Discover How Oral Appliance Therapy Benefits Your OSA Transcript

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Introduction to Oral Appliance Therapy

Welcome again to the Sleep Deep Summit. New approaches in treating sleep apnea and insomnia. I'm your host, Dr. Audrey Wells. And today I'm really pleased to talk about oral appliance therapy with Dr.

David Federici. He is a diplomat of the American Board of Dental Sleep Medicine. And when you want to talk about this, just go straight to the top, because he's also a faculty member of the American Academy of Dental Sleep Medicine Mastery Education Program.

Welcome, Dr. Federici. Thank you for having me. So the oral appliance is the primary nonsurgical CPAP alternative for obstructive sleep apnea. And I know that people are interested in this.

So I want to start off by sort of defining what it is. And I've brought a little show and tell here. So this is just one type of oral appliance. And the idea is that there are two pieces.

There are custom made for a person who's using it fits on the upper teeth and the lower teeth. And then the two pieces engage in some way. There's different ways of doing this, such that the lower jaw is brought and held in a forward position.

Anything to add to that or anything else you'd like the viewers to know? Well, there are about 100 plus different types of appliances. While the one you showed has a mechanical hinge on the side.

There are kinds, like you said, that are made of different materials.

How Oral Appliances Work

And it's our job to evaluate the patient's dentition, teeth, tongue size, amount of teeth, jaw, shape, size of cheek tissue, anteriorly to be able to pick the right appliance for them.

But you're right, the every appliance works by advancing the mandible and thereby bringing the tongue with it so that at some point of protrusion of their jaw on this varies patient to patient we maintain airway patency.

So while some people have a very large amount of protrusion that it might be 40, 50, 60% of that protrusion is their sweet spot to open up the airway.

You know, it varies patient to patient. So the advancement is where we work weekly to test and verify that the airway eventually is open. And like you said, the different appliances have different ways of doing that.

And they're also called mandibular advancement devices or med devices for that acronym. These are interchangeable terms. So for anyone watching the oral appliance therapy or OAT and the mandibular advancement device are interchangeable.

Now, I'm wondering, how do you know if you're a candidate for an oral appliance device? So when we do evaluations, a lot of our referrals are from sleep positions, pulmonologist, cardiologists, patients who are unable.

Unfortunately, to tolerate the CPAP. So we do a thorough dental examination as well as a muscular examination. Historically, having TMJ was thought to be a contraindication, but we're finding out now that many people do nocturnal grinder brux or have TMJ issues because they're not treating a sleep related breathing disorder.

So once we actually treat them, the body's ability to want to grind, to send the signal to grind is eliminated because that's the body's natural way of trying to move your jaw and tongue forward without an appliance.

So after we do that evaluation, the main contraindication would be somebody who has very loose teeth via the appliance like you showed is custom fit. It fits snug on the teeth.

We do not want this coming dislodge while they sleep in the middle of the night. But if you have mobile teeth or periodontal disease where your teeth are very loose, then that would promote a greater tension between upper and lower and can advances tooth mobilities.

So that's really the only contraindication. The other contraindication would be somebody who has very little jaw muscular protrusion. So, you know, most patients have 6 to 8 millimeters of protrusion.

There are some people who have very small jaws and their muscles are very short and only allow for three or four millimeters of advancement. Then it becomes, can we move that patient's jaw forward enough to maintain a paden or open airway?

Who Is a Candidate for Treatment

So for those particular cases, we actually implement the use of temporary appliances before they make the big investment into a more expensive one, not knowing if they're going to actually be able to use to its full extent, we will try a cheaper version that while it's not a custom fit, it does give us some feedback if they are going to be a candidate and a responder.

So we have very different approaches based on the patients needs for patients who have dentures and a lot of patients as they get over 65 and become more apt to having sleep apnea, start losing teeth.

And I've actually made appliances that actually snap on or fit over their dentures. There is a way to have the appliance fit right on to their jaws when they take their denture out, and the appliance can be made to fit in like a denture and hold their jaw forward.

We've had people who are only have a certain amount of teeth, get some implants placed in their jaw, and besides retaining their, the dentures of the partials can also be fabricated on the inside of an appliance to snap onto the implants.

So there are a lot of different ways and don't feel as though, hey, I only have six or eight teeth. We've worked with patients with four teeth. We've worked with patients with dentures.

So there are very small, few little areas where we can't make an appliance. And the number one, probably 95, 98% of the time is because the teeth they do have are loose and mobile and they cause discomfort.

If we would attach them for six, seven, 8 hours when they sleep. That makes sense. And what your describe being and in my experience, too, there's a certain level of expertize that is necessary from the dentist who is making these appliances and evaluating whether a person is a good candidate.

And I'd love for you to elaborate on what that expertize should be. So being a faculty member of the American Academy of Dental Sleep Medicine, we have a website aadsm.org which is where patients can go to as well as dentalsleep.org where there's information for patients to find out information about oral appliances.

So you can find out more about the actual pathway to make an appliance, but also find where you can find in your area a qualified dentist. We have two pathways.

The American Academy of Sleep Medicine. One is called a qualified dentist where a dentist will choose to go through one level of education. And we recommend, you know, that's the minimum standard to treat their patients, family, friends, things of that nature.

When you start to want to work with bidirectional collaboration that works with doctors like yourself, we usually recommend our students to go on to Mastery too.

And then they can become eligible to sit for a board exam and become board certified diplomats, which is the highest level of education. That also includes a clinical hands on competency scenario.

So they get the most education that in patients who are severe. You don't want people who just take a weekend course on this and think they can go back to their office on Monday morning and treat a condition that in some people can kill them. Right.

We have stroke, we have A-fib. We have so many conditions related, untreated sleep apnea. So I always recommend when I teach this is that you don't know your surroundings.

If you have other diplomats in your area and you think you're going to take a weekend course. Most referral networks are not going to really include you in that loop because you haven't proven yourself educationally.

But we have them strive for the highest levels because some people actually end up thinking they only want to work with their own patients and end up their patients.

Tell their doctor. And before, you know, the doctors are talking to each other and you get a call from a sleep position, now you're like, Geez, well, I'm not a board certified diplomat yet.

So we try to have them aspire to have the highest levels, and most people do go through with that because they realize how much they're changing and saving, in some cases, patients lives and it propels them to want to seek out the highest level to collaborate with.

I think that's really important to underscore because when I talk to patients about the oral appliance treatment, a lot of times they'll say that, Oh, my dentist told me he can make something, and occasionally I'll have someone come in for a sleep apnea evaluation.

Training, Credentials, and Finding a Qualified Dentist

Even planning to get an oral appliance therapy from their dentist who was looking at the airway and noticing that when they were back in the dental chair, they were obstructing.

So what I'm hearing is that on the website dentalsleep.org or aadsm.org a person who has a dentist offering to make an appliance can actually input that name to see if they're qualified.

Is that true? Correct. Correct. Just because somebody can and we all as dentists can order something from a lab. But it's how you use that, how you track its efficacy, that it's working, the pulse oximetry, that the data that you like to see from us.

Somebody who is not qualified really won't be able to follow through with that for you. So, you know, we're working for you. You know, you write us a script through medical insurance or Medicare and it's important for you to be able to evaluate the dentist.

And what's your level of education? Are you in insurance networks? Are you part of Medicare? Do you use lab high medical grade, precision milled oral appliances?

Are you doing these cheap things? You know, the last thing a sleep position like yourself is once you have a patient, come back to them and saying, hey, I don't know who you sent me to, but the dentist screwed up my jaw or my bite or he charged me X amount of dollars and the thing cracked after nine months because the dentist just wasn't experienced.

So well. Some small percentages think they are helping the patients out. Unfortunately, without the training they could be doing damage they're not even aware of, even though their best interest was to try to help their patient.

Have been your dentist for 30 years. You know, I'll order something for you, but you got to know your limits, just like

in every area of health care. So it's important that your awareness campaign of you, the sleep positions and the doctors referring to us are just as comfortable as the patient would be known to.

The dentist is experienced enough. Totally agree. And I think there's also the the benefit of having consistent messaging about what obstructive sleep apnea is and the damage that it can cause, not only if it's untreated, but if it's under-treated as well.

Correct. We have so many people that buy products on Amazon or at the pharmacy and they think because it helped them stop their snoring that their sleep related breathing disorders are fixed.

Half those people are doing it for snoring and don't even know they have possible obstructive sleep apnea. It can only be determined from a PSG or a home sleep test officially a medically interpret sleep study.

And that's what we always tell our patients we have to have before we can treat. You can't say, I think you're suffering from blood pressure, let's switch on some medication without having a baseline of what that block blood pressure is you're treating.

So if we think we've stopped snoring and there had a severe case of obstructive sleep apnea, they may we may have reduced their obstructive sleep apnea in half.

And to the patient, hey, I'm stopping snoring from you know, at this point in my bed, partner's back in the same room are all, you know, Kumbaya. But unfortunately, we tell the patients that's just one piece of the puzzle.

And we can't just go by over the counter snoring cessation products and think we've treated it. This is a really big problem because the oral appliances that are custom made for sleep apnea can be a bit spendy.

And I want to put a pin in that so we can talk about insurance coverage. But I've also pulled one of my examples of what's called a boil and bite device.

So these are over-the-counter appliances that you put into boiling water or a cup that's just been boiled, and then you can bite down to sort of customize it.

But talk to me about why this is not a long term solution. So like you said, it's non custom, it's a one size fits all and as we know we have tons of different sizes of mouths, we have tongue, tons of different sizes of arch shapes and also airway tongue size is very important in picking an appliance because the bulkier something is in your mouth, the more it's keeping your tongue backward.

And as we said earlier, our job is to move things forward. But if we have a really thick piece of equipment in the front, the tongue is pinned. It can't be really effective.

So those type of scenarios would be to, you know, if you wanted to try those is a test to see if it stopped your snoring before you invested. By all means, you can do that, but unfortunately you do cause a lot of jaw issues because they're non custom.

You can change the vertical and horizontal components, although some of them are starting to have a little flexibility and extending the horizontal. But you know, the patients don't bite the right way sometimes.

So you could lead yourself in self diagnosing or self treating. And if you bite wrong and you start advancing, you could push your jaw to one side or the other and think that it's not going to be good for you based on the soreness, but actuality you just did it wrong.

Why Over-the-Counter Devices Fall Short

So we try to downplay those over the counter type products because you could be giving yourself a false sense that you might not be a candidate. You know, that's before we even talk about the medical grade and the materials

and the cleanliness and the precision of which we make these at this point, that's the next level quality.

Yes. And I think your point is well taken that people can actually get the wrong impression. There's a pun there, I think, from using these boil and bite appliances, they can come to the false conclusion that an oral appliance that's custom made may not work, but in actuality they're not even really the same thing.

So it's worthwhile to have a consultation with a dentist who's not only informed, but also has adequate training and experience. Absolutely correct. Absolutely.

I want to go back to the insurance coverage and the cost of these oral appliances, because this is highly skilled work and the insurance coverage isn't through dental routes.

Tell tell me more about that. Correct. So the diagnosis, Koji 47.33 is a medical code. So these appliances are durable medical equipment which are reimbursed by medical insurance even though they're made by a dentists.

So dentists can, in some cases, join medical networks to become a network providers, but most of them are out of network just like you on the medical side.

Can't jump into a dental network. Sometimes it's tricky for us to jump into a medical network, but it is a covered procedure. And of course, it's going to follow the same guidelines with respect to deductibles.

You know, unfortunately, we're seeing more and more insurance plans have more and more greater three or four or 5000 deductible. So the patients usually have to pay that first before the insurance even kicks in.

So a lot of times we'll see this time of the year as patients start meeting their deductibles, they're looking into now that met it. Let's go ahead and make it.

Of course, I tried to talk them out of that. If I see somebody in January, I'm not going to say, hey, go untreated with severe sleep apnea till September.

So you meet your deductible, you're just prepaying your deductible now with the appliance. And guess what? The rest of the year now all the rest of your medical visits are covered because you just happen to meet your medical deductible for the year on the dental appliance.

So it works, you know, multiple ways. But yes, it is covered under medical insurance and not dental insurance. Is there any difference with Medicare requirements or stipulations?

Yes. So Medicare also depending on the doctor, a dentist. If we can join Medicare networks and we get fingerprinted and background checks and we can join Medicare.

So there are a basket full of appliances. And the one you had shown earlier with the metal hinges is one of the Pete Ach or Medicare approved appliances that are done these days.

While there are some other ones there that don't have the metal hinges that are Medicare approved are out there and very popular, they do force us for coverage to pick from those specific appliances.

Now, obviously, if they want to upgrade and Medicare will say, hey, as long as you do things by the book and get a medicare approved appliance will reimburse you based on your jurisdiction.

There's different jurisdictions around the country and Medicare will kick in an X amount toward our fee of Y. So you know, historically, Medicare never even reimburse for appliances.

And many years ago they started having it covered.

Insurance, Medicare, and Coverage Basics

So anybody who had their CPAP and couldn't get tolerant to it had to pay for the whole appliance out of pocket. Now, great amount of that is covered. There are stipulations with Medicare, though it's called a same and similar rule, which means they only cover one form of therapy every five years.

So there's like a 60 day window. We tell all of our referring physicians, make sure your patients decide whether they're going to keep the CPAP machines or not within that first 60 days, because once Medicare pays for it, it's a major hurdle.

Multiple level appeals needed to have them also reimburse and make an oral appliance, get it, turn a CPAP in. You've got to show proof that you stop all the supplies.

You have to have another face to face visit with the sleep position. So it's very difficult to get both forms of therapy covered. But we do it. We, you know, it's like a skull and crossbones when we see somebody that has that.

But so we try to educate our referring physicians and pulmonologists and cardiologists to make sure that decide within that 60 day window whether you can tolerate it or not.

Okay. Because once they pay for it, it makes it more difficult. That makes sense. And I think that any time you're dealing with insurance, it can start to feel quite overwhelming once you get into it.

But what I'm hearing and I want to confirm is that the dentist who is constructing the appliance should be familiar with these pathways and be able to educate the person who's interested before any before any deductibles change hands or before the appliance is made.

Is that fair? Definitely. Most dentists who are at the high level of treating obstructive sleep apnea with oral appliance therapy really should be having the pathways down for billing the medical insurance a patient should not have to pay out of pocket.

And yes, there are some dentists who choose to say, I don't want to deal with medical insurance or Medicare. I do this as an ancillary technique. I'm a fee for service, cash paying patient, and we see that a lot on the cosmetic side for Botox and injectables and things of that nature where I have a practice where I just deal with fee for service.

So again, when you make the decision on off the websites to find a particular provider this in your area, you have every right to ask those questions.

When you're basically calling, you're basically going to have an interview with them saying, Do you take medical insurance or do you work with the medical?

Below that process is my medical insurance. Do you work with Medicare, your participating provider? With that? Do you use medical grade appliances where you work with my sleep physician?

What's your level of education? I know you have experience with qualified and board certified diplomats, but those are questions that the patients can ask their own dentists if they happen to say, You know, before we even get to the point, I'm going to check you out on our website to see if you're qualified in office.

Just ask those questions. I had a patient the other day, came to me and said, yeah, my dentist was kind of perturbed that I once him told him I was having this done.

And he goes, Well, I can make you one of those. I do those. And she said, Well, unfortunately, my sleep physician only wants to work with board certified diplomats in it who have expertize in it.

And that kind of, she said, caught him off guard. But again, some of these dentists, unfortunately, don't know of the severity of treating this and think.

A weekend course, like I had said before, is enough education. And I usually when I lecture about this, I said that

we can course should be an introduction to see if you're willing to take on the challenge to treat it.

That's not the education to do it. That's an introduction to see if that you're up to the challenge and want to take that on. And if so, then you're going to seek out the best, highest level of education practice, get the billing down, you know, get the Medicare down and have that collaboration network so that every position, like yourself, knows my level of education, my care for the patient, my all my workflows that their patients are going to come back to, you know, that they had a positive experience that didn't mess up their muscles or their joints or give them an appliance that cracked after nine months.

That's the last thing you guys need. Have your patients coming back because you're busy enough. So I agree so much and want to underline everything you just said.

I mean, it's really important to have that standard. I'm going to kind of go into the candidacy for oral appliances again now at this time for obstructive sleep apnea, which we define the degree or the severity based on HHI.

And there are some limitations with that.

Severe Sleep Apnea, Combination Therapy, and Follow-Up Testing

It is not it's not the perfect way to define severity, but it can help to inform treatment options. Now you have mild obstructive sleep apnea, 5 to 14 airway obstructions per hour, moderate obstructive sleep apnea, 15 to 29 airway obstructions per hour, and then severe, which is 30 and above.

Who is a good candidate for oral appliance therapy. So all of the candidates that you mentioned are all those severities are candidates. Of course, the collaboration between the asthma and the DSM is that mild to moderate?

It can be first line therapy. And of course, if you have a severe CPAP is going to be the first standard. If they fail CPAP, then something is better than nothing.

So while we say and that's why I mentioned all severity levels are candidates for oral appliance. If we have somebody who is super severe and we can reduce their hypoxic burden, their severity down to mild, that's what we're looking for.

You are up here. Yes. We would have loved if you could use CPAP an oral appliance. While may not be first line therapy for the severe, we've greatly reduced your hypoxic burden.

Your severity level. Your risk level have greatly reduced to the greener, safer zones of of severity to the point where we're not worried about you dying in your sleep with the severity amounts.

So while mild to moderate is first line therapy and recommended if the patients fail CPAP due to any type of issue whether you know they are they are right mask airflow multiple sinus infections claustrophobic you know beards, mustaches, noise, air leaks, whatever that may be.

If you've exhausted all your attempts, we're more than happy to collaborate with you because we want to reduce the burden of the sleep apnea for these patients.

We're not here to compete. We're here to complement and help you out because unfortunately, you guys can't do certain things like scan and make impressions and make these appliances and we can order CPAP and do that.

So the collaboration, the bi lateral collaboration between these professions is key to giving patients multiple ways to bring down the severity levels that you mentioned.

And I think one thing that people don't necessarily consider is the possibility of combination therapy. So the oral appliance with the forward GI protrusion can help open up the airway.

But if it turns out that wasn't sufficient to resolve the obstructive sleep apnea, then CPAP can be applied with the oral appliance in place. And in that instance, lower pressure settings are oftentimes used.

And over the years I've had a number of patients use this type of approach. Absolutely. For some people, it's just that pressure, the constant and this was my issue, personal issue.

I was a severe 31 events per hour and for me I was 100% compliant. Yet every time I stopped breathing, it sensed it. It ramped up the air pressure and being a light sleeper, it woke me up.

So I was treated on the apnea but still sleep deprived of not getting to the deeper stages. Slow wave, stage three in stage four REM sleep to the point where at the end of the day I was still getting tired and hitting the rumble strips on the way home.

And I told my pulmonologist, in this case, the treatment can be worse than a disease. What good is 100% compliance? If for me I'm still tired, right on the dashboard it looks like, hey, no need to call Dr.

Federici because he's using it every night. He must be okay. But I didn't know what. I didn't know at the start. It was me not being able to tolerate it.

And then over time, when you read articles and you know and you see that there's a certain percentage that aren't able to tolerate it. That's what drove me into making it an appliance about ten years ago.

And it changed my life to the point where I said, I've got to do this going forward because I've seen the benefits that it's it's helped me out with. But to get back to your point about the combination therapy so the appliance can work with a like you said, a combination, you can set the pressure much lower.

And in some people we have our physicians and DMS just keep it as a flat five centimeters of water because the appliance does 80 or 90% of the work. And then the additional pressure comes in.

And in some people, their airway is just I call it their plumbing. They just kink a little lower than where the appliance works. So anatomically, they may be kicking down here.

So we're opening them up here. But somewhere below that level is there's still a constriction to the point where we need that second area supplemental oxygen flow that you mentioned that can then bring them fully down to normalcy.

So oxygen generators is another popular thing I use, which is just a nasal cannula. At two, three or four liters per minute, I'm finding perseveres is enough, whereas it's not the full CPAP mask, it's sometimes it's just supplemental oxygen can do it.

We have nasal violators that help open up the nasal passages which increase the intake of oxygen, which combined with the appliance, sometimes also sends them over the edge and brings down that residual non treatable type. So there's many ancillary techniques.

But you know, again, becoming board certified in this, you get that education, you deal with those difficult cases. You know, it's one of the questions we get all the time is what do I want to I ask the dentist, like, how do you treat nonresponders?

What if you got him halfway reduced? What are your next steps? And if you're have a, you know, crickets, then you know that they don't have that experience level.

And that's something you have to take into consideration that, you know, you have a lot of non-responders out there or partial responders. How you deal with that is just as important.

I agree. And the only way you're going to determine if you're a non responder is to get the follow up sleep test after

you're acclimated to the oral appliance treatment.

So once you're able to wear it throughout the night, you're looking for some symptom resolutions. You know, sometimes a forward titration is needed, so more protrusion can be necessary.

But at the point where things seem stable, you need to get that follow up sleep test to really understand whether you have any residual sleep apnea. Absolutely correct.

The efficacy test is basically a way to confirm what we're doing. Some patients feel, hey, I feel great. I have so much energy. You changed my life. Why do I have to go back to see Dr. Wells and have another sleep study?

Because for some people, subject of an objective, things don't line up. You might be 50% reduced from a 30 to a 15. And you think we've changed your world?

In actuality, we've still got a decent amount of obstructive sleep apnea that's not treated. So in some people, a 50% reduction thinks that they're treated when actually I tell them it's good news and bad news.

Instead, the good news is that there's more to go. You're going to reap even more benefits if you think it's good. Now you've only helped to have the bad news is we got to continue, like you said, to advance the job a little bit more.

Use some additional techniques if we need to, such as nasal dilator or positional therapy or supplemental oxygen. But we're working for you because we need a script from you in a letter.

Medical necessity to bill insurance and Medicare. So we're working for you. It's important for us all as dentists, to send the patients back to check our work, per se.

Long-Term Monitoring and Bite Changes

And yes, we know it's a one night snapshot, just like the first test to diagnose them as a one night snapshot. But we see them so often as we're advancing them, we get multiple studies and pulse oximetry reports.

And what I usually do is I asked each doctor, How do you like me to report to you? Do you want it as we go? Do you want a letter that were done or do you want me, the patient, to call you and I'll bring their latest pulse ox report?

Say, here we're at it and give them a sleep study again. And if it doesn't come up, ideally to send them back to me and I'll do a little bit more tweaking.

So it's again about that by lab collaboration network that we have is to always keep in communication so that the best interests of the patients are always fulfilled.

I love it and it's like tender loving care for your sleep. And that translates to long term health benefit. So it's super important to collaborate. Absolutely.

Now, I'll tell you, I'm quite a frugal person and I am capturing the beginning of my own sleep apnea. I try all of the things that I recommend to my patients except for some of the surgeries.

But if I were thinking about an oral appliance therapy and I had a high deductible, which actually happens to be true at the moment, my question to the dentist would be what is what is the likelihood that my sleep apnea would be resolved with this?

What is the likelihood I'm going to be able to tolerate this? I want you to look in your crystal ball and tell me that this is money well spent. Can you comment on that?

And especially contrasting a mild sleep apnea patient to a severe sleep apnea patient? Right. I wish we had that

crystal ball. But when a patient comes in to me, I can say on day 47, we're going to have 92% of your sleep apnea reduced.

I wish we could do that, but with experience, you learn to look at the components of the sleep study. So as you know, if there's a greater percentage of the smaller obstructions called hypoxia versus apnea, is that at minimum centers, only 30% obstruction of the airway?

Then you can assume that the appliance will work on hypotenuse and that portion, those frequencies better than the full blown apnea. But again, the anatomy airway, if somebody has a huge tongue that's like a large hamburger patty in there and they're obese and their necks are 20 inches wide, there's going to be a component where we're going to have to, you know, throw the kitchen sink at them, we call them, and trying all these different techniques of keeping them off their back.

But at some point, BMI comes into play, as you know. So, you know, obviously, with those impact, there's other ancillary techniques and we kind of push it back to them while we'd love to have a pill that would treat this or we love to have just the appliance, not everybody fits in that basket.

Those are going to be 100% responders. So we'll do everything we can in our power. You've tried everything you can in your power with the CPAP machines.

Now some of that has to go fall on to the patient, say you've got to do your job. And sometimes I'll be honest with you that the appliance, if we can get them down 50 or 60 or 70%, while it's not ideal, it gives them more energy to have at the end of the day instead of falling asleep after eating to go out and what you know.

So we call these downstream therapeutic effects where you keep going and you feel and better and you have more energy. All of a sudden your BMI starts coming down and the efficacious and so the appliance starts getting better because you're reducing that mass burden.

You know, we put tongue fat deposition, you only lose weight, your tongue gets smaller, your neck gets smaller. So all these tissues that are clogging your airway are starting to thin out and just perpetuate.

So there are cases where I say, you know, don't give them that efficacy test yet. Let's give it more time to work. You know, they've been suffering from this for so many years.

We can help that maybe in six weeks they're not going to be fixed yet, but they're feeling better. They're starting to exercise now. And let's reevaluate at six months and then again test them.

And we see numbers. I've taken patients where I've had their end point and nothing's been changed on their jaw. And then I take another basically a pulse ox reading overnight recordings.

And the reduction has occurred like 10 to 20% more at six months with no changes. So sometimes it's the autonomic nervous system, it's reprogram. We have enough nights of oxygen and therapy, sort of like a medication.

The more and longer you take it, the lower your cholesterol might go down or we'll have more of an effect. Lowering your blood pressure. We don't evaluate a blood pressure med after a week.

It may take 67 days to get my blood pressure down to normal. The medication, it might take you only 17 days. So we don't try to have a specific finite end point.

We just want to see some subjective improvements to the point where the patient's starting to feel better objectively and just giving us feedback. And then we'll communicate that with the sleep physicians or pulmonologists, and we work forward from there.

Great answer. You know, I think it's another reason why the post oral appliance test is important because, you

know, you wouldn't want to be using this unless it was benefiting you.

And knowing how much it's benefiting you is important. Now, one thing I've seen is that people who get benefit from the oral appliance, it's great. They use it for years and sometimes there are some side effects.

Sometimes the dental situation changes as well. Talk about the agility that a dentist needs to monitor those things and address them when they come up, right.

So as we talked about early on, tooth mobility coming into treatment is going to be a factor. And what happens during and after treatment. So the more years, I mean, you're physically holding the jaw forward and those trays exert pressure, a job is to move and hold your jaw forward.

So we keep a close watch on that. You know, you talked about impressions earlier with a lot of us. Dentists now are doing digital scans. So we have a digital record of the actual patient so that if they say, you know what, I think something's shifting down here.

My bytes changed a little bit because we had the original scan. We can make them sort of like those Invisalign retainers and during the day they can wear the retainers to move them back to where the original position was to offset what the appliance may be doing.

Morning Aligners and Ongoing Dental Management

So while they're wearing the appliance at night for their sleep apnea, during the day, they will wear a clear tray that actually can reverse some small menu by changes you talked about that could be happening.

So we take that into consideration. Obviously, the dental work, like you said, we have to be able to modify the appliances. So that's another thing we tell the patients, you know, we'll see them with a missing tooth and we'll say, hey, do you plan on getting some type of tooth replacement in there?

Oh, yeah, I'm going to get an implant in there. And they said it would take about a year while we can design in the appliance to be hollow in the area to accommodate a future tooth placed in there so that you don't have to keep getting new appliances and re scan every time there's a major dental treatment in your mouth.

Right. So if you fill in a space, obviously that's the biggest thing, but you may have a six tooth bridge in your front that the appliance is made on and something happens, it decays.

I need a whole new six tooth while the old appliance is not going to fit on your new one. Right. So we have some appliances that could be reamed out to accommodate that.

A lot of times will just scan that arch and make them just that a new trade if it over that. So we have many techniques to work on not having to make new appliances as dental work changes, but for the bite changes and anything of that nature, we try to keep very close track, which is why we do six months after therapy is completed and then yearly we want to track the changes we tell the patients, If you notice anything, don't wait for your yearly checkup, come back.

And because we have your scans, we can make you something to interceptively reverse those changes. You're seeing. Good points. And I want to clarify, you mentioned the tray that can help move the teeth back into their original position.

Is that the same thing as a morning aligner or is that two different things? So the morning aligner comes with every appliance. That's a way for patients.

Jaws, which have been held for six, seven, 8 hours, can be brought back to the normal bite, home based bite, we call it. So the day we see them, before therapy starts, there's multiple different ways you can make this.

There's a Boylen bite like the old mouth guards would be just like a flat wafer. And you just do a normal index and that's your home based bite. So when the patient takes the appliance out in the morning, since those muscles have been stretched forward, their teeth are not going to meet normally immediately upon removal of the appliance.

So we tell them to put this morning or am repositioning in their mouth and some of them you do gently into and it stimulates the muscles to shrink back and recover the normal bite.

We just tell our patients, don't eat breakfast until your bite has normalized. The old way to do it was sit there and do the thinking man's pose and physically push the jaw back.

It will happen on its own after about 60 or 90 minutes, but most people want to get going with their day and they can't wait an hour before they eat. So for me, my, my philosophy is I just get up in the morning in the first minute of this, 3 to 5 wearing that repositioner is spent cleaning the appliance.

And then as just a few more minutes and then it recovers. It seems like that could be a sign of a good dentist, one who's experienced. So if they have the morning aligner as part of their standard treatment, that's a good sign that they know what they're doing.

Right. And the other retainer we talked about is something they would wear during the day. Only if we felt there was changes or tooth shifting or the tooth is crooked, things of that nature.

So we have that some Invisalign patients who have to wear these retainers at night, right. So how can they wear the retainer at night if they have the appliance?

So we say, look, you're going to have to, you know, wear it during the day to maintain those, you know, your Invisalign therapy that, you know, perfected your nice straight teeth.

There are ways to piggyback it, but it's a little tricky to do that. So again, having a great comprehensive exam, knowing what the patient has currently, what anticipating their future needs and just designing and picking the right appliance that we feel would be the best one.

It could be modified, keeping all the records. So it's a really a full, broad approach that the experienced dentists who do this have to follow. What a comprehensive plan and discussion.

I really like that. And I think that it helps people to understand how much goes into making the oral appliance monitoring it and kind of addressing any issues that arise.

It takes a lot of expertize and I thank you for helping people understand that and helping dentists get trained. My pleasure. For everyone who's interested, I want to reiterate dentalsleep.org is a website where you can go to check the name of your dentist to find out if they're qualified.

There's also lots of good patient education materials there and then aadsm.org is the other website where you can find lots of good information. Dr. Federici, it's been a pleasure to speak to you today.

And my pleasure. Thank you so much.