



## **Dental Connection**

**Dr. Heather Sandison, N.D. interviewing  
Dr. Scott Saunders, DDS**



### **Dr. Heather Sandison, N.D.**

Welcome back to the Reverse Alzheimer's Summit. I'm your host, Dr. Heather Sandison and I'm so excited to have Dr. Scott Saunders on today. Dr. Scott is the co-founder and president of Healthy Mouth Media. Scott received his DDS degree from Georgetown University School of Dentistry and practice general dentistry and periodontal wellness. A trained clinical EFT or tapping practitioner since 2009, Scott learned EFT from his HMM co-founder and partner, Bonnie Benjamin. Disturbed by the gap between mainstream dentistry and cutting edge research, Scott moved from clinical practice to writing for dental consumers and clinicians, blogging and collaborative publication and offering of peer review journal articles. Scott realized that most current health research isn't available to the public and even healthcare professionals don't have the time to read the ever expanding peer reviewed literature. From the synergy of Bonnie's and Scott's passions, Healthy Mouth Media and the popular functional oral and airway health summits were born to bridge these information and educational gaps and empower health consumers and professionals alike. Scott, welcome.

### **Dr. Scott Saunders, DDS**

Thank you very much Heather for having me on. It's a pleasure to be here.

### **Dr. Heather Sandison, N.D.**

You have been working in this space of Alzheimer's and in fact, you and I both have taught for Dr. Bredesen. And as a dentist who has been in clinical practice as well as deeply involved in research and on oral and airway health, you bring a totally different perspective to how we look at Alzheimer's and how we can potentially even prevent it starting as a



child. In fact, you say that the seeds of Alzheimer's can begin in childhood. What do you mean by that exactly?

**Dr. Scott Saunders, DDS**

Yeah, that's right. And Heather for a long time medicine thought of Alzheimer's as a disease of the elderly with the average age of diagnosis in the mid 60s. It was thought to be primarily an inherited genetic disease and a death sentence, especially if your parents or grandparents had it. And doctors thought Alzheimer's was caused by plaque buildup in the brain causing a loss of brain function. And from there, drug companies began looking for a pill that could reverse any plaque buildup and cure the patient, but all drug therapies have totally failed. We now know based on research in the last few years that Alzheimer's isn't a disease caused by just one thing. And although there is a genetic component, it does not constitute a death sentence. What we also know now is that Alzheimer's is a lifestyle disease with many contributing factors, factors that are all the things that we already know individually make us sick and other ways.

Things like poor nutrition, hormonal imbalance, smoking, environmental toxins, insulin resistance, systemic inflammation and poor sleep. And in parallel with poor sleep, sleep-related breathing disorders or SRBDs like obstructive sleep apnea or OSA. Now because of my dental experience, both in clinical practice and through research for many years, I like to address the ways in which poor oral health, breathing and sleep disorders all contribute to the development of Alzheimer's. And these problems don't start in old age or even middle age. Oral health, breathing disorders and poor sleep can and often do begin in childhood. Yes, the seeds of Alzheimer's as we call them can actually start in childhood. And if not diagnosed and corrected as early as possible 40 to 50 years down the line that child could be diagnosed with Alzheimer's or other dementia or neurological problems. Well, let me explain a little bit more about that.

First, poor oral health at any age results in pathogenic, meaning disease causing bacteria constantly flooding your bloodstream from the infection in your mouth. Now many people say, but I don't have any mouth pain. So they think there's no infection or it's not bad enough to cause problems. Well, begs the question, do your gums bleed when you brush or floss your teeth? If so, then you have an infection in your mouth and pathogenic bacteria flooding your body through your bloodstream. Gum disease is one of the most common and ignored chronic infections on the planet. Your gums are an area about the size of the



palm of your hand. Now if your hand was bleeding, would you just ignore it? Of course not. So why would you ignore bleeding gums and gum disease that can have such devastating longterm effects? When an untreated constant, low grade oral infection spreads through your body, it will cause inflammation in your whole body. And if you have an area of your body such as your heart, that is already weakened by other factors such as smoking, that systemic inflammation can make it even worse. So when your gums bleed, it's not a one way trip for those bacteria, those bleeding gums also allow the bad bacteria in your mouth, at the ones causing infection to get into your bloodstream and circulate through your whole body. On recent studies, these bad bacteria have been found in coronary arterial plaque in the placenta, in the heart and in the brain. Let me repeat that because it's really important.

The pathogenic oral bacteria have been found in coronary arterial plaque, in the heart and in the brain and in arterial plaques in other locations as well. Specifically, studies have shown that oral infections can be directly tied to the prevalence and severity of heart attacks and strokes. Yes, brushing and flossing can prevent a heart attack or a stroke. Remember I mentioned that these bacteria can also pass into the brain, they cause inflammation of the brain, sometimes only a very small amount at first, but continued bombardment with these pathogenic bacteria eventually causes brain damage. And it's not just Alzheimer's. These bacteria and the brain inflammation they cause are also tied to other neurological disorders such as Parkinson's and multiple sclerosis. So that's the first link between oral health and Alzheimer's, and it is totally in your control and in your patient's control.

**Dr. Heather Sandison, N.D.**

So I've had patients mentioned, well, if I'm sticking something really sharp in my gums and they bleed like, doesn't that make sense that my gums would bleed if I'm jabbing them with floss or a toothpick or whatever it is. But you're saying that any amount of blood, if with brushing or flossing is a sign of infection.

**Dr. Scott Saunders, DDS**

In general when you're applying a force such as would be applied with a toothbrush or a dental floss, if your gums are in good shape, that is if you don't have a chronic inflammation going on in your mouth, they're not going to bleed. Yeah, if you take an Explorer or a periodontal probe and you jab it up into the space between the tooth and the gum, even



the healthy one, sure, it's gonna bleed. But, what we need to key in on Heather is the level of chronic inflammation. The higher that level of chronic inflammation, the more of a tendency you're going to have for your gums to bleed with just flossing or brushing. And if you just go ahead and brush and floss and then rinse your mouth and you say, as has been captioned pink in the sink, that's not good and that's an indication that there is inflammation going on in your gut.

**Dr. Heather Sandison, N.D.**

So schedule with the schedule dentist.

**Dr. Scott Saunders, DDS**

Yeah, and dental checkups and brushing and flossing are important, but there are a lot of people who check all those boxes and they still end up with cavities and gum disease as well. What people I think overlook and what dentists overlook sometimes as well is that you need to pay attention to the good balance between the good and the bad bacteria, as you're, I'm sure you're familiar with the oral microbiome, like the microbiome in any part of the body. It has to be balanced where the good bacteria are in charge and the bad bacteria are not doing their pathogenic thing. And that's one of the areas where I think the dental community needs to be a little bit more emphatic and telling her patients just how important that is beyond just brushing and flossing and regular checkups.

**Dr. Heather Sandison, N.D.**

And we talk a lot about this in terms of the gut and more and more so in terms of the sinuses where there's good and bad gut bugs or sinus bugs, but you're saying, okay, well, the gut starts in the mouth. So we need to be paying attention to the balance of microbes in the mouth as well.

**Dr. Scott Saunders, DDS**

That's true. And there has been a lot written about, especially of late in people who are mainly blogging and about the relationship that the oral microbiome and the gut microbiome have. And you're absolutely right. You're talking about two ends of the same organs. So naturally there's going to be communication there. And, you know, bacterial populations are very good at communicating with one another and bacteria are very smart and we depend on them for our lives basically.



They've been around for a lot longer than we have. So they know things that we don't. So, you're right. The oral microbiome is the same critically important measure as any other microbiome in the body.

**Dr. Heather Sandison, N.D.**

You mentioned two other mouth related factors that can also be seeds for Alzheimer's to begin in childhood, what are those?

**Dr. Scott Saunders, DDS**

Two other mouth related disorders that research showing can lead to Alzheimer's are breathing disorders and sleep disorders. If you can't breathe well, you can't sleep well. And for that reason, I'm gonna cover them together when discussing the risks, but then I'll be breaking out the warning signs for, especially in kids, both sleep problems and breathing problems. They tend to go together, but looking at features of each can be a very helpful thing. And one of the most common sleep related breathing disorders that people have at least heard of is obstructive sleep apnea or OSA, which is... Heather, this is an epidemic. One of the many chronic disease epidemics that we have in this country and throughout the world. I've seen estimates as high as 54 million Americans who suffer from obstructive sleep apnea. More estimates are closer to 25 to 30 million, but still that is an awful lot of people. And most of those people are walking around and snoring around undiagnosed.

Now obstructive sleep apnea is a condition where during sleep, the tongue falls back toward the back of the mouth, preventing the child or the adult from taking a normal breath. Now that's characterized by the rise and fall of the chest, but there is no breathing. That's the body trying to breathe, but the closed throat isn't letting it. So eventually the person will wake up just enough to gasp and then restarts their breathing as they may regain normally their breathing rate for a few seconds or up to a minute. Then the cycle of not breathing starts all over again. And this is known as apnea and hypopnea, stoppage of breathing and impaired breathing. And this is measured by AHI or the apnea hypopnea index during a sleep study. So meanwhile, the oxygen level in the blood called the oxygen saturation fluctuates all over the place, dropping potentially dangerous levels. It's supposed to be, you know, I mean, we were seeing just with health care professionals measuring pulse ox in the clinical workplace, it's supposed to be up around 96, 97%. Sometimes in the OSA patient, it drops down into the low 80s, myself included.



I've had pulse ox sets in the low 80s during sleep studies. And that is dangerously low. Now as we'll see recurring oxygen deprivation is not surprisingly not good for your brain. So the gold standard for treatment of OSA that has been recommended by sleep physicians for decades is a CPAP or continuous positive airway pressure device. And there are a few variations of this, but they all push air into your nose to force your airway open when you're asleep. Our recent research is beginning to show that the CPAP devices do nothing to cure sleep apnea. Now to be clear, they do not claim to cure sleep apnea. Cure is a word that is used very seldom in medicine as I'm sure you've noticed. And at best CPAP is a band-aid and at worst, it can actually make other symptoms worse. And I'm not gonna go into all the various ways of treating sleep apnea here, CPAP is one and there are others that are in common use.

Instead, I'm going to focus on looking for the root causes and as a naturopath, I'm sure that you can appreciate looking for the root cause and the functional medicine approach kind of preaching to the choir here, looking for the root causes and treating those root causes to prevent sleep apnea from ever becoming a problem. And just as an aside as I alluded to a moment ago, I suffer from severe obstructive sleep apnea myself, and for the last 12 years, I've been on a journey to find my own solution to sleep better and have more mental clarity and save my brain. CPAP did not work for me. In fact, the doctors who prescribed CPAP know that only about 30% of the patients they prescribe it for will actually continue using it on a continual basis. And as I alluded to a moment ago, long-term CPAP use, there've been studies that are demonstrating that even long-term CPAP use is not going to get you around some of the cardiovascular risk factors that are associated with OSA. And as you can imagine having OSA results in, not only in disrupted breathing, but also disrupted sleep as I can personally attest to also. Even if the person doesn't remember waking up multiple times an hour to breathe.

Now think about what happens when we can't breathe, when the brain is deprived of oxygen? If someone is choked or is close to drowning, they lose consciousness. The brain shuts down when it doesn't get enough oxygen, not exactly rocket science. And although the oxygen deprivation is only for 10 to 20 seconds at a time, the fact that it's happening, possibly hundreds of times a night and that's what the AHI index that we find from a sleep study will tell us. It will tell us how many episodes happen per hour and then over the course of the night, you just multiply it by the number of hours you sleep. If that's happening possibly hundreds of times at night, that adds up to a significant oxygen



deprivation. And this repeated lack of oxygen to the brain is another seed of Alzheimer's. There are literally hundreds of published studies that have looked at the way sleep apnea affects the brain, which parts of the brain, the severity, how apnea is tied, not only to Alzheimer's, but also other neurological disorders such as Parkinson's. I don't have time to go into all the results here, but I want you to get a sense of just how important healthy breathing is for brain health. So bottom line, if you can't breathe, neither can your brain.

**Dr. Heather Sandison, N.D.**

And as a dentist, your perspective comes from, well, as a dentist and someone who also personally has experienced this, your airway is that, I mean, it's in your mouth. And also do I understand correctly that some of the alternatives to a CPAP, if someone isn't tolerating that is a dental or an oral device that can maintain that Peyton airway through the night.

**Dr. Scott Saunders, DDS**

That's usually the first fallback for if a patient, as many patients are CPAP intolerant, they will usually have the dentist or be referred to a dentist who practices dental sleep medicine who will fabricate an oral appliance for them. And there are probably hundreds of oral appliances under different brand names on the market. And these, the good ones the ones that do some good are the ones that are custom made by a dentist who practices dental sleep medicine and has the appropriate qualifications to know what appliance to make for what patient.

**Dr. Heather Sandison, N.D.**

That's really important to know, right? That there's not one brand that people should be looking for, but really that what you want is, and this is true. In most cases in medicine, right? Is something individualized. Something specifically made for you by someone who's well-trained to get you the right type of device that will keep that airway open at night.

**Dr. Scott Saunders, DDS**

Right. And unfortunately, more often than not Heather, you find that a dentist will usually make the same type of appliance for all of the patients.

**Dr. Heather Sandison, N.D.**

Children prescribed CPAP, they understand that they can have breathing disorders and sleep apnea, but would they use a CPAP?



**Dr. Scott Saunders, DDS**

Children are prescribed CPAP because many children do suffer from OSA Heather. As much as 25% of all children suffer from obstructive sleep apnea which I was very to see that figure. But that is one of the estimates that I've seen. Are they prescribed CPAP? Yes. Because they can and do have OSA. And this one shot is of a little boy, toddler age, maybe about two and a half snuggled up nice in his bed with a CPAP machine strapped to his face and his Teddy bear next to him, just sleeping peacefully. I know how many adults are not really onboard with using CPAP or who can tolerate it. I know I myself could not.

There are some newer alternatives to CPAP and similar positive airway pressure devices that have come on the market in the last few years. Now they all fall under the heading of oral appliances and must be made by a dentist trained in their use. I think we touched on that earlier. And this can be very confusing for the patient because there are many different appliances and most dentists who make them specialize in only one brand. Unfortunately, OSA is not a one-size-fits-all condition because everyone's mouth and everyone's airway structure is slightly different, right? What works for one patient may be of no use to another. I can attest to this personally. Having tried three different oral appliances, none of which reduced my severe OSA at all as measured by the AHI as well as my blood oxygen levels in the many sleep studies I had.

And just to give your audience members an idea of what the oral appliances do, usually if there's an upper and a lower portion to the oral appliance, and there is a lock that links them together and what it does is it repositions the mandible or lower jaw in a position that's forward of where it usually would be allowing the tongue and lower jaw to come forward and taking pressure off the airway. Sometimes that works, sometimes it doesn't. An unfortunate side effect of that is it has to attach to the upper jaw or maxilla for anchorage and over the term, one of the effects that that can have is to push the maxilla backwards and part of the problem and part of the root cause of obstructive sleep apnea is unfortunately both the jaws, the maxilla and the mandible being pushed too far back as you can see when you look at a lot of people in profile. So long-term use of an oral appliance has its pitfalls as well. Now there is one last alternative to a CPAP, which is called the hypoglossal nerve stimulator that I only discovered last year.



And I immediately pursued that as a means of creating my severe OSA because everything else had failed for me. This is an implanted device, kind of like a breathing pacemaker. And it has three parts, the sensor to monitor breathing. And that's right about here. The control unit, which is right up here, which is kind of the brains of the operation of the system.

**Dr. Heather Sandison, N.D.**

So you're pointing to under your armpit...

**Dr. Scott Saunders, DDS**

Under it, yes. And it's implanted under the skin, under the armpit. This is the respiratory sensing Wade. This is the main computer and the third implant is right underneath here.

**Dr. Heather Sandison, N.D.**

So when's under the armpit, the other implanted part of the device is under your chest and it's on your right side? So not over the heart, but the opposite side of your chest. And then the third one is under your jaw...

**Dr. Scott Saunders, DDS**

The third one is under the jaw and it wraps around a specific portion of the hypoglossal nerve and how it works is when you have an apnea or hypopnea, you have an apnea episode, this sensing Wade senses it, it sends the signals to the computer, which processes it and sends a stimulation signal to the hypoglossal nerve and opens the airway so that the breathing can be more normal. It synchronizes itself to the, well, that's the big thing Heather. I'm just a few days away from having this device, this is called Inspire, and you can read more about it on [inspiresleep.com](http://inspiresleep.com). I have no financial or other relationship with Inspire other than not that I use one and I have high hopes that it will work, but it's a really good device.

It was approved or cleared by the FDA in 2014, it's been implanted in probably over 5,000 patients. So it's new yet it has a very good clinical track record and you have it implanted. It has to heal for about four weeks. And then you go back to your surgeon's office as I will this Thursday and have it turned on. And it's got a remote, which you use to control the intensity of the stimulation and the frequency. And it takes sometimes a couple of months to get it dialed in. But ideally when you hit the ideal rhythm, you go to sleep and you're no longer plagued by apneas or hypopneas.



It synchronizes its stimulation and sensing to your breathing pattern and it has kind of a proactive approach just to keep your breathing normalized and keep your airway open. And normally this is prescribed as a last resort, but I would like to see it in greater use. And again, fingers crossed, I have high hopes that this will work and I will keep you posted.

**Dr. Heather Sandison, N.D.**

Yeah, that would be phenomenal because I have had so many patients who get a CPAP and they feel like it's killing them, right? It's there to help them to get more oxygen and prevent them from having, you know, these epic events during the night, but it also can feel very claustrophobic. It can feel very uncomfortable when you're trying to relax that you have this mask on your face. And so alternatives to that, that can be a little less effortful would be very, very helpful.

**Dr. Scott Saunders, DDS**

It's a surgical procedure. My procedure took about three and a half hours, but, you know, thankfully, obviously as with any medical practitioner, you need to research his or her qualifications. I have a very good surgeon and they have a very good referral base on the Inspire website, but it is something that should not be taken lightly because you are getting implants placed into your body. And I know some people might find that a little bit scary, but I can tell you that the recovery period has not been really a big deal at all. And I'm just looking forward to turning the thing on and letting it go to work.

**Dr. Heather Sandison, N.D.**

Well, that's something we also know is associated with Alzheimer's, right? Procedures where they require general anesthetic, which if you were being cut open and having these things implanted for three and a half hours, that certainly would be something to consider. So this risk benefit analysis and doing that with this, whether it's with a ReCODE provider or somebody else who you really trust, where you can say, you know, is the benefit of this worth the potential risk of all of the anesthetic and the recovery time and everything else that comes with it.

**Dr. Scott Saunders, DDS**

Sure, and obviously that's the decision that would have to be made by the individual clinician in collaboration with the surgeon and somebody like a ReCODE provider. And I don't know if there are any Inspire surgeons who are ReCODE providers.



I would like to see if that the news would spread and that they would collaborate all together, which is what we like to foster or even preach, you might say. But yeah, that would have to be decided on a case by case basis and I don't know of any cases of the Inspire device actually being implanted into someone who has been diagnosed with Alzheimer's or is getting slight cognitive impairment or moderate cognitive impairment. But that's a really good point. And yes, general anesthesia would be a major consideration there. And yeah, it's not a short procedure. That's for true.

**Dr. Heather Sandison, N.D.**

Yeah. But something to consider. You know, it's always nice to have the list of options be a little bit longer. Are there other breathing disorders that also affect the brain?

**Dr. Scott Saunders, DDS**

Yes. There is a condition called UARS, upper airway resistance syndrome. It often affects young slim women who appear to be healthy and who may not snore. UARS is more of an early warning of OSA while not having the full symptoms of OSA. Many sleep physicians feel that left untreated, UARS can develop into full-blown OSA. It can be diagnosed through sleep study and involves the respiratory distress or disturbance index, which factors in respiratory effort related arousals or RERAs in addition to apneas and hypopneas or AHI, which is the main indicator of how bad one sleep breathing deficit is.

Now a patient with UARS is usually not aware of the arousals during sleep, but can still develop symptoms that affect their quality of life such as excessive daytime fatigue, problems with memory and attention, irritability, problems falling asleep and staying asleep. Morning headaches, teeth grinding. It's important to note here that it is difficult to bill and collect from insurance companies because UARS is not a recognized diagnosis and must be billed as a sleep disorder Heather. It's also important to note that not all patients that have UARS have audible snoring. There may be sufficient anatomical differences within the airway to increase respiratory effort and cause brain arousals and heavy breathing without loud snoring. Although not diagnosed as breathing disorders, there are a few other conditions we need to look at directly as they relate to breathing and sleep problems.



Here's an example of a boy who was perfectly healthy, had normal facial development and no breathing issues. Then he got a jaw bow and developed an allergy that was left untreated. This resulted in mouth breathing because he was constantly congested and that changed the whole shape of his face. You can see how his lower jaw moved backward because of the mouth breathing, restricting the size of his airway. That restricted airway then negatively impacted his sleep quality, tonsils. Speaking of allergies or prolonged or repeated bouts of congestion, many pediatricians immediately tell parents that all they have to do is take out the swollen or infected the tonsils and adenoids and everything will be fine. Sometimes it is. But if there is an underlying issue such as retruded mandible, the lower jaw that's too far back, like the boy shown below, the airway can remain restricted even after removal of the tonsils and adenoids. This is now an anatomical reason for snoring apnea and poor sleep. Here's another example of a child who likely has a breathing problem. And note his open mouth, his head forward position and his lower jaw, which is positioned about an inch behind where it should be or retreated.

So if you were looking at someone, you would wanna be looking in the profile. So looking at them from the side, like looking straight on at their ear and what you would notice is that the nose is in front of the lower jaw especially. Are there other landmarks that we would wanna look at? For any listeners who aren't looking at the picture, what landmarks would we wanna be looking for and how do we ideally wanna see them lined up and what would be a red flag. Right, first of all as you correctly pointed out, I would encourage everyone, consumers and clinicians alike watching this, listening to this, that they kind of practice looking at people in profile. Just in regular social situations, it's be a little bit more difficult because a lot of people may have masks on right now, but, you know, just something as simple as watching TV, look at people's profiles.

If you look at it in profile, you see the first thing that will jump out at you is that as you point out the chin, as in this little boy, it looks like it's nonexistent. And I've seen some that are even worse than this. Way worse. It almost looks like a slope when you look at the first and then profile. Something that is less apparent is the upper jaw. You wanna look right under the nose, the upper jaw or maxilla. This little guy looks like it's not as bad as it could be, but sometimes you see that the upper jaw is very flat or maybe even dished in which indicates a maxilla that is not big enough. If it's not big enough, it can't accommodate all the teeth.



And if it's pushed back, and the lower jaw being pushed back are both going to impinge on the airway. Mouth breathing is another thing to look for. If a kid looks like he's walking around with his or her mouth open all the time, then that's not a good thing because nasal breathing is really the only breathing that we should be doing. Now, all of these signs are signs that this boy and other pictures that you'll see that look like him has a breathing problem. And that is his body trying to compensate both in opening the mouth and also the head forward posture is the other biggie Heather. If you look at the person then profile and they look like this is their normal position. Well, it's not the normal position.

**Dr. Heather Sandison, N.D.**

With their ears far in front of their shoulders.

**Dr. Scott Saunders, DDS**

Right, and a good way to measure this is to draw the draw a line from the trigngers of the ear to the clavicle and look at the amount of throat or Adam's apple or airway that's in front of that and that should be a considerable amount. If it's just a little sliver and you've put that together with the fact that the head posture is way forward, then that kid or that adult for that matter, chances are he or she has a sleep breathing problem. And that almost guarantees that they'll also have a problem with getting good sleep. Now, it's not possible to actually diagnosis for breathing problem from just one photo. That's important to know that. I mean, as you know, as a clinician, you have to look at all of the factors that contribute because it's never just one thing. But if I was a parent and this was my child, I would want to have them evaluated by specialists who could diagnose and treat him, which unfortunately would involve looking beyond your regular garden variety, healthcare practitioners or healthcare team, because most pediatricians are not specifically trained in craniofacial anatomy.

That's the province of dentists while ideally it is anyway, and more specifically sleep dentist or pediatric sleep dentists who have had specialized training in this type of dentistry and in cranial facial anatomy and how that relates to airway health. Such dental specialists are uniquely qualified to evaluate and diagnose muscle and skeletal problems in a child like this and address them as early as possible. Again, I can't emphasize strongly enough Heather. Early intervention is the key. Parents should have their children associated probably by the age of two, two and a half by the appropriately qualified specialists to head off a potential airway problem, which for most kids, unfortunately, there's going to be some



kind of an airway breathing problem there with the intent of addressing them as early as possible. Again, ideally while the bones are still growing in order to correct them before they become a larger problem. And one really great diagnostic tool that these specialized dentists use and you're seeing them more and more often in more and more dental offices, especially the dentists who get that airway and breathing are such a widespread issue. This is a type of x-ray. It's a 3D imaging technique called cone beam computed tomography or a CBCT. A CBCT imaging can actually assess the volume of the airway of a restricted airway that will be on the left side. And you'll see a red area denoting restricted, low volume airway compared to the normal airway on the right. You'll note the green area, denoting greater airway volume.

Now a common comparison or a metaphor here is cocktail straw versus garden hose. And trust me, you want a garden hose because it's much easier to breath through a garden hose than through a cocktail straw. And this tends to resonate with people. I think it would resonate with most parents. And if they see these CBCT images, that's really going to hit them in the face with what might be going on for their child or for themselves if they're an adult being evaluated for a sleep breathing problem or OSA. Now any dental practice that does orthodontics or is focused on sleep breathing dentistry should be doing CBCT scans on every patient that comes through the door. Kids, adults, everyone. So you do need to ask specifically about this. And you're gonna find some who don't have these machines and they'll even try to tell you that it's not important to use them, but I would strongly disagree. If they don't have a CBCT machine, find a practice that does have one.

**Dr. Heather Sandison, N.D.**

We've talked a lot about the way parents can look for the children. But I'm curious because you know, we're here talking about reversing Alzheimer's. I am so excited that you're all about preventing it. For a caregiver taking care of someone who's suffering with dementia or even someone starting to suffer with mild cognitive impairment, what would you suggest they look at? What are some warning signs we might see that would suggest they need to go see one of these specialized dentists or look further into how their sleep might be affected by their airway?

**Dr. Scott Saunders, DDS**

Well, the first thing I'd look for is snoring. This is the broadest possible indicator of a sleep related breathing disorder. In someone with mild cognitive impairment, or even in



someone who is not showing signs of cognitive decline. Snoring is often passed off as innocuous by healthcare professionals. Interrupted sleep is another warning sign. If one wakes up numerous times during the night, then it's a pretty safe bet his or her sleep cycle is not optimized. And the person is getting inadequate REM and deep or stage three sleep. Sleep deprivation and cognitive decline are related. And sleep deprivation is a global pandemic. If the person you're caring for is feeling tired during the day, falling asleep when he or she shouldn't be falling asleep, that is an indication that they're having some kind of a sleep breathing problem, not sleeping well or both.

OSA of which snoring is a very common indicator is prevalent among people of normal weight as well as people who are overweight. It is a common misconception still shared by many healthcare professionals that only overweight people can have OSA. The science has shown us that is not the case. OSA is a pandemic that affects people of all weight groups. I should also mention that depression and mood swings, including angry outbursts can also be indicative of poor sleep and breathing. Oxygen deprivation to the brain can cause all sorts of mood disorders as well as predisposed to Alzheimer's. All of these things are also indicators that can show up at any age, even in children, which is why I've emphasized the importance of early intervention and prevention.

**Dr. Heather Sandison, N.D.**

A lot of people are gonna be past that, right. They're gonna be in their 60s and their 50s and 60s. Then, is there hope for them?

**Dr. Scott Saunders, DDS**

Again, I'm over 60 and still finding solutions for my own OSA. If you're in my age group or even older or younger adult, and you're having signs of early cognitive sleep or breathing problems, yes, of course there's hope. While ideally the best time to start preventing Alzheimer's is in childhood, anyone at any age can address the three areas I've discussed. Improve your oral health, improve your sleep and improve your breathing. If you're not sure and your dentist or primary care physician is not trained in sleep related breathing disorders, and do you think you may have one. Start by asking your sleep partner if he or she notices you snoring or waking up gasping for air. That's usually the first most obvious sign that sends people to see a sleep specialist, whether medical or dental for evaluation and then proper referral or treatment.



**Dr. Heather Sandison, N.D.**

I think another way people can be real proactive is the polysomnography ray. So I send people out pretty aggressively for sleep studies. And often what I'll get coming back is sort of equivocal. They're like, well, there's, you mentioned, was it AHI events, right? These epic events. What I would say is the arbitrary number is five apnea events per hour. If you're having less than that or right about that, then they say, well, you know, you're having these, but it's not full on full blown sleep apnea. And my tendency as of yet and maybe you can correct me if I'm not doing this quite right, but it's to say, you know what? Don't worry about necessarily waiting for prescription from the sleep doctor.

Let's go ahead and get you a prescription for a CPAP if you're willing to wear it or let's get you to the dentist to address that. Even if it's in that equivocal range, let's treat aggressively. And what I've seen so far clinically is that that makes a big difference. People feel more rested, they feel clearer headed. They actually feel quite better. They tend to heal more quickly from infections and things like that. That life improves when we aggressively treat this. Are you seeing something similar? And this is an adults, you know, not just kids, but in adults.

**Dr. Scott Saunders, DDS**

Just to be clear, this is an adults who are coming back from a polysomnogram sleep study with an AHI of five or under.

**Dr. Heather Sandison, N.D.**

Yeah. Well, or around between five and 10. Five or under, and the sleep doctor is basically saying, well, you could get a sleep CPAP or an APAP, but you don't have to. When they run it by me, I say, no, let's go ahead and get one. Let's get you started on some sort of treatment.

**Dr. Scott Saunders, DDS**

Yeah. And I think that's a very good approach, Heather. It's very proactive and I think that at that point, it depends on what information has been collected up until that point. If they've taken all the indices and they've gotten to the point where they've actually had a hospital sleep study and that's been interpreted by a sleep medicine physician who I would think would be qualified to do that, I would recommend that they not rely on simply what one practitioner is saying, but rather find a dentist that does dental sleep medicine, get a cone beam computed tomography scan because I would guess that most patients who get to



the point of having a PSG probably have not had a cone beam CT scan or perhaps their dentist doesn't do them or maybe is not familiar with them. That to me would be a signal to start getting more of a read on what your cranium, facial and airway anatomy look like and start getting more of a perspective by a clinician that has studied and is literate with cranial, facial anatomy and how that can impinge on the airway. Now some sleep medicine physicians are, then again, some of them are not. I would seek further information, but I would agree with you. Even at the AHI on a polysomnogram is low, I would air for lack of a better term on the side of treating rather than not treating. And unfortunately, usually you have to go for CPAP first because unfortunately that's just the way things work. If it helps them, fine, if not, then go to the next step which would be an oral appliance, but seek further information.

Don't just say, alright, I've got an AHI of three, you know, Bob's your uncle. You don't have to do anything else. I would agree with you, no, there could still be something that needs to be further evaluated. The oral health side is pretty easy to determine and address if there are issues. Now, I'm gonna sound like every other dentist you've ever heard and tell you to make sure that you and your child see the dentist twice a year for cleanings and checkups and brush and floss regularly, and that's every day. While all these things are very important, other factors like the balance between good and bacteria in your mouth as we touched on the oral microbiome also need to be addressed and I've also voiced that I think most dentists and dental hygienists do not pay sufficient attention to that, but I think that is changing slowly.

But in addition to brushing and flossing and dental checkups, there are other easy ways to greatly improve your oral health such as using an interdental brush, also called the proxy brush. And if you don't like the floss, if you don't like to floss then using a tongue scraper to remove additional bacteria and using a Water Flosser, like a Waterpik to get hard to reach places in between teeth is an effective method to keep the biofilm down. And there are also some other products that can help. For example, products containing the sweetener xylitol are very beneficial in helping to prevent cavities because they kill the bacteria that cause cavities and help to balance out what otherwise might become a cavity causing oral microbiome. And a small aside here, bacteria, not sugar, or what cause cavities.

The sugar feeds the bacteria but in the end, the end product of the bacteria eating the sugar which is the bacterial poop that's acidic and actually causes the tooth decay. And



again, the balance of good versus bad bacteria, the oral microbiome is a critical piece of this picture. And there's a lot of information available that your audience members can use to research that and it's importance. Now as figuring out if you or your child have a sleep breathing problem, that's going to require some really good observational skills. And it's also going to mean finding a dentist and physician who have the specialized airway and sleep training to diagnose these problems and who are willing to work together to solve any problems that they uncover. And this might be challenging because most physicians think that they're the only healthcare professional a patient needs, and that dentists are still one step away from being barbers.

I mean, that's kind of a grotesque example, but it's that there is still that schism between medicine and dentistry that we're desperately trying to bridge. And the reality is that dentists, the good ones, the enlightened ones I call them are the true mouth doctors. And unfortunately the dentists are a true mouth doctors, still oppose a small percentage of all dentists in mainstream practice. Now, that's changing again slowly, but it is changing. Now I'd like to mention orthodontist here specifically. And these are the dentists who put braces on your kid's teeth or adults teeth, while there are many fine orthodontists in practice who understand things like airway and how the occlusion and the bite and the whole face all need to be balanced for optimal breathing and sleep. There are also many old school orthodontists who only look at straightening the teeth without taking into consideration what the overall effect of that straightening may be long-term for that patient.

And these are the orthodontists who practice what's known as the extraction retraction orthodontia. And that involves sometimes taking out permanent teeth and pushing the jaws back, which is falling increasingly out of favor, especially among airway focused orthodontists and most orthodontists are unfortunately not airway focused. It's happening less and less, but it is still happening. And these are the orthodontists who are true of mouth doctors. And the general dentists that work with them collaboratively are also true mouth doctors. As a dentist, and probably for you as a naturopath, I sometimes find it hard to communicate with or collaborate with physician healthcare practitioners. There is a longstanding divide, a divide based on culture between physicians who see themselves as the only healthcare professionals people need and everyone else. There are many healthcare professionals such as ophthalmologists, eye doctors, podiatrists, foot doctors that have doctoral degrees. You yourself are a doctor of naturopathy and naturopathic physician. Dentists don't just fix teeth. We are doctors of the mouth. We go through four



years of dental school and specialized training just as physicians do. Dentists focus their training on the head and neck and particularly the oral cavity and how it relates to the rest of the body. Now might come as a surprise to many of your audience members, but one of the courses in dental school is gross anatomy where dental students dissect a whole cadaver and not just the head and neck. I personally found it fascinating to learn about all the parts of the body and their interrelationships.

While many dental graduates become general dentists and lose focus on the whole body, preferring to do just cosmetic and restorative work, more and more new dental graduates are keeping, embracing the whole body focus. As part of the whole body focused practice, they need to be able to reach out to a patient's primary care physician or cardiologist or other specialists to share what they find while examining their patients' mouths. As I pointed out earlier, a gum infection and imbalance of bad bacteria can directly affect heart health, brain health, pregnancy outcomes and even the control of type two diabetes.

Dentists discover oral cancer far more frequently than physicians do. I'd like to see a dentist and the information they can provide about patients, get more respect for the unique skills they bring to the table. To borrow from Rodney Dangerfield, for those of you old enough to remember, dentists just don't get no respect, that needs to change.

**Dr. Heather Sandison, N.D.**

You know I happen to be going to see mine today.

**Dr. Scott Saunders, DDS**

Really you're going to...

**Dr. Heather Sandison, N.D.**

I love my dentist. I have really, really great biological dentists here in San Diego who I refer to who do such a good job. And everyone I refer to uses cone-beam. And so you mentioned, oh, I would imagine that somebody who's getting a sleep study maybe hasn't had a cone-beam yet. And I'm like, nope, not in my practice. Everybody's got a cone-beam before they go get a sleep study.

**Dr. Scott Saunders, DDS**

Good dor you.



**Dr. Heather Sandison, N.D.**

Yeah. We wanna make sure that oral health... It's crazy to me that dentists don't get respect or that's your perspective of it because health starts in the gut, right? We hear this adage all the time and the gut in the mouth. And so it's so important that our oral health is a top priority. I would say my experience with my patients and even personally is it's expensive and it's really, really hard to get it covered. So even if you have a, what I would consider relatively good dental insurance, not much gets covered. So it's an out of pocket expense. And, you know, this is happening in the functional medicine world as well and like you mentioned we're in such an insurance centric society, everything you expect coverage and you're paying a lot for insurance. And then when it doesn't get covered, it just feels demoralizing.

**Dr. Scott Saunders, DDS**

Yeah. And unfortunately, most dental insurance is not that good. It's gonna cover maybe \$1,500 worth of dental work per year. It's not uncommon that, you know, if you need full mouth rehabilitation with orthodontics and expansion, and heaven knows what, you could be looking at 30, \$40,000 worth of work. And now I have to note here that it is possible and that there is a movement toward what's called dental medical billing. I don't know how familiar you or your audience members are with that, but there are ways to get dental procedures covered under medical insurance. It's not easy, but there are experts who do nothing but that some of whom we work with and have spoken on some of our summits. So that's something that your audience members could also check out, dental, medical billing or cross coding and just Google that and some of the people that we work with will probably come up.

**Dr. Heather Sandison, N.D.**

It's proactive and should be preventive to cover good dental hygiene, certainly. But also just staying on top of cavities and other dental infections. You mentioned that heart attacks and strokes after sclerotic plaques, these are all related to our oral bacteria and inflammation. So getting that under control early on, it seems like it would prevent a lot of healthcare spending.

**Dr. Scott Saunders, DDS**



You would think, and that such a proactive approach would be attractive to insurance companies. But I think the magic word that we're looking for here, Heather, is culture. It simply is not part of the health insurance culture. And, you know, getting back to, you know, dentists don't get no respect or whatever, it's less a matter of respect and more a matter of culture. Dentistry and medicine have been separate, and that's the culture. And culture is what we need to change here. And as I'm sure you've seen from the standpoint of being a naturopathic practitioner, the culture of medicine is very staid.

It's very resistant to change and the insurance facet of that is equally resistant to change, but I couldn't agree with you more. I think being proactive and that's an excellent way to be proactive, you know, getting your oral health under control and how many coronary bypass procedures is that gonna prevent over the long term. Maybe they should be working that into their actuarial tables and making that part of the insurance culture as well.

**Dr. Heather Sandison, N.D.**

Collaboration. Well, it's possible, right? We're gonna reverse Alzheimer's, prevent Alzheimer's. And this world of collaborative medicine is absolutely possible. And what we see over and over both in my clinic and at Marrama, the residential care facility, and I know Dr. Bredesen's work, what we see over and over is that the more comprehensive we can be, the more we can put a lot of these puzzle pieces in place, the better our outcomes. And so this dental piece is just so essential. So one of those big, big puzzle pieces in the picture of all of it. Thank you so much for shedding light on this very overlooked, but supremely important side of healthcare. Do you have any other parting thoughts for our audience.

**Dr. Scott Saunders, DDS**

Yeah, there are two things I'd like to wrap up with Heather. Specifically focusing on children which we have keyed on pretty intently in the last year or so, and our last functional oral and airway health summit did focus on children specifically. When a child's behavior is seen as a problem, usually for issues that aren't easily diagnosed by a pediatrician, there's tremendous pressure on the parents to have the child evaluated for a psychiatric disorder, like ADHD, one that often results in medication being prescribed for that child. Now, I'd like to suggest that before your child is labeled for a lifetime as having such a psychological problem, that he or she may be evaluated for sleep or breathing problems. Heather, there are several sleep specialists who are leaders in their field, what we called KOLs or key opinion leaders, that's key opinion leaders which, the term I'm sure you're familiar with, who



based on what they see in their own practices firmly believe that ADHD is actually a sleep and breathing disorder. There is also significant research, recent research that supports this. And I'd like to ask you and your audience members to take five minutes and watch an excellent film and there'll be a link in my free PDF bonus to this that a mother made about her son's journey through this exact situation. Now he was labeled with a psychiatric disorder, oppositional defiance disorder which is a heavy duty diagnosis for a kid.

When in reality, his only problem was that they couldn't sleep or breathe. So don't let labels, especially behavioral ones define your child until you really know what's going on. And finally, remember that the three areas I talked about as the seeds of Alzheimer's in kids, oral health, optimal breathing and sleep are all going to be factors in determining how healthy you and your children are throughout life. And even if you or your kids never get Alzheimer's, optimizing the health of their and your own teeth and gums and making sure that you and they are getting the best sleep you possibly can while breathing optimally will go a long way toward you and your child, having a long, healthy life and never getting Alzheimer's and that is why childhood is the the best time to start preventing Alzheimer's. And that's probably the best shot we've got being as proactive as we can possibly be.

**Dr. Heather Sandison, N.D.**

Scott thank you so much for all of your time today and for sharing just your passion and all of this great information, super helpful information on preventing and reversing Alzheimer's. It's been a pleasure having you today.

**Dr. Scott Saunders, DDS**

It's been a pleasure for me Heather too. Thank you for having me on. Appreciate it.