



SoundBites Podcast Transcript

Episode: "Understanding Tinnitus with Dr. James Henry"

Dr. Dave Fabry:

Welcome to Starkey SoundBites. I'm your host, Dave Fabry, Starkey's chief hearing health officer.

Now, today's episode is a topic of near and dear interest to mine, given that I have ringing in my ears from playing the drums, riding motorcycles, and listening to a lot of music over the years that was probably at levels that were too loud well before I was interested in this discipline as a profession. And I'm really pleased that we have with us today, I think one of the US or world experts in the area, someone who's been very productive in this area, Dr. James Henry. And I'm so delighted to have you join us on this episode of the podcast, Jim.

Dr. James Henry:

Well, thank you for having me.

Dr. Dave Fabry:

I know we've got more content to cover than we have time, so I want to dig right in on this, but I will brag on you a little bit. We were talking, I think you said at the entrance you have about 140 peer reviewed publications, over 250 publications in total. And I think that's really what I see with your remarkable career is you've been able to explain to both professionals and end users alike about a topic that for many people, both professionals and people afflicted by tinnitus, in a manner that they can understand and really helps provide guidance as to what are the technologies? What are things that they should be aware of that are emerging to help them? And so I'm grateful for the time that you'll spend with us today.

Why don't we start by having you cover a little bit about what you got into this profession? And then how is it on your journey, I know you've worked with the VA and in the VA for 35 years or so, but talk a little bit about why it is that tinnitus in particular, and along with hyperacusis and other areas, were areas of interest for you professionally?

Dr. James Henry:

I'll try to keep this brief. Going back to the 1970s, I played guitar, a loud rock guitar. And I supported my family for pretty much 10 years playing rock and roll guitar in the Southeast, traveling around. I knew nothing about hearing or hearing protection. I used to get wet toilet paper and stuff it in my ears sometimes when it became just too painful. So I think we can both relate to music and what it does to our ears.

And then I had a daughter, who is deaf. We had a daughter who's deaf, and we lived in Santa Barbara at the time, and learned about a school up in Portland, called Tucker Maxon School, for the deaf. And moved up to Portland so that she could attend that school.

And at that time, I was a carpenter, and decided I wanted to go back to school. And because of my daughter's deafness, I wandered down to the audiology department at Portland State University, spoke with somebody there, and it just clicked. That's what I wanted to do. I wanted to become an audiologist. So I got my master's degree in audiology, and then immediately got hired at the VA hospital in Portland in their auditory research lab. And that's when I realized, "Oh, wait a minute. I don't want to do clinical audiology. I want to do research audiology."

So I went back to school, worked at the VA halftime, got a doctorate in behavioral neuroscience. And during those six years I was working on my doctorate, I was in the lab with Jack Vernon and Mary Meikle and that whole group. And they were the first tinnitus clinic in the world. And so I spent six years learning from them.

And when I finished my program, I immediately wrote a grant proposal on measuring tinnitus in a specific way, got it funded, and did tinnitus research until I retired in September of 2022. So I've been retired about a year and a half now. But most of my career was spent studying tinnitus and writing about tinnitus.

Dr. Dave Fabry:

Yeah. And I think over that career, if I'm not mistaken, you had around \$40 million of research grants that you had worked in this area. So you certainly come from a productive space. And veterans, you talk about the hearing loss and tinnitus are the number one and two combat related disabilities reported even to this day, along then with imbalance now as we're seeing more soldiers impacted by TBI and other afflictions. And so unfortunately, those who've served the country also in many cases have sacrificed their hearing for reasons beyond carpentry, drums, and guitars. And so I'm grateful for the work that you've done for that population.

And the first burning question I think that many people listening to this is, I've heard you now say it, I didn't tease this at the start, but tinnitus or tinnitus, what's the accepted pronunciation?

Dr. James Henry:

Yeah. Most people around the world say tinnitus, but the professional community says tinnitus for the most part. So often a patient will say, "You don't even pronounce it right." And I have to explain that to them, that it's really just the difference between the professional community and the end user community.

Dr. Dave Fabry:

And indeed, I think many of us have tomatito-tomahto'd this argument for a long time.

There's so many burning questions with this. We know that in the US alone, there's around 50 million people who suffer from ringing in their ears to one degree or another. And of that 50 million population, and correct me if I'm hitting these numbers wrong, but I think around 20 million say that it's at a level that is at least noticeable to them on a daily basis. Disruptive in some way to their life. And then what percentage of that overall number are ones for whom tinnitus is considered disabling or debilitating?

Dr. James Henry:

Most epidemiology studies come up with a prevalence rate of between 10 and 15% of the adult population experience chronic persistent tinnitus. So that's at least one out of 10. We think it's higher in the veteran population.

And then for those who experience tinnitus, maybe 20%, or one out of five, are significantly bothered by it. And that can be to different degrees. They may be mildly bothered, moderately bothered, severely bothered, or climbing the walls.

And so it's really a progression from people who have it but they're not bothered, to people who are bothered and to different degrees, and then at the top of this pyramid would be those people who are most debilitated by it.

Dr. Dave Fabry:

And historically, I think for many patients, having worked in medical centers in addition to industry, that someone suffering from tinnitus first and foremost wants to know, is this something that is going to harm them in some way? Is this something that they need to seek medical attention versus live with it?

So first advice for let's say patients who are suffering from ringing in their ears, when is tinnitus a situation that requires medical attention?

Dr. James Henry:

The American Academy of Otolaryngology-Head and Neck Surgery, the AAO-HNS, they published guidelines back in I think 2014 for the clinical management of tinnitus. They recommended that everyone with chronic tinnitus should have a medical examination.

Now, the problem with that is if the person has primary tinnitus, which is tinnitus in the brain, it starts in the brain and it's perceived in the brain, it's a brain phenomenon. That's what maybe 99% of people with tinnitus have. There's nothing that can be done medically for the tinnitus perception.

Now, if they have secondary tinnitus, that means they have real sound in their ears that is generated somewhere in the head or neck region, clicking jaw, spasming middle ear muscles, something is generating a real sound and they're perceiving a real sound. Those are the people that absolutely need to see an otolaryngologist and have a medical examination.

Dr. Dave Fabry:

And then also I think, what's your perspective on monaural or bilateral tinnitus? If it's in both ears, is there a lower index of suspicion for anything occurring that could be indicative of an acoustic neuroma or some sort of problem that way versus bilateral? Or would you stick with the 2014 guidelines to say anytime, even if you have tinnitus in both ears, that initially would require seeing an ENT or primary care doc or audiologist to begin the process to sort out whether it's something that could be benefited, those rare occasions that could be benefited by medical or surgical treatment?

Dr. James Henry:

Yeah. My feeling is is that any person who has tinnitus most likely has hearing loss. So they have an 80 or 90% chance that they also have hearing loss. Therefore, they need their hearing evaluated.

So my general advice is that anyone with tinnitus should see an audiologist and have their hearing evaluated. And the audiologist will be able to differentiate whether they have primary tinnitus or whether they have suspected secondary tinnitus. And if they have suspected secondary tinnitus, that audiologist would refer them on to otolaryngology.

If every patient with tinnitus were to go to otolaryngology, that would overwhelm ENT offices. And especially in the VA, every patient with tinnitus can't go over to otolaryngology. So it's just critical for a person to have their hearing evaluated.

Now, if they have the tinnitus in both ears, then it's bilateral. If they have it in one ear, it's unilateral. Unilateral tinnitus would generally be a red flag, especially if it comes on suddenly. Those patients would absolutely need to go to otolaryngology for a workup.

A lot of people have asymmetric tinnitus, so it's louder in one ear, not so loud in the other ear. Also, a lot of people think they have it in one ear, but it's just softer in the other ear. So they think they have

unilateral tinnitus when it's actually bilateral but just asymmetric. So the audiologist can usually figure all that out.

Dr. Dave Fabry:

Yeah. I think that's a very important point that you make is even with a level difference between the two ears of as little as 10 dB may seem like it's only coming from that one ear that is measured at that higher level.

And that gets to the next point, I think. How is it that the audiologist will be able to ascertain the frequency, the intensity, the amplitude of the tinnitus? What sort of measures... I mean, I've been at this not quite as long as you, but just about the same length of time. And there have been machines over the years, equipment, that are used to simulate tinnitus, whether it's tonal or a buzzing, the amplitude, the frequency response. How useful is that to the diagnosis, and then importantly to the treatment of tinnitus?

Dr. James Henry:

Yeah, even back in my Jack Vernon days, they were doing loudness matching and pitch matching and minimum masking level and residual inhibition. Those are the four psychoacoustic tests that were done back then, and they're still being done. Usually audiologists will do loudness matching and pitch matching. They may also do minimum masking levels. And then residual inhibition would follow minimum masking levels. You raise the level of sound until they can't hear their tinnitus, that's the minimum masking level. Then you present that sound at a somewhat higher level for about one minute, shut it off, and ask the patient what their tinnitus sounds like. And they'll usually say, "I can't hear it," or, "It's softer." That's the normal response to residual inhibition testing.

So those are the four tests that are often done by audiologists. And frankly, I don't think they're very useful other than for counseling purposes. Patients like to see that mark on their audiogram that shows, "Oh, my tinnitus is only five decibels above my hearing threshold at that frequency." And that gives them a certain sense of their tinnitus has been validated, they've been validated.

But other than that, we don't really know what to do with those measures. There are a lot of methods out there that use a pitch match to identify how to do sound therapy to target where the tinnitus is occurring, but I don't think there's really any proof that it makes any difference.

Dr. Dave Fabry:

Interesting. And we'll probe on that a little bit, more pun intended I guess, in a few minutes. But I want to stick with diagnosis first. And that issue of then sorting out tonal versus buzzing or different types of tinnitus, the nature of the tinnitus, to the degree rather than the patient can articulate it, how important is that as to treatment possibilities for a given patient, whether it's tonal or more broadband based, at least to the level that the patient can describe it?

Dr. James Henry:

I really don't think it makes much difference what it sounds like. Now, people have come up with categories that if it's low frequency, it's probably related to Ménière's. But nobody's really definitively defined different categories of tinnitus sounds and what that means and how that would relate to treatment. I think it's interesting to know what the patient is hearing and we can talk about that with them. But as far as how that might affect treatment, I would say it generally doesn't.

Dr. Dave Fabry:

Okay. And then to that end, you talked a little bit about in veterans. A higher percentage probably of them have hearing loss associated with tinnitus. Presumably that is likely due to their noise exposure, and in many cases, especially in recent conflicts, to over blast, over pressure, loud sounds, whether they're exposed or in the proximity to an IED or other explosive device.

Would you say that that makes up the majority of tinnitus for someone who went into the military without tinnitus, and then likely came out after they were in combat situations or in training?

Dr. James Henry:

Well, because we know that loud noise tends to cause hearing loss and tinnitus where it's dangerously loud noise, and veterans have typically been exposed to a lot of noise in the military. Our epidemiology study that's still being conducted at our center in Portland has determined that of those veterans that we're evaluating, and they're generally younger veterans, I think they're around average age of 32 years old, two out of every three of them have tinnitus. And we're evaluating them very carefully. And then we're also looking at active duty military members and we're finding about one out of three have tinnitus. So it's a surprisingly high prevalence. Now, I can't say that we can generalize that across all the veteran and military populations. But that's what we're finding in our epidemiology study. So it's a particular problem for veterans.

And then to add to that traumatic brain injury, PTSD, these conditions that veterans typically have, tinnitus just compounds their problems. And often, the tinnitus becomes the most prominent problem over a long term because the tinnitus is there very likely for the rest of their lives.

Dr. Dave Fabry:

Yeah. And they associate it with combat or conflict or the PTSD. And I think that gets to the second part of this. Because I think what you've said is these devices that are used to simulate or map out the nature of the tinnitus is perhaps useful to monitor over time whether there's a change, but in terms of thinking about designing a stimulus that will be effective at masking their tinnitus, it isn't always as straightforward as that.

And the other area was going to go was, two people, if they had the same sort of measurement on one of these devices, may have a very different experience in how debilitating their tinnitus is to them for some of the reasons that you've already mentioned. If it's an association with a traumatic event or something with PTSD, very different than if tinnitus originated from some other means.

Dr. James Henry:

Yes. Yeah. So my tinnitus came on because of music, so I'm associating it with something I enjoy doing, versus a person who's exposed to a blast and they have a concussion and then they have tinnitus after that. And so when they think about their tinnitus, it's just like PTSD. They think about the event that caused the tinnitus and all of these other problems.

Dr. Dave Fabry:

Yeah. Now, expanding beyond the measurement of the tinnitus, one of the other things presumably that the audiologist and a primary care physician or ENT would discuss is other conditions or lifestyle that would lead to an exacerbation of their tinnitus. I think, just off the top of my head, caffeine is often

associated in many individuals with worsening tinnitus. Alcohol sometimes can be. Smoking and exposure to cigarette smoke.

What other factors might someone think about even before, if they're noticing tinnitus and they're wondering, do they need to go see a professional? But what sorts of other things should they be aware of that can compound or worsen tinnitus?

Dr. James Henry:

Often stress exacerbates tinnitus. So people will say, "When I'm really stressed, my tinnitus is much louder, and then my tinnitus is much more bothersome." People who are sleep-deprived because of their tinnitus, that seems to exacerbate their tinnitus. We're talking about the sensation, but the sensation is related to the reactions. And it's like a vicious circle. One gets worse so the other gets worse, and they compound each other. So stress.

Being around noise makes tinnitus worse. For some people, they have reactive tinnitus. The sound doesn't even need to be all that loud and it causes their tinnitus to become louder. I'm one of those people, so I know what it's like. If somebody's talking to me from two feet away, within a minute, my ear starts feeling full and I have to get away from that voice. And so some people have that condition.

Medications can exacerbate tinnitus. They can cause tinnitus. Interactions between medications that are often unknown. They show you this list of medications and they've got tinnitus and you go, "I don't know." Could be caused by medications, could be caused by interactions between some of the medications you're taking.

Dr. Dave Fabry:

That's a long list. But I think it is really important for people to sort of keep a diary or have their prescriptions on hand and have a good list of those and what other non-prescription medications or supplements they may be taking can interact. And I think that's a large part of sifting through all of this. The combination of the tinnitus itself and other factors that could be contributing to this are important.

You mentioned this sort of reactive tinnitus. How often also... And maybe define what hyperacusis is. I know that's another area of research that can commingle with tinnitus. How often is tinnitus accompanied by individuals who are hyperacusis individuals?

Dr. James Henry:

Like Dr. Jastreboff, the founder of tinnitus retraining therapy, says, that about 40% of his tinnitus patients also have hyperacusis.

Dr. Dave Fabry:

And what is hyperacusis?

Dr. James Henry:

So hyperacusis is a loudness tolerance problem, where certain sounds are too loud for the person who has hyperacusis, but they sound normal to everybody else. And so there's different degrees of hyperacusis. People may be mildly bothered, moderately bothered, or severely bothered, just like with tinnitus. And so if a person is mildly or moderately bothered, they generally need sound therapy, which is also helpful for their tinnitus. If they're severely bothered, they really need specific treatment to address their severe hyperacusis problem.

And so that's a loudness tolerance problem. And it's often confused with misophonia, and that's a Jastreboff word. Misophonia is an emotional reaction to sound. It has nothing to do with loudness. But it does seem like a lot of people with tinnitus also have misophonia, M-I-S-O-ponia. And so that's something to be aware of.

Dr. Dave Fabry:

Yeah. And I've seen and worked with patients who suffer from misophonia. We're going to have people getting out their thesaurus today too, and I appreciate your expanding people's vocabulary with the nomenclature for lay people that might be listening.

I'm going to go into the way back machine for a minute. When I was an undergrad at the University of Minnesota, working in W. Dixon Ward's Lab, we got a call from the veterinary clinic, where one of the veterinarians was working with a dog whose owner brought the dog in. And the dog was walking in circles and being very agitated. And the vet had the presence of mind to listen at the dog's ear, and could hear whistling coming out of the dog and were wondering if we could do anything about it. And we had the dog come over. And Mario Ruggero was at the time at the University of Minnesota, and he had the ability even in the late '70s to be able to put a microphone in there and pick it up. What we now know as objective tinnitus.

Can you talk a little bit about objective tinnitus that can actually be heard by someone outside of the individual, versus the more common tinnitus, which isn't something that is audible to the outside world?

Dr. James Henry:

Yeah, and that's where terminology is important. And that's why I like to use the terms primary tinnitus and secondary tinnitus.

So secondary tinnitus would basically be the same thing as objective tinnitus. Now, some people say that it has to actually emit a sound from the ear canal to be called objective tinnitus. Otherwise, you could have jaw clicking, or like I said, different sounds being generated in your head or neck region. And those are real sounds that are emitting real sound waves that are being detected by the cochlear in the normal fashion by bone conduction, but they are not necessarily objective tinnitus that can be detected outside of the head.

Now technically, you should be able to detect secondary tinnitus with the proper instrumentation. Now, you may not be able to hear it coming out of the ear canal. But with the proper instrumentation, you would be able to detect secondary tinnitus.

Dr. Dave Fabry:

Interesting. Is there that we know about the origination of tinnitus that's that secondary that could be treated? At the time, we measured it, the dog was bothered by it, and over time he did acclimate to it. But there was no treatment that I knew that the dog received for this.

But in humans, I've seen a few patients who had this secondary tinnitus, that could be measured with a probe microphone outside. But is there any way to treat that differently or any need to treat that differently than primary tinnitus?

Dr. James Henry:

Yeah. So primary tinnitus, the sound itself cannot be treated. There's no cure for primary tinnitus. Secondary tinnitus often can be cured, and that's where they need to go to a physician who can do a

medical examination and try to determine the cause. Like pulsatile tinnitus is a common form of secondary tinnitus. So that's a constriction in blood vessels that the ear is actually hearing the whooshing sound because of that constriction. And sometimes that can be a serious condition, and it can often be corrected.

Dr. Dave Fabry:

Okay. So let's transition then to treatment. And you talked about the comorbidity between hearing loss and tinnitus are really originating from similar factors, in the hair cell or in the auditory nerve. But the issue of treatment of this, in most cases, we don't know medication. I know there have been some publications suggesting that statins may lower tinnitus in some people. I don't know what your feelings are about that, or whether you've conducted any research into that area to see whether statins or other pharmaceuticals can be used to treat tinnitus, or whether we're going to talk instead about masking or use of hearing aids.

Dr. James Henry:

Yeah, I haven't done any drug studies. Bob Folmer in our lab has done a couple. Billy Martin has done a couple. Other people have evaluated different drugs for alleviating tinnitus. And there's really no evidence that any drug actually has any effect on the tinnitus sound itself.

Now, the drug can make a person feel better. So often a person will get Xanax to just calm down their anxiety level that's caused by their tinnitus, and that's often done. So you're really treating the anxiety, you're not treating the tinnitus per se.

So other than that, sound therapy and counseling are what's used to treat tinnitus. Sound therapy can be done in a whole bunch of different ways, and counseling can be done in a whole bunch of different ways. And it just depends on the specific philosophy and approach that an audiologist or a mental health provider, or even a physician has, as to what kind of sound therapy they'll use and what kind of counseling they will use.

Dr. Dave Fabry:

Yeah, I think there are so many different ones, as you said, like cognitive behavioral therapy as a category within this. But in many cases, some audiologists working with patients may feel for this individual patient their symptoms are, their stress, their anxiety, are at a level that they pull in other healthcare team members too. And it can often take a village in some of those individuals who are really troubled by their tinnitus.

And how do you know at which point to triage, to start pulling in other team members into the treatment plan?

Dr. James Henry:

Well, so let's say we start with the audiology evaluation. The audiologist will generally know if the person needs a mental health evaluation. That would be one thing.

Otherwise, if they just need treatment for their tinnitus, they've been evaluated, you know their hearing has been taken care of, you know they know they need treatment for their tinnitus, then they need the counseling portion. But they may need hearing aids, they may need certain devices. You might want to try all those things first. And then they move on to counseling. And with progressive tinnitus management, the counseling is a combination of teaching them how to use sound in different ways, not

necessarily with one specific device. But what are all the different ways the sound can be used to alleviate problems associated with tinnitus? And then we also give them cognitive behavioral therapy, but we do a very condensed version of cognitive behavioral therapy.

If they need more than that, then cognitive behavioral therapy can be expanded. They can also get mindfulness therapy. They can get acceptance and commitment therapy. So there's different ways that the counseling could be done that have been used to treat patients with tinnitus, and successfully.

So I think it's just an appropriate combination of the sound therapy and the counseling that is effective for most people.

Dr. Dave Fabry:

Excellent. And having worked with patients for whom they know, if you ask them, "Yeah, I have ringing in my ears," but it's not troublesome to the same degree as some of the patients we're talking about here now, if they have a hearing loss, sometimes in the past, patients will say, "Yeah, just the noise floor of wearing hearing aids will help cover up the tinnitus," mask the tinnitus as we refer to it. For those individuals, that may be satisfactory, then maybe in combination with some of the counseling and other tools that they can use to ensure that they're not continuing to expose themselves to loud noises that may have contributed to this problem, and know as well the mindfulness and the relaxation or the cognitive behavioral therapies to reduce the bothersome nature of that tinnitus.

But what percentage of that 50 million number that we said, if they have hearing loss, have you seen in your research that can be satisfied with an outcome of just the counseling, in combination with wearing hearing aids and just pushing the tinnitus down so that it's not bothersome to them on a daily basis?

Dr. James Henry:

Yeah, I don't really have percentages. But I can say that, like I said, if a person has tinnitus, they most likely have hearing loss. So they need to have their hearing evaluated. And if their tinnitus is bothersome, then often the first thing to do is fit them with hearing aids. Even if they're a marginal hearing aid candidate, and even if they're not a hearing aid candidate, hearing aids can be very effective in just taking the edge off the tinnitus just by amplifying sound around them and so there's less contrast between their tinnitus and the background environment. And then they can add in streaming features. They can have a sound generator. I think a hearing aid is just really a fantastic sound therapy device for tinnitus. And often that is all a person needs. And then they can learn how to use sound in different ways, and they have a lot of things available to them. Their smartphones streams to their hearing aids, they can access anything off of the internet. I think that's really the starting point for many, if not most patients.

Dr. Dave Fabry:

And in your opinion, how important is matching... You referenced earlier minimum masking level. How important is it to fine tune the tinnitus or have the patient engaged in fine-tuning it to get enough... A frequency concentration and an amplitude that sort of matches the characteristic of their tinnitus, versus just using a stimulus that is more broadband and modulated?

Dr. James Henry:

So there are different philosophies on that. For example, the Levo device matches the sound of the tinnitus, and then they listen to that sound all night long. That's their approach. Another approach is notching the sound. And there are even hearing aids that notch the amplification around the tinnitus.

There's no proof that those work, but there's some theoretical basis that those notched and matched methods of sound therapy should be helpful for actually suppressing the tinnitus sensation.

Otherwise, we teach patients that they can use sound to provide a sense of relief. That would be the Jack Vernon method. Masking is really to get a sense of relief. Just turn on the sound until it makes you feel better, whatever the level is, just as long as it's not too loud. You can cover up the tinnitus or not cover up the tinnitus. And then the TRT approach is to set it below the mixing point. Make sure you hear the tinnitus clearly so you can habituate to the normal tinnitus sound, but just keep that background sound at a very low level below that mixing point.

Or they can use sound to distract themselves from their tinnitus. They can turn on a podcast and listen to that. That's what I do when I lie in bed at night. I have a podcast in my ears, and that takes my mind off of my tinnitus. My tinnitus is very loud. And if I lie in bed, even though I'm really fully habituated to my tinnitus, I would prefer not to lie there listening to my tinnitus. So I listen to something that's interesting and that takes my mind off of my tinnitus, and I'm conditioned to fall asleep that way.

There's all these different approaches to sound therapy. And the more an audiologist knows about these approaches and can teach patients these approaches, then the patient can decide what they think will work best for them.

Dr. Dave Fabry:

Yeah. So it's really the professional's job is to try to be aware of emerging strategies, establish evidence-based strategies, and be aware of those if they're working with patients who do have tinnitus, where, as you said, if you're working with patients with hearing loss, it commingles with tinnitus.

And then for the patient, it's trying to find a professional who's open to using, as my dad would say, two ears and one mouth, so that they can really understand what is troubling the patient and what solutions. I'm not hearing you say that there's one blueprint that's going to be effective for everyone if we could just isolate where the origin of the tinnitus is. There still isn't one best technique, based on your years of research in this area.

Dr. James Henry:

Yeah, I think it's a very individualized thing. Every person needs something different. And it's not a one size fits all or one device or one approach is going to help everybody. I think it's really teaching patients, "Here's all these options. You can do this, you can do this, you can do this." And then help them make a decision that works best for them.

Dr. Dave Fabry:

Yeah. I know that many tinnitus sufferers who are really on the extreme scale are looking for a therapeutic treatment like Ozempic for weight loss right now, where we're going to discover some medication that magically makes the tinnitus go away. But I'm afraid that we're still years away from that happening.

A lot of attention recently has been given, and maybe re-given, on bimodal treatment for tinnitus. What's your perspective on the promise for bimodal treatment that's either already in the market or coming down the road?

Dr. James Henry:

Yeah. So bimodal is usually some kind of acoustic stimulation plus electrical stimulation, and there's different ways of doing that. The one method that's commercially available right now has an electrical

tongue electrode that they hold in their mouth and presses against the tongue, and that's the electrical stimulation. Stimulates I think the vagus nerve. And that supposedly enhances the effect of the sound therapy. And then the sound therapy is done very specifically, and they've tried all these different methods.

Now, they've compared one type of sound therapy to another type of sound therapy, but they've never compared it to a sham stimulus, which would be wear the whole device, but the electrical stimulation's not doing anything. And if you can really fool the patient so they don't know whether it's turned on or not, that would be a sham placebo control. I think that's what's really needed to know if it works any better than placebo. Otherwise, we don't know.

Dr. Dave Fabry:

Yeah. I think because just the attention focused on it can lead to similar effects as what you get from cognitive behavioral therapy. If you're focusing and educating the patient about acknowledging the tinnitus, working to reduce their stress, a proper control condition, or as you said, a sham condition, is necessary.

I think the last thing I would ask you and then we're out of time, as I figured we'd run out of time before we'd run out of questions. But the last thing is what's on the horizon in terms... I know I've seen some gating mechanisms for people that have tinnitus that occurred suddenly, maybe in response to something they ate or when they were traveling. I've heard all kinds of different origination stories.

But what's down the road that you think might be a little glimmer of hope for someone who's suffering from tinnitus in an extreme fashion? And what's the timeline before we begin to see something that might truly be able to treat, rather than mask or habituate to the tinnitus?

Dr. James Henry:

That's a great question. And we all want a cure for tinnitus. A cure would be eliminating the sensation, or at least reducing the sensation, on a permanent basis. And probably the best hope at this point is some kind of drug or medication that will accomplish that safely, consistently, effectively, and be a permanent cure. There's labs around the world. Whoever finds that drug is going to be doing very well. Because that's a gold mine at the end of the rainbow right now is whoever discovers the cure for tinnitus.

Other than that, bimodal stimulation holds a lot of promise. I think we need more research in that area and we need placebo controlled studies. And then I'm also a big fan of sound therapy using the notch noise and the match noise, like I mentioned before. There is a theoretical basis for why those methods could suppress tinnitus on a long-term basis. In other words, beyond the period of stimulation, it could actually suppress the tinnitus sensation.

And residual inhibition. Why haven't we got studies on residual inhibition that show can that affect be extended? We know that it works in the short term, and there are studies that show that it may work in the long term, but we really don't have the systematic studies that we need to determine if any of these methods are effective.

So I think there's certain categories of treatments that show promise, but we really need the research to determine if they really work or not.



Dr. Dave Fabry:

Well, I think we'll leave it there. And I know people are looking for a magic bullet, but that bullet is really going to come in the form of data and controlled studies that really look at these placebo studies so as to not create false hope for those who are really suffering from tinnitus and looking for a solution.

But hopefully, we're going to see some breakthroughs come through. And I thank you really for your dedication to this area of research over your entire career. And it continues. As you say, you're retired technically, but you're still consulting. And I appreciate the wealth of information that you've shared with us today.

So Dr. James Henry, thank you for being on SoundBites.

Dr. James Henry:

Happy to share with you today. Thank you.

Dr. Dave Fabry:

My pleasure.

And for our listeners, if you found this topic of interest, whether you're a patient or a provider, please like us, share it with your friends, your network, those people who are struggling with tinnitus. Send us your ideas for future topics at soundbites@starkey.com.

Until then, we'll hear and look forward to seeing you again very soon. Thank you.