Minimally Invasive Dentistry:
A One-on-One Interview with Dr. Tim Rainey
By Dr. Joseph Mercola

DM: Dr. Joseph Mercola
TR: Dr. Tim Rainey

Introduction:

DM: Welcome, everyone. This is Dr. Mercola, and today I’m joined by Dr. Tim Rainey, who is a pioneer in alternative dentistry – biological dentistry. He’s actually been doing this for quite some time. He’s a big proponent of what’s termed “minimally invasive dentistry.” I’m sure he’s going to elaborate on what that term means. I want to thank you for joining us today, Dr. Rainey.

TR: I’m very glad to be here. Thanks for the invitation.

DM: I’ve been involved with alternatives to regular dentistry for quite some time. I think many people fail to appreciate how important dentistry is to our total health. They tend to separate these two compartments – one is their normal medical doctors and then their dental doctor – but there really is a strong integration of both. It’s very difficult to achieve high-level health if your dental health isn’t functioning well. That’s why I’m so glad you’re joining us.

I’m wondering if you could elaborate and discuss with our viewers how you first became interested in this type of dentistry. Because I’m sure this is not what you were taught in dental school.

TR: Absolutely not in dental school. That’s for certain. I guess basically all of us have skills. All of us have a gift. A lot of us never discover those. I discovered my gift very early on, which is basically structural integrity. It’s the ability to put things together. Just like a good structural engineer, you just understand what it takes to make something that’s sound and solid.

What I can truthfully say – and I’ve repeated this hundreds of times over the years – is that from the very first moment in dental school (where they showed us a video and said, “Take a high-speed drill and do this”), I went into full-blown rebellion. It wasn’t logical. It didn’t make any sense. You couldn’t convince me that that was good for the patient or good for the tooth.

The other side of that equation is that anyone can be an [inaudible 02:27]. You’ve run into hundreds of those people during your career. I don’t like to hear someone say, “I don’t like that. Period.” It’s extremely important to have an alternative.
I went along with the flow as much as possible, but knew that I would have to find my own way of doing dentistry. And I got some good wakeup calls. Because during two of the lectures (immediately after the lecture), I was reading all of the current research – one on copper-like varnish. They’re having a varnish down in the bottom of the cavity before you fill the tooth. When the stuff dissolved out, it created all kinds of problems. I took that article over to the head of department. He basically dismissed me.

I came back in, did the same thing – stupid enough, naïve enough, young enough – all over again with another very important article having to do with structural integrity and some of the modifications that need to be done to current ways of preparing teeth. He grabbed the article from my hand, sort of slammed it down on the desk, and asked me what I was showing him that for, which is self-explanatory. His actions were also self-explanatory. I walked out.

I knew from then on, I was free to do my own research and question what was being taught to me. Basically, I knew that the way that we were preparing teeth back then was dead wrong, that you couldn’t go in and justify destroying massive amounts of tooth structure. According to the dogma that was written in 1891, we needed to be much more conservative. We need to be using [inaudible 04:37]. There are a lot of different things that needed to be done.

Basically, I kind of wandered around on my own until 1977. I read a hallmark article by [inaudible 04:52] out of Japan, which was a bellwether for me. It started putting everything together – how the decay occurs, what the tooth looks like on the inside, how the decay looks like, and then what we could do in order to minimize the damage that we did to the teeth in trying to restore the teeth. I set out.

That was the beginning point. But where you set out from the beginning is the end point. For example, how did they put a man on the moon? The first thing was the moon. What does dentistry do? We look at decay and what we can do to take the decay out of the tooth. But what is the problem? The problem is the decay. How did it get there? That’s the end point. You start there, and then you work back.

It took me about until 1983 to really understand what was really going on within the teeth. I’m talking several years there. I’m talking about dissecting hundreds, if not thousands, of teeth. I’m taking them to the lab, cutting them up, and looking at the decay process. I realized two things. Number one, we did not even have a rudimentary understanding of the decay process in the teeth. Number two, everything that we’ve been taught about tooth structure and anatomy was just dead wrong.

By 1985, I had actually published the article on how to address 80 percent of all decay, which is in the chewing surface of the back teeth. That’s where most decay starts. We had a rather crude rudimentary way of going in and treating these teeth.

Just by happenstance, being in this very small town, a very small community, that one of my first patients that I’ve tried this procedure on, which was a leap of faith from her mother whom I have gone to high school with… We did some of the very first restorations – the minimally invasive restorations. Here we are, from 1983 or 1984 (somewhere in there that we did those restorations) to today. She is my lead hygienist, those restorations are still there, and those teeth have never decayed or broken down.
On the contrary, if you have a decay on the chewing surface of the tooth, you go in, and put a high-speed drill – “the friend of future dentistry” – into the tooth (it sends out harmonic vibrations, fractures the tooth), and then you put something that’s totally incompatible to the tooth structure and to the human being – the silver mercury amalgam – into that tooth. Then what you can depend on are very well-researched articles – in fact, it’s hundreds of articles – on the longevity of these restorations.

The average age is somewhere around 14 to 15 years before the breakdown of the first restoration in the tooth and then somewhere around eight years for the second restoration. Then you’re into the tooth has fractured, you start getting decay in between the teeth. That’s the root. That will destruct your teeth. Decay starts breaking down the teeth, and then you start getting into crowns and root canals.

Here you are, a whole series of manmade iatrogenic (dentistry calls) “disasters,” which fuels the future generations of dentists. It also fuels 80 percent of what all dental practice is about, that is repairing previous dentistry.

Now, the importance of what I’ve done – and I’ll be quiet here in just a minute and allow some questions. The importance of what we have done in this practice is by the early diagnosis and early intervention in minimally invasive dentistry, we have eliminated 80 percent of future dentistry on the vast majority of our patients who are privileged to grow up in a practice like ours.

Remember, there are several other people throughout the world who are now doing this. It has a very profound effect. We’re talking about something that the evidence of information has been out there approaching 30 years – three decades. Dental patients found out about it like they did in alternative medicine. There are certain things that are going on that theory that will benefit them.

[-----10:00-----]

They seek me out from all over. We have patients coming in from Canada. We haven’t even counted the number of states; I would say something around 30 states.

We saw the daughter, the four-year-old daughter, of an anesthesiologist from Arkansas last month. They flew from Arkansas, because people wanted to put her to “sleep” and put these stainless steel crowns on. We see at least one of these a week, where we rescue these children from the general anesthesia.

Of course, there are easier and simpler ways to do the dentistry. You start these kids off very early. You eliminate the decay. You take the rotten apple out of the barrel. And guess what? They don’t have much decay later on. You bulletproof. We call it bulletproofing the teeth, where we go in, identify the defective pit, fissures, and grooves in the teeth, and clean those out. There are several different types of materials that we can use. My preference is for glass ionomer cement.

And then guess what? Not only do those chewing surfaces out of those teeth never decay, but the interproximal areas are gaining some degree of protection because you’re removing the nidus of the infection, which is the bacteria within the teeth that are causing decay. You don’t have that
bolus of bowel activity there to lead off into decay. Basically, what we have done is we have eliminated a tremendous amount of future dentistry for the kids who grow up in our practice.

**DM:** That is really quite fascinating that you could have those types of results. I’m particularly intrigued with the concept of bulletproofing that you referred to that essentially addresses, from a structural perspective, these cavities of the children you’re seeing – this bulletproofing process, which I’d like you to elaborate on more, how that essentially protects them down the road.

Because from my understanding, from a nutritional perspective (and probably somewhat from Dr. Weston Price who, of course, was a pioneering dentist a century ago), if you optimized the foods that you’re consuming, stay away from the bad foods (the sugars and the processed foods) and have healthy foods, that may be the strongest force to minimize decay to begin with, so that you don’t have to this, you know, traditional dentistry, whether it’s minimally invasive or conventional dentistry.

I’m wondering if you could first elaborate on the bulletproof component, and then secondly, how that integrates with the dietary component.

**TR:** Okay. First of all, you have to have a very rudimentary understanding of tooth structure. The tooth is covered with a layer of lipoprotein, which we call the very extreme outer layer tooth structure. That is laden with calcium phosphate and so forth. It comes and goes. You can drink a Coke, take your time, rub it over the front of your teeth, and it’s rough. You’ve take that layer off, and you’ve also taken off the first layer of the tooth structure, which is what we call the amorphous hydroxyapatite. It begins to decalcify that. Fifteen minutes later, all of that is back because of the saliva. Now then, immediately underneath that is an extremely hard and dense layer of enamel, which is about 0.2 millimeters, about 200 microns, 300 microns, to 400 microns thick. And then as you get into the tooth, the tooth becomes much softer.

All of this is part of the structural integrity of the tooth. When you bite in one part of the tooth, that stress is transferred through the entire tooth down into the root. The tooth slightly deforms. It’s a stress-relieving mechanism.

Now then, where the decay starts is, as the tooth is formed, the various parts of the cusp on the posterior teeth come together, and then they leave little pit, fissures, and grooves that may be hypocalcific.

In the ideal world, you do not have decay start down in these pits and fissures, because you have a natural oil-based organic plug that seals that tooth off. However, in the real world what happens is as these teeth are finalizing development, you’ll get what we call “hypocalcified enamel.” Now, if you put acid in that area, then you start getting a calcium deficit. That’s the beginning of decay in teeth.

What we are doing is identifying those areas, identifying the bacteria in the teeth, going in (what we’re using is a miniature air abrasion tip that is very precise, very directing, very focused), and cleaning out the pit, fissure, and the groove. It will take out the initial decay. And then we put something in and air it back in there. Now, guess what happens? You’ve removed the reason for a vast majority of chewing surface decay, and those teeth will not decay. We call it bulletproofing.
DM: But to me, that still seems a little bit still more allopathic and not really treating the foundational causes of the disease. Disease just doesn’t happen to everyone.

TR: Right.

DM: The disease is there, because of less-than-ideal lifestyle circumstances. To me, the ultimate bulletproofing would be with your diet, because you don’t want to get a disease to begin with. I mean, yours would be the next step if, in fact, someone isn’t complying, which is like 99 percent of the population.

TR: Right. That’s what we’re dealing with – we stress diet, we stress of taking particularly the citric acids out of the diet. Citric acid is just a death sentence for teeth. But in the real world, there is an awful lot of temptation out there. What we can do is we can eliminate the tendency for the chewing surfaces to decay, almost regardless of how abusive that person is with his diet, particularly in the formative years.

DM: Terrific. You had mentioned that citric acid is particularly pernicious to the decay process, and I’m wondering if you could provide some examples of that. Would this be the classic approach of avoid sucking on lemons and things like that? Or are there other forms of citric acids that you have found in your experience to be particularly troublesome in provoking dental decay?

TR: Well, there are three signs of that. Number one, you have to have the bacteria. And just because somebody’s dissolving their teeth with citric acid, doesn’t necessarily mean that they’ve gotten themselves into a biological conundrum there. The other side is the bacteria. You have to have the bacteria, and you have to have the acidity. There is a symbiotic relationship there that creates a pathogenic bioflora in the mouth.

Now then, if the patient is continually lowering the pH, and the magic number seems to be somewhere around a resting pH in between the teeth of around 5.5, then you start losing calcium, which you have to have. There is a calcium deficit in order to have the porosities in the teeth, so that the plaque that is now becoming pathogenic because it lowers its acidic environment can now begin to attack the tooth more thoroughly.

And then you have certain types of bacteria that when the enamel, the outer coating of the tooth, is completely penetrated, then you get into the bacteria that put out enzymes that begin to break down the collagen of the inner structure of the tooth.

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That’s where you get cavitation, which is the loss of tooth structure to the point where you have a hole in that tooth. That’s the time we refer to it as the cavity. You have a whole series of events.

Now then, I’m going to jump way forward for just a second here. One of the most important things that we have added to our instructions for our patients is doing nothing but baking soda at night, using it as a dental floss, and, if you want to, as a mouth rinse. The pH of baking soda is 8.5 or maybe up to 10, just depending on its concentration. It doesn’t matter. It’s above that magic number of seven.
Now then, the pathogenic bacteria, as you know, must have an acidic environment. Then you have the bacteria – the probiotic bacteria – that live in a neutral environment. You’re going to have X number of bacteria regardless of what you do. So, why not promote the non-pathogenic bacteria by neutralizing the acidity with baking soda at night, which has profound effects on the overall oral health of the individual?

As the child goes through the very stages of development, they don’t listen. They do not think most of the time. Particularly, males are lucky to have survived their teenage years, with some of the dumb things that we do. Your teeth are going through a maturation of enamel cycle. The odd part of that is you’ve got to lose some calcium in order for that tooth to lose other things that are incorporated during development of the various minerals, organic structure, and so forth. And then the calcium re-precipitates back into the tooth.

The decay is an imbalance of the calcium cycle. When you start getting the calcium deficit (pulling more calcium out of the tooth than you are putting back in), you start into the pathogenic cycle, where you’re developing the right bacteria that are conducive for decay.

The most important thing that we can do is: in the evening, simply use baking soda – nothing else. I’m not talking about baking soda toothpaste, which has to be acidic to keep bacteria from growing in it. I’m talking about plain baking soda, neutralizing acids at night before you go to bed.

And then guess what? You’re having this radical swinging of pH. You’re more or less coming close to at least neutral throughout the day, because of the acids you intake, the baking soda neutralizing it. We see healthier gums, less gingivitis, less periodontal disease, less calculus, fewer cavities, and fewer failed restorations.

**DM:** That’s good to know. This baking soda, first of all, what is the dosage? Or I can have like a teaspoon in a glass of water?

**TR:** It’s probably a teaspoon.

**DM:** Is it about the right concentration? A teaspoon?

**TR:** Yes.

**DM:** You just swish it, swirl it, and spit it out?

**TR:** Right. For the dental floss, you can get one of the little containers of Arm & Hammer baking soda that you can shake. Shake a little bit into your hand, put your toothbrush in the water, pick it up with your toothbrush, and put it in your mouth, making sure that your mouth feels… Yeah, it’s sodium bicarbonate, so it feels pretty soft.

**DM:** The purpose of this is to create a terrain that the pathogenic bacteria don’t proliferate.

**TR:** Right.

**DM:** Would it be that the main species would be the Strep mutans? Or there are others?
**TR:** We’ve been able to identify bacteria by DNA, RNA, and so forth. In one of the cavities we’ve looked at, there were over 130 bacteria.

**DM:** It’s a family.

**TR:** Right. It’s a bioflora that works together in order to create the decay within the tooth, in which when induced just mess up the environment. It’s that simple.

**DM:** Normally in beneficial bacteria, we look at specifically probiotics or even fermented vegetables. We think of the lactic-acid-forming bacteria. Typically, they produce lactic acid, so they actually decrease the pH. How does this baking soda interact with what the typical beneficial bacteria might be in the mouth?

**TR:** Okay. When I talk about the probiotic bacteria, I’m talking about, you know, bacteria that are not terrific producers of lactic acid. All bacteria are going to produce some acid in the byproducts of metabolism. I’m not too concerned about the type of bacteria that we grow. What we tell people to do is to take the Evora tablets while we’re trying to change their bacteria. Get any type of probiotic yogurt, and you will naturally get rid of the Strep mutans, the Lactobacillus, and the bacteria that are really bioactive in high concentrations of lactic acid.

**DM:** I would encourage you to revise your recommendations on the yogurt. Because in our experience – we’re actually in the process of doing a project with Cornucopia, which is one of the primary whistleblowers on the natural foods industry. We’re funding a project, which is currently in the process of evaluating the top yogurt suppliers in the country. It’s our experience that well over 95 percent, maybe 99 percent, of the commercial yogurt that you can buy in your grocery store is just worthless junk. There are virtually no…

We’re actually doing the studies now to evaluate it specifically, because we’re going to blow the whistle or the lid off this whole process.

So, yes, yogurt can be beneficial, fermented dairy can be (usually it’s homemade fermented yogurt made from whole raw milk – organic, of course), but when you have commercially produced yogurt, that’s just terrible almost universally. I was kind of shocked because I had to go to the store for a friend [inaudible 27:24], because the person was post-surgically. They needed to replace. We were in a different city. I had the experience where I had to go pick one from a typical commercial grocery store. I couldn’t find one that was of any benefit.

**TR:** Yeah.

**DM:** I said, “Gosh, if I can’t find it, this has got to be the experience for most people.” Clearly, that’s the case. We’re really putting these exhaust reports. I would just encourage you to revise it, because there are… The recommendation is good. It’s just the implementation is in doubt.

**TR:** Right.

**DM:** Because of the industry.

**TR:** Okay. I will welcome that information. It certainly will be the first time that I’ve been wrong. I love this type of information. It’s an important step that we need to incorporate on a regular basis in our dietary instructions to our patients.
DM: Now, I first became aware of you through a hygienist, Carol, who I am thinking you may be aware of. She’s also in Texas where you’re located. I first became aware of one of the techniques that you’re using, which is air abrasion. Oh, yeah, it’s Carol. There you go. Carol, that’s her name.

TR: Right.

DM: Yes. That’s not her picture, but that’s her book.

TR: Right.

DM: It’s a phenomenal book. Carol Vander Stoep, I think that’s her name.

TR: Right.

DM: She’s a phenomenal lady, very dedicated, and committed. I really am grateful to her for introducing to me a lot of these new concepts. One of them is air abrasion dentistry. It sounded very appealing. She started going into the specifics of, as you mentioned earlier, the structural integrity of the tooth, minimizing it in the curves, preventing the boxes that you typically do with the conventional dental drill.

But one of the challenges, as I look a little bit more deeply (this may be something like the yogurt)... From a physical mechanical perspective, air abrasion dentistry seems phenomenal. But then the air abrasion [inaudible 29:26] air. There are actually six little microchips – not microchips – but small amounts of materials that actually might…


DM: I believe that that material is a form of aluminum, which is potentially very problematic. I’m wondering if you’ve looked into that.

TR: Into the aluminum oxide?

DM: Yes.

TR: Going back to the 1920s on research and coming part with it, they were doing some interesting studies with black lung disease back in the 1920.

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Now, I believe that using aluminum oxide of a particle size of 25 microns and larger is not problematic, because of its very inert material.

DM: It’s very? I’m sorry. What’s that word?

TR: Inert. Very inert. Very tight molecule. Now, on the other hand, let’s jump past… Let’s fast-forward a bit. I do not believe that the air abrasion or the bulletproofing of these teeth should be in the exclusive domain of the dentist. All of the dental statutes read that the dental hygienists and/or in some states the qualified advanced dental assistant cannot remove healthy tooth structure.
That’s the dividing line between the dentists and the auxiliaries. They expanded to the auxiliaries, the hygienists, or other people who have special training. Unless you have that DDS degree, you are prohibited anywhere and everywhere from going in and removing sound tooth structure. That’s the difference between the doctor of dentistry and the support staff.

On the other hand, as far as I can tell, all of the states allow the expanded-duty assistants and particularly the dental hygienist to do what’s considered a reversible procedure.

There are other abrasives that we can use, particularly that dental hygienists can use, to go in and clean up the pit, fissures, and grooves – one of them being baking soda. That’s about as non-challenging a material.

**DM:** As you alluded to earlier, maybe it’s actually beneficial for creating a more ideal microflora. So, you’re suggesting that you can use baking soda as a replacement for the aluminum oxide?

**TR:** Yes.

**DM:** Oh, wow. That is exciting, because I was going to challenge you again with…. I really believe that there is certainly a potential for some toxicity. I mean, aluminum is not really needed by the body in any way, shape, or form.

**TR:** Right.

**DM:** It only could be toxic. It’s kind of a stress to try put some extra aluminum in there, even though it’s doing good. I don’t want to… We should be cautious and concerned about the potential toxicity. But if you could substitute with the baking soda for the aluminum oxide, you’re off to the races, because that’s a win-win situation.

**TR:** Absolutely. See, there is very old information and there is research beyond that. When they first developed the sodium bicarbonate prophylaxis air abrasion unit – the one that we use in operatories for polishing teeth – one of the first things they noticed was that it’s suppressed the pathogenic microbial flora for up to three months.

**DM:** Wow. One treatment did that?

**TR:** Just going in there, just cleaning the teeth with the air abrasion baking soda. They go in and using an ultrasonic in treating patients, just disrupting that bowel flora in those pockets. They are so dependent on certain environmental structures. Once you disrupt that environment, the whole thing collapses, and then it has to start all over again.

Just patient after patient and time after time, we see our patients coming in with no bleeding of the gums. We can eliminate for the first time in my life in practice…. In my first 35 years of practice, we looked at somebody, a private woman that said, “Well, I have pregnancy gingivitis.” We can’t do anything about it. We got to keep it under control, so it doesn’t go too crazy. We can eliminate pregnancy gingivitis. That’s if the patient…

**DM:** I have another question about the implementation. Because one of the dental hygiene practices I use is a water pick, but specifically it’s a Hydro Floss.
**TR:** Right.

**DM:** Would it be reasonable to dissolve some baking soda in the water that I’m doing the irrigation with? It seems to be similar with what you’re doing with the ultrasonic application with the baking soda.

**TR:** Absolutely. With our patients, say, somebody is on chemotherapy, they’ve got Sjögren's disease (where they’re having a collapse of the immune system), or whatever reason, that’s one of the hundred adjuncts we’ll go out and recommend for that patient – a water pick with baking soda in it.

Now, a caveat: don’t ever let it dry out, because it will set up in that water pick. You’ll put in the trash and buy a new one. But as long as it stays wet, it’s going to be okay. Now, I haven’t done the study…

**DM:** Let me just…

**TR:** Go ahead.

**DM:** Let me just have a question on that one, because it’s an important thing. Normally, what I’ve done for my unit is to dry it out to make sure that water pick drains all the water up. Because there’s a tendency that if there’s still liquid in there, it will tend to grow bacteria. But my guess is if you have baking soda in it, it’s going to strongly inhibit the growth of any bacteria.

**TR:** Absolutely.

**DM:** Okay. That makes sense.

**TR:** That can be such, and I haven’t done the research on it. I haven’t gone in with a petri dish and all that kind of stuff. But we also are convinced that it’s reducing the bio burden on your toothbrush. That’s a form of reinfection. If you’ve got that baking soda around in that toothbrush… I mean, mutans hide with it, don’t they? Why shouldn’t it? It creates a hostile environment for bacteria.

**DM:** That’s a really good idea. In an ideal setup, you’ve got your water pick or your dental irrigator, you keep it full with the baking soda solution, and then instead of storing your toothpick in a stand of some sort, you just store the head right in that solution to prevent the bacteria from multiplying.

**TR:** I think that would be one thing to do. I think on a regular basis – once a week – you need to drain it all out. You need to rinse it out. Start over again. I don’t know what the rules are, but it’s something that definitely needs to be looked into.

**DM:** Yeah. It just seems so useful as a tool because it’s very simple, it’s inexpensive, and it probably is going to provide many benefits to people. I’m just really grateful. That’s a tremendous tip.

Do you have any speculations as to… You know, there are tens of thousands of dentists in the country – maybe hundreds, probably hundreds of thousands.
**TR:** About 125 thousand general dentists, about 50 thousand more in specialties, teaching, and so forth. It’s about 150 or 175 thousand.

**DM:** How come this is not widely promoted? Why isn’t this known? Why aren’t dentists teaching people to do this?

**TR:** Forgive me for one of these little rabbit trails. We were one of the first practices into what’s called aesthetic dentistry or cosmetic dentistry. I actually started out with composite materials, shaving watercolor pencils into it to change the shape of the teeth. Our most effective adjunct at the time and most available was… We would go through certain steps to get to build our own phosphoric acid to etch the enamels, so we can make these composites stick to the teeth. That’s how primitive we were.

Then along comes a time out of California when a well-known company, DenMat, by Robert Ibsen started turning out these beautiful composites. I didn’t have to do them anymore. It was far a superior product what he was putting out than what we’re concocting in my dental office. I [inaudible 38:48] along there for several years, and then they asked me to come to a seminar in San Antonio. Five to 11 of us showed up. They gave us a pretty kit. I was happy with that. It’s 120 miles. I went home. They called me up again three months later, and said that, “Would you like to attend to one of our cosmetic seminars?” I said, “No. I just came.” They said, “Well, it’s free.” I said, well, I’ll go to a seminar, have a weekend in San Antonio. They were going to give me a new 150-dollar cosmetic kit for free, [so] it was worth the trip. I showed up. There were over 200 dentists – people standing at the door, trying to get in, people standing around the corner. They were way over the fire code.

When the time was over, I asked, “What the heck happened?” They said that Dr. Ibsen got charged at trying to sell it to the dentists. And then he was taken out on million dollars’ worth of ads that were to run for three months. I know that one was in Cosmopolitan magazine, one of it was in Reader’s Digest, and I don’t remember what the other three were. But it shut down the whole 1-800 system in California.

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They had to change the rules after that, because people were calling in, trying to find the dentists who were doing this. It’s absolutely [inaudible 40:17] to try to sell it to the dentists. You can’t sell it to them. I’ve been at this for nearly 30 years. Dentists don’t care. There are only about five percent of the dentists out there who are out on the cutting edge that have anything. The rest of them finally get in line whenever they feel threatened within their practice. They’re humans. That’s how most people function.

The only way this is going to work is when people say “I want this for me. I want this for my child. I want to find a dentist who is willing to provide this service.” That’s the bottomline.

**DM:** Well, it seems to me that may be true for some of the more advanced processes that you’re doing, like bulletproofing the teeth, the air abrasion dentistry, you know, the whole minimally invasive approach. But something as simple as advocating the use of baking soda… I mean, there is no profit loss there, except potentially recurring revenue from continuing decay.
It’s hard to imagine that that large percentage of dentists would be that essentially evil and not really committed to the foundational premise of the profession, which is to prevent tooth decay. I mean, otherwise, why would so many dentists be proponents of fluoride? Because their excuse is it’s going to decrease decay. That’s the view of [fluoride] proponents.

**R:** Right.

**DM:** Ostensibly, they’re really strong believers in prevention. If this baking soda process is so effective, I’m wondering why it isn’t being caught on more widely in the profession.

**TR:** There are sins of commission and sins of omission. What we’re talking about here is not evil. It’s not intent. These are good ol’ boys out there, trying to hack out a living. There hasn’t been any incentive for them to change their lifestyle. I had to literally unload MD Anderson Hospital. I’m sure you’re aware of MD Anderson.

**DM:** Sure.

**TR:** To get them back on track with the current generation of interceptive preventative dentistry, which includes baking soda. It actually came to a confrontational basis. I told them, “This is simple. Look into it. Do it. It works. You’re seeing our patients very used in it. I won’t need more of this Prevacid, fluoride paste, and so forth. All you need is the baking soda. Add that to it.” Now guess what they’re recommending for their patients over a handout sheet. It’s baking soda.

But what we were dealing with is typical mankind’s resistance to change. “This is the way we’ve always been, so we’re going to continue to do it this way.” That’s just human nature. What you need are the shakers and the leaders. It always starts in some sort of alternative area – always, without exception. It’s not the general population of dentists or general population of physicians who start the change. The change starts with some innovator out there.

If it works, then somehow over a period of a couple of decades or so, you get your paradigm shift, and everybody’s doing it that way. Not because they’ve thought of it – it’s because Joe Bob down the street is doing it this way. That’s when it becomes mainstream.

But if you get patients who hear this video and then realize that when they see things like [inaudible 44:18] and all these line of products, all of those are acidic. For certain patients, they can actually be harmful. So, where is the disclaimer? I’d say, I don’t care what you use in the morning when you get up. You’re going to be acidic. That’s when your teeth can take the calcium back up. There are non-selenium products out there with calcium. But all you need in the evening is the very cheap baking soda neutralization of the acidity of the mouth.

**DM:** Carol did not tell me about the baking soda. It’s probably just an oversight. But she did tell me about a form of toothpaste that has the calcium and the phosphate already integrated into that, so that it’s able to re-mineralize into the matrix of the tooth. I’m wondering if you can comment on that as opposed to calcium phosphate or even hydroxyapatite in providing the mineral that it needs to establish the density of the enamel.

**TR:** Right. It has the calcium and the phosphate salts. You try to keep them as separated as possible. There are certain toothpastes that have that particular patent in them.
Since the pro-enamel, I’ve believed that almost all of the toothpastes out there now have calcium of some form in them. The magic is the calcium phosphate. You want those present, so they can precipitate back into the teeth as amorphous hydroxyapatite. It’s actually what you’re doing. You’re rebuilding an amorphous crystal of enamel, because of all the interactions of the enzymes, calcium, phosphate, and everything else that goes on within your mouth. Where you really mess this up is by getting it too acidic. That’s where the baking soda comes in.

**DM:** It’s a perfect combination. Are you familiar with just using, rather than the calcium and phosphate separate solution or ions, something like hydroxyapatite mineralization? Would that work? Or does it have to be separated?

**TR:** It pretty much has to be separated, so they could precipitate back together. When you’re dealing with hydroxyapatite, usually precipitation has already taken place.

**DM:** Okay.

**TR:** I actually have some of the pure calcium hydroxyapatite crystals that we’ve [inaudible 46:47] over the years. I can’t even remember the brand name of it, but that stuff has turned out to be effective.

We use it in our cancer patients, where they have a real deficit of calcium and phosphate in their saliva – people who have problems. The brand name of it, as a prescription of them, is called Cal-Sol. You actually get it in a calcium solution, the phosphate salt solution. You mix those together, and then you rinse with them.

The patients with cancer will take up to 5cc or more of that that day because the lining not only on their cheeks and their teeth but the lining of the esophagus all the way down is coming apart, because of this imbalance of the calcium and phosphate ions. It’s magic. It just works. It also works for heartburn.

**DM:** Yeah. Could you actually put a little of that in the irrigation solution for the water pick? With the baking soda?

**TR:** I think you could, but I don’t think that it would work, because I think it would be too [inaudible 48:07].

**DM:** Oh.

**TR:** And I think part of the magic is putting them together and as they’re combining, we put it in a clean mouth and any of the areas that are open and are ready for calcium phosphate to precipitate into those areas. Then it’s good. Every action will take place there on the molecular level.

**DM:** Yeah. That makes sense. Now another technique – I’m sure you’re familiar with this – is oil pulling. It’s currently thousands of years old. It’s an ancient Ayurvedic Indian tradition where you take an oil (which should be typically something like sesame or sunflower, but I think even better would be coconut oil), and you swish it around for 20 to 30 minutes. Supposedly, it removes the pathogenic bacteria, helps detoxify the system, and improves oral hygiene. I’m wondering if you have any experience with that or if you have any comments.
TR: I’ve looked into that with a great depth, because it is the oil in the pit, fissures, and grooves that are naturally protecting the teeth. They dig up jars of olive oil off the Mediterranean Sea. It’s been there for hundreds of years, and nothing’s happened as long as it has a good seal on the top.

Now, in the teeth that’s where the little defects in the pit, fissures, and grooves lead to decay. It’s that you can’t quite get a stable organic oil-based plug into that tooth, so you start losing a little calcium. And then sooner or later, the whole in the dike expands. Now you’re losing lots of calcium, then you get bacteria living within the tooth, and the whole thing starts coming apart.

That’s another thing that we’ve run into consistently whenever we, say, we’re bulletproofing the teeth, and probably every second or third patient where they have very low or no readings showing that they have pathogenic bacteria going on in these pit, fissures, and groove.

[----- 50:00 -----]

All of a sudden, we’ll hit an inclusion void. As this tooth was forming, they’ll put little bubbles in there. As long as it doesn’t have access to the outside occasionally with high-resolution X-rays, we can actually pick these up. We’ll see a little void in the tooth. I have sectioned teeth, and I have several pictures of teeth that where we have sectioned, all of a sudden, it would have a bubble in it.

That’s one of the things that as we’re bulletproofing these teeth (if there is one that’s near the surface of the tooth), all of a sudden, wham, this thing will open up. Sometimes they’re two or three millimeters across. You’ll go back and look at the X-ray. Now that you know what you’re looking for, that’s what that little spot is. You can actually see it in the X-ray.

In bulletproofing these teeth, we want to clean out all of the organic plug. We want to put something back in there that is essentially inert, something that is not going to readily dissolve. Ironically, the glass ionomer will dissolve partially out of that tooth. But what protects the chewing surface of that glass ionomer is you form the organic plug back over. There are no bacteria, there is no calcium loss or exchange of calcium ions. The tooth becomes extremely stable over a long period of time.

DM: I’m sorry if I look confused. Is your working experience in oil pulling beneficial?

TR: Absolutely.

DM: Okay. Can you still explain about the mechanism of why it would work? Or just expand on what you’re just explaining. Because it requires this organic oil?

TR: Yes. That’s what it is. Every time you eat something, if it has a little bit of oil… One of the things that we recommend, for example, is that… You may have heard of swimmer’s mouth, these Olympic swimmers. They’re getting just water in their mouth. They’re washing off the oil only to the surface that protects the tooth, and then they’ll start losing enamel. It’s like losing calcium to where it’s a significant loss. Our advice to them is eat a piece of cheese before they go into the water. That helps put that coating on the oils or caseins back into the chewing surfaces of the teeth. That’s biologically stable.
DM: Just to finish up on the oil pulling, there are a number of different oils that are recommended – sesame, sunflower, and coconut oil. Have you found any one better than the other? Then with respect to the timing, is it better to do it in the morning, in the evening, or both?

TR: I don’t have a real strong opinion on that right now. You may be aware that we’re working extensively with ozonated oils. We’re taking that one step further. We’re seeing some real benefits to that.

That’s out of my area of expertise. That’s out of my area of investigation. I have some really smart people who have taken that project. It’s like some of the things that you’re doing. I think that we’ll probably have some very good recommendations within a year or two.

One of the problems that I’ve seen with the oil rinsing is that it seems that to really be effective, it’s going to take an extended period of time. Whereas the ozonated oils, if you were to rinse with those and spit them out, once you get over 30 seconds, you’re going to start losing attention span. That may be the answer to that particular problem.

Years ago, I was involved in a project at MD Anderson on using 13-cis retinal, which is basically a form of vitamin A, for leukoplakia in the mouth. We were able to resolve that. Currently, we’re having some very good luck with resolving the leukoplakia in the mouth with ozonated oils. Once again, this is pretty early on, and there are people smarter than I am in that particular area. And we will have some guidelines and recommendations within a year or two.

DM: All right. Thank you for allowing me to ask you those questions on that area, because I think it’s really important. Our focus on the site is to really concentrate on simple, inexpensive, and practical strategies that you can implement that have profound benefits. Oil pulling and baking soda seem to qualify really highly in those areas.

But I want to get back on the area that you’ve really pioneered on, which is minimally invasive dentistry. I’m wondering if you can comment on either why this isn’t – well, maybe not why it’s not adopted. But what are the challenges for more dentists accepting this? Is it like what you referred to earlier, there is just this lag period, where it takes a while to get implemented? Because, I mean, if they’re not doing something as simple as baking soda, you know, so why would they do the minimally invasive dentistry?

TR: Okay. The whole key to it is an informed public and the public out there requesting these services. If you Google Refugio, Texas (or Ree-FOO-gee-oh – a Spanish word) and look at the demographics at Refugio, we’re a blue-collar community of around 2,700 people and a county of around 7,000. All the demographics are bad. This would be the last place in the world where you’d expect a high-class practice. The only way that we make a living here – and I can do what I do – is because half of our income, our patients who come from over the county line. That means most of these patients are driving by dozens of dentists to get here.

Why is that? It’s because they heard from so and so, or this or that. They’ve read some articles in the newspaper, they’ve gone on a website, and so forth. It makes sense. It’s going to take the public saying, “No. You’re not going to do this anymore. Here’s what I want. We’re going to go to get it.”
DM: Okay. So, could you comment on the top three strategies that you believe the dental profession could implement? The first one is to educate – through processes like the article that we’re doing now – the population to provide the motivation to do this. Is that one of them? What are the other processes or strategies that could be done by the dental profession to address this?

TR: First of all, you have a fully mature, stodgy, [inaudible 58:15] profession here. You have a professional organization that is extremely slow to challenge and very resistant to change. I’ve violent opposition to many things that we consider mainstream today. One of them is the water pick (I don’t know if you’re aware of that), air abrasion, sodium bicarbonate air abrasion, and implants. People do double backflips in trying to stop implants in the 1970s.

I found myself under investigation by the Texas State Board of Dental Examiners in 1985 for the heresy of soft-tissue management. Everybody knew that the only way you could cure periodontal disease was by going in and doing open-flap surgery. And then fortunately, at that exact moment, there was a publication by a Paul [inaudible 59:18] that showed soft-tissue management that was equally effective in reducing tooth loss from periodontal disease as periodontal surgery.

The next question was, “Where are your studies on periodontal surgery?” They were [inaudible 59:33]. It was just a matter of opinion. “Go do this, and it’s going to work.” We started putting some science into this.

Anyway, eventually, things become… As the patients ask for them, and you’ve built that income incentive for dentists to incorporate this, then the change will occur.

[----- 1:00:00 -----]

I’ve sent you the current agenda of the American Dental Association meeting this past month. Nowhere in that agenda could you find anything on prevention, minimally invasive dentistry, early intervention, or any of these things.

Why? Because Joe Bob goes back home, and his patients say, “Okay, I judge this dentist, because he’s in church on Sundays, he’s got a nice big office, and drives a nice car. Those are very important things in picking a dentist.” Unfortunately, that’s the reality. But if you hit this out there to the patients, the patient comes in there and says, “I don’t want you drilling on my child’s teeth anymore.”

The usual comeback of that is “Oh, I can do the same thing with a high-speed drill.” I think that’s totally illogical. You can’t take something that is turning 300,000 rpm that indiscriminately destroys everything in its air, and then compare it to micro air abrasion that’s only going to remove unsound tooth structure. There’s no comparison. But dentists will try to convince themselves and everybody else that they can do it with this very favorite tool of theirs – the high-speed drill. It’s going to take the patient asking.

DM: Okay. Strategies like this where we have these types of interviews and educate the public, that these options are available. That sounds to me like it would be the most important approach to change what’s being taught in dental school, because it’s just insanity. The last thing we need to do is to have the 2013 or 2020 agenda for the next American Dental Association not have anything to do about preventive dentistry, air abrasion, or minimally invasive dentistry. It’s just
crazy. Are there any other approaches that we could take other than educating the public to change this?

**TR:** You should have a copy of this open records request.

**DM:** Yes.

**TR:** I figure that, at some point in time, we’re going to have to start change from the inside. Now, one of the things that dental schools have done is they have promoted dental sealants. For the last 30 years, we know that the failure rate of sealants is 50 percent. Since 1990, we know that this renegade Texan down there has been offering a permanent professional lifetime warranty of what he calls “super seals” in these teeth.

Yet in 2009, the American Dental Association’s front cover study on sealants, which shows exactly the same thing that has been shown with the previous millions of dollars’ [worth of studies]. I’m talking about millions and millions of dollars of studies on sealants. They all say exactly the same thing. Once you extrapolate out the 20 percent of teeth that will never decay, and then you start manipulating those figures, then 50 percent of the sealants will fail and you will have significant decay in those teeth within five years.

They are one of the best scams that have ever been run on the public. It would make Bernie Madoff very, very happy to see that there’s somebody above him.

**DM:** Well, it’s not even so much from a financial perspective. It’s how significant the adverse health consequences would be, because these sealants are xenoestrogens. There are phthalates, and they have very powerful hormonal influences, which are not good. Not only do they not work, but they actually harm individuals.

**TR:** That’s why I get really excited on that, because you can actually… As you know, you can take a blood sample, and then you see the spike right immediately after placing the sealants.

There are other things that you can put in there – the glass ionomers, as far as I know from the experts that I’ve questioned very carefully on this. I don’t have things come back in [inaudible 1:04:00] like my opinion on yogurt. I don’t see the elevation of the estrogenic type of compounds coming from the glass ionomers.

If somebody were to object to even the glass ionomers… One of the things that I have on my archives are several teeth that when we’re using the primitive forms of glass ionomers, they were quite big. We would give a bubble in there and no glass ionomer got in there, so they break out. We look at these teeth of the patients come in 10, 15 years later. They’ve had a whole in the tooth over a millimeter wide, filled with a stable organic plug, and no decay.

And I’m not advocating not putting something in there. What I’m saying is once you remove the reason for the decay (which is the unstable, malformed enamel down in those pit, fissures, and grooves), once you get down the stable hydroxyapatite, then the body has a method to contend with our modern dikes, it will put a stable organic plug in that tooth, and it will prevent that tooth from decaying.
Recently, we’ve been able to get hold of a stable form of tricalcium phosphate, which I try to simplify down. It’s kind of like a Portland cement, which makes a very good base. It makes a very good quality of filling. There are lots of reasons and lots of places where we are now using that. I could fill teeth with that and expect the same results.

**DM:** That’s very exciting. Is it safe? It sounds like you’re suggesting that obviously, I think, we shouldn’t be using the traditional dental sealants.

**TR:** That’s right.

**DM:** But it sounds like a reasonable alternative would be these glass ionomers as a sealant in a child. Would that be true?

**TR:** Absolutely.

**DM:** Okay.

**TR:** We look for excuses to place the material. When we put a child in the chair (then we start taking out the pit, fissures, and grooves, clean them out a little bit), we’re looking for areas that have these voids and these openings, which have little groove on the tooth, on the outside of the tooth, or grooves on the inside, particularly on the upper. We would clean those out. A lot of times, we’ll have these little voids. We go in there and place the glass ionomer everywhere that we possibly can.

And then guess what? We have a radically decreased incident of the damage decay in these kids, which is the interproximal or the decay in between the teeth.

**DM:** You’re cleaning these pits and fissures with the baking soda air abrasion. Is that correct?

**TR:** Absolutely. You can use that if you’d like to. We’d like to go a little bit further with that. I add a material – the brand name is called NovaMin – which is a calcium silica phosphate. The silica in it helps stabilize it even better. What we found was that when we polish teeth using the air abrasion with this particular material, we have much less sensitivity. It’s one of our protocols that we use when patients come in. “Are your teeth sensitive?” They’ll answer, “Yes.”

**DM:** What is the brand name again? NovaMed?

**TR:** It’s NovaMin. It’s been around here for 30 to 35 years.


**TR:** Right.

**DM:** It sounds like a [inaudible 1:08:34] process.

**TR:** Yeah. It works.

**DM:** Let me just review the perception, at least, my perception of minimally invasive dentistry, and summarize it, so that we could sort of have people understand it at a deeper level. One is, of course, the prevention, which ultimately is the diet.
TR: Yeah.

DM: But the vast majority is not going to do that. Then we go to the next step – and we get very specific – dental prophylaxis. The simplest thing is just adding baking soda to your oral hygiene. Ideally, your irrigator, brush with it. You can also use oil pulling in conjunction with this. They’re not mutually exclusive. You can combine the two, because it will provide the sort of organic matrix plug, which helps with dental decay. And ultimately, you want to change the flora there.

But sort of the next step (where you can even start as a child) would be to see a dentist like yourself or one that is trained like you to do this minimally invasive dentistry, to do this NovaMin/baking soda air abrasion process to clean the teeth and then apply this glass ionomer (which is basically minimally invasive dentistry), which should protect you most likely for the rest of your adult life. I mean, at least, in your 30 years of experience.

TR: Okay. How effective is that? In 2004, I took on the challenge to oversee the Federally Qualified Health Clinics (FQHCs) in [inaudible1:10:09] with the intent to expand on that to George West, Texas.

[----- 1:10:00 -----]

These are communities that are 30 miles and 60 miles from where I am, here in South Texas.

At the peak, we had six dentists working on staggered shifts, you know, one or two days a week. We had about eight days a week of dentistry that we’re offering through that clinic. Some days, we’d have two dentists working, and you know how that goes.

Anyway when I shut it down in 2006, a high percentage of those patients followed me to Refugio. Now then, I was practicing one day a week. I wasn’t always practicing dentistry there, because sometimes it was a [inaudible 1:11:02].

What I did was I extended the lifetime professional warranty to any tooth that has been treated by any dentist in that clinic. That’s like you setting up a dental practice and then suddenly, “Oh, everybody who has been seen the closest dentist within the sixth dentist to me, you all come in my practice, and I’ll fix anything he’s done for free.” Okay?

DM: Okay.

TR: You better have a really good procedure that you can rely on, because you can go broke on that real quick. It has not been a problem [for me]. It has been a reason for patients to come see us.

And then one of the things that we constantly see is extreme overdiagnosis and overtreatment of patients through traditional dentists. “Oh, you’ve got five cavities. We need to take care of that.” If the patient is smart enough, then they’ll come in here for my second opinion (which is always free – I never charge for that), and we’ll go through a thorough exam.

Sometimes we’ve screwed up somewhere. We’ve left a cavity. We missed one. We missed an area on the tooth. Guess what? If it’s on the chewing surface, and if any of us treated that, then I’ll fix that for free. What’s the other side to that when I say I’ll fix it at my expense? If they are
[inaudible 1:12:42] on my team, if they’re actually on Medicaid, Medicaid would actually pay me to fix that screw-up. Why don’t I charge? It’s a matter of principle, showing that we can do things that are extremely reliable. If I’m willing to do that, then what is everybody else’s excuse? Come over with a better idea; I’m willing to listen to it.

**DM:** Well, that’s quite impressive and a real testament to your integrity. It has not been my experience with many other health professionals. Congratulations on that.

So, I’m wondering if you can offer recommendations for this inspiring information that you’ve provided for someone who’s now motivated. As a person who is not professional and really seeking dental healthcare, how can they find a dentist who is using these principles, that they can benefit from this not only for themselves but for their children?

**TR:** First of all, I have avoided this type of interview. I’ve avoided [inaudible 1:13:52] attorneys like the plague. I have pretty well made myself unavailable particularly over the last four years. However, there comes a time when everything starts falling into place. I’m betting a lot on this particular interview in bringing awareness now that we have a number of doctors across the country who are perfectly well-qualified to provide this service.

We get calls all the time from California, probably at least once a month. People getting on the Internet, start seeing what we’re doing and so forth, and then they want to come. Well, why should you come from California when we have Bill Domb, Charles Rufenacht, Matt Menasco? We’ve got a number of people in California who are perfectly qualified, who do exactly what I do, and do it well. We have people… One of our top people is [inaudible 1:14:49] out of Beirut, Lebanon. We have around [inaudible 1:14:56] in New Zealand. We have a number of people in Florida, where you’re in, and near Miami.

**DM:** Yeah. We’re north. But how would someone find these individuals that you’re mentioning?

**TR:** Okay. First of all, dentistry is like watching an iceberg melt. Things do not… There are very few dire emergencies that you’ve got to get in here and get this fixed. I think that we could create a situation within the next year where we would have plenty of dentists. I’m relying very heavily on the expanded-duty assistants and the hygienists to be able to take care of the vast amount of the population out there.

Now then, if this creates interest, then what we also do is we’re providing this service in Belize. We’ll be bringing it into other missionary areas where dentists can go on these trips, bring their staff or their assistants. And in four days, we will have them extremely proficient.

Now then, where is the excuse for not providing this, when we have a video of my assistant, my chair-side assistant of 30 years, and my chief hygienist of 20 years (the one that I was talking about earlier)? They are providing this service off the back end of a banana plantation loading dock – the same exact service that I provide here in the United States. If you can do it in a Third World country under those situations, we can certainly take, train people, and give them the experience.

What we’re looking for is – I have a whole list of people who are qualified to train in this particular area. And then what we’re offering them is an expense-paid trip plus an honorarium to oversee these mission trips. People can go in there and do it. Learn how to do it. Provide a
service that will affect these people for the rest of their lives. All of these services in the past have basically been triage – go in and put out the fire.

They were very reluctant to let us into Belize. They simply sent the assistant of Ministry of Health to oversee what we’re doing. The next day, she called her boss to get in there. Both of them did exactly the same thing. I insisted that they come sit right beside me.

They could see what we’re doing. Both of them got so interested, that they actually got in the way. We put them on the other side of the chair, assisting. Both of them had their family come in and have us treat their families. That’s how convincing it was. We weren’t telling them anything. We were just showing them. “Here’s what we’re doing.” It just makes sense.

DM: I’m glad you have that missionary perspective. When I first graduated of medical school, that was one of my interest. I actually did go down to Haiti for a while for that. But I was always challenged, because typically the skills that were being used were not for treating the foundational cause of the problem; it was more like cleaning up the mess afterwards. But this is a marvelous strategy that really can be highly protective, because it’s so effective. In the long-term, it’s a preventive measure.

But I’m wondering if you can give us specifics with respect to how someone would find someone who’s trained with your system or some alliance system. And then after that, if you can tell us how perhaps an interested healthcare professional like a dentist or hygienist could learn these techniques, so they can apply them in their local community.

TR: Okay. Our agreement with these people is I will train them, they will go back to their communities, and they will be a mentor. I’m going to put these names on the website, so that people can go and seek out qualified individuals.

What I want to do is so overwhelm them with patients that they’re going to pick up the telephone and call Joe-Bob Dentistry and say, “Get yourself down here this Saturday. We’re going to do a training session. I’m going to teach you how to do what I’m doing.”

[END]