increased her smoking, isn't that nice?

Allison: Wow.

Susan: Anyway. They also had never heard of second hand smoke as being an issue at all, but I struggled and struggled and I was ultimately hospitalized seven times for pneumonia under the age of twelve. I was on multiple medications, had asthmatic bronchitis constantly, I had 52 allergies, environmental allergies and food allergies, etc. I had a pretty crappy life, but as every sick kid does, we sort of adapt and make the best of it, and you really don't feel sorry for yourself. I was a pretty happy kid.

I got released from the hospital at age twelve and my pediatrician sort of gave up on me. At that time, my mom had taken a position working at the college of osteopathic medicine as a psychologist. The world of medicine had opened up to her and she found a doctor for me through her colleagues which was, pretty amazing. This woman actually saw me the summer before eighth grade, and at that point, I was pretty sick.

She took me in to a two hour initial examination, which wouldn't happen today, she had read my chart cover to cover, which also wouldn't happen today. When I got in there, she facilitated me. Instead of telling me what to do, she basically said, "What's it been like for you?" I was like, "I dunno. What do you mean?"

Then she started asking me, started diving into what my life was like, what the quality of my life was like. As I started to describe it ... I was not a crier. I never felt sorry for myself, but I did start to cry when she asked, "What's the worst?" I said, "I had to get rid of my dogs." Cats I could get rid of, but the dogs, that was hard. Then I didn't like the fact that I couldn't spend the night at my best friends house 'cause they had dogs and feather pillows, and I couldn't be without my vaporizer. I didn't

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like that I had to spend two days a week after school getting allergy shots, I couldn't participate in school sports 'cause I couldn't run without an inhaler, and I couldn't swim. All this stuff.

I started to cry, and she basically just handed me tissues and kept asking me questions. The more I described life, the more I started to take a little bit of ... I was a pretty compassionate kid toward others and I started to heap a little bit of that compassion back on me and start to make me feel sorry for myself a little bit. See my situation a little differently. Through the course of that she pretty much broke me down and I found myself just saying, "I'm sick and tired of being sick and tired." I didn't like also that my clothes always smelled like smoke and medicine, I was embarrassed. I started to get to that age of consciousness where I didn't want to stand next to boys 'cause I smelled funny.

She finally said to me, "What would you be willing to do if I could help you take away all this medication and get healthier?"

I was like, "Well what do you mean? I don't think you could do that."

She said, "I didn't say I could do it, I said what would you be willing to do?"

I was like, "I don't know, I think I would do anything."

And she said, "Anything?"

And I said, "Yeah, I think so." She said, "Just a minute."

She kinda went out of the room, and I'm drying my tears and she comes back in with a little piece of bubble plastic. Bubble wrap was brand new in 1973. She said, "Do you know what this is?"

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I said, "Yeah, I think we have some of this at home. It's kinda fun."

She said, "This is your lungs," which was really fun when I get to see my lungs under a microscope in dental school. She said, "These are the little sacs that pick up the air, and the little walls where the blood vessels pick up the oxygen bring it to every cell in your body, and without it, you're sick and tired." She said. "All the medications are doing is expanding those little pockets and trying to dry them out so you can get more air, and have more oxygen to yourself." And she said, "If we can do this, if we could strengthen and condition your lungs without the medication, would you help me do it?"

I was like, "Of course, what do I have to do?"

And she said, "A half hour of strenuous exercise a day.

Then I was like, "Oh yeah, I can't do that."

That's the attitude a lot of our patients say.

Allison: Absolutely.

Susan: [crosstalk 01:03:03] I can't do that, or I can't do that. Didn't I tell you I can't do that?"

And so she said, "Well I know you can't right now, but I would be willing to work with you." So she saw me once a month for six months ... Sorry, once a week for six weeks and then once a month for six months, and at the end of that time I was on a little swim team struggling for my life. When I went out for the swim team in ninth grade, I ended up being on a State Championship swim team. Our school won States all four years and I became a real athlete, swam at States, ended up ...

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It was an amazing amazing story of how to get to health. I also went home and boycotted driving in the car. I got my parents to quit smoking ultimately, 'cause they started recognizing that I was sick when I was around it, and I didn't want to be around it. I set up a tent in the winter in my back yard and threatened to move outside. All the stuff that kids do.

It was really great because she gave me the power to do that. That is where the learning lab was born, because I'll never forget knowing what my lungs look like. I'm just appalled that we're legalizing marijuana, like another smokable product is going to be good for the lungs, right?

Allison: Right.

Susan: When we forgot about tobacco. No drug should be absorbed through the lungs if you ask me, but, that's me.

Anyway that's my story. I know what it feels like to have one powerful health care provider in my life who changed the course of my life. I know that it's possible for us to do this for our patients, and I absolutely know the legacy it will leave, even to save one life, like mine. I am forever grateful to that woman, and I'm doing my best to pay back.

So that's my story.

Allison: I love that, thank you so much for sharing that. I have never heard you-

Susan: Absolutely.

Allison: I didn't know that. Yeah.

Susan: Well when you mentioned we all have our stories, why we went into it I know, just kinda triggered it in me that ... It's been a powerful guiding force for me to be able to give back like that.

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Allison: Yeah. Wow. Does that woman know, I don't know if she's still around or what ...

Susan: Yeah, thanks for asking, that's so cool. I'm still a daily exerciser, non-negotiable, every single day and, I wrote in the dedication of this book about my personal miracle worker, without her this book wouldn't even be here, right? She retired early because her husband was older than her and she promised him that she would go with him and they moved to Europe. My mom actually Googled her and found out that she'd moved back to the United States. It turns out for her she had an autistic grandchild, so they moved back to help her daughter. I didn't know if it was her. She's doing telemedicine in New Jersey. I sent her the BlabberMouth! book and then I didn't hear anything.

About a month later I get think phone call, and she was blown away. She came in after being in Europe for a month, and said, "I opened this book, and I sat down, I haven't even unpacked yet. I've been reading and reading." And she said, "I can't even believe it." So she ended up being my patient before she retired, so we became colleagues and friends. I knew her for a long time but, lost track of her for the last 25 years. It was really fun to get reacquainted, so thank you for asking, really fun.

Allison: Oh yeah, that's awesome. That's cool. It is cool for somebody to come back and tell you that you made that difference.

Susan: Absolutely. Yeah.

Allison: Yeah. Well, thank you Susan for all you're doing and thank you so much for taking time out of your schedule and your evening to be with us, and share all of this.

Susan: We'll do it again [crosstalk 01:06:54] We only touched on about 15% of the chapters of the book so, we'll do it again, and we'll take on some more stuff when you're ready.

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Allison: Awesome.

Susan: Thank you for all you're doing, Allison. This is awesome.

Allison: Thanks Susan. I'm going to open up the lines so you guys can say goodbye if you want. Everybody's line is unmuted now.

Thanks for listening to *Practicing with the Masters* for dentists, with your host, Dr. Allison Watts. For more about how Allison Watts and Transformational Practices can help you create a successful and fulfilling practice and life, visit transformationalpractices.com.