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Tinnitus Demystified: A Look at Starkey's Options

Presenter: Jacob Hall

All right, welcome and thanks for attending today's session called Tinnitus Demystified A Look at Starkey's Options and my name is Jay Halland I'm a member of the education and training team at Starkey. And today I'm excited to discuss what Starkey has, as you know, some resources in a toolbox for helping manage your patients with tinnitus. And while the scope of today isn't to be an extensive course on tinnitus, but rather to provide you with a set of tools from Starkey, go over how to utilize these in your treatment plans and then go over some updates on our available options that we offer here at Starkey.

So before we get started we want to go over a few frequently asked questions for today's webinar and there is a Q and A feature and you can ask your questions there. So please type them in as we go throughout and at the end we'll address those and then also the handout is posted in the chat as a PDF for your resource, so you're free to download that as well.

And then from attending today's session there are CEUs available through AO with a paid membership pending passing a multiple choice exam and this course is good for 0.5 CEUs. So after you complete the course today, go to your Pending Courses section of Audiology online, pass the five question exam and then you'll earn your CEUs. Additionally, if you have any technical difficulties or issues throughout, please feel free to either Hallaudiology online at 800-753-2160 or email audiologyonline@customerexperiencecontinued.com and new for 2025. These are the risk and benefit associated with this course and these are going to be applicable to all audiology courses as well.

So jumping into the material, let's take a look at the learner objectives for today's course. So when we complete today's course, first you should be able to discuss what patient controls are available for tinnitus in the My Starkey app. Second, you should be able to discuss how to adjust tinnitus controls in our Profit fitting software. And third, we want to be able to describe the sound therapy stimulus options available from Starkey.

So some people pronounce it tinnitus, some say tinnitis and it's kind of the potato potato case. But regardless of how you pronounce it, tinnitus is indeed something that as hearing healthcare professionals that we are going to encounter and indeed be working with. Tinnitus is defined as a Symptom characterized by the perception of sound in the absence of an external stimulus.

And as hearing healthcare professionals, even if we do not specialize in tinnitus, indeed it is something that we will all encounter within clinical practice, as it is one of the most common health conditions in the United States. The American Academy of otolaryngology found that 1 in 10 Americans experience some form of tinnitus. And the NIDCD estimates that approximately 2 million Americans experience debilitating tinnitus. So it is, you know, within our scope of practice and something that we will indeed encounter in our daily practices as hearing healthcare professionals. So it's good to be aware of some different options on how to address these patients concerns when they do come to your clinic.

Now, there's a few different ways of classifying tinnitus, objective and subjective. And these are typically broken down by if they can be heard by the clinician or not. So starting with objective tinnitus, objective tinnitus is a tinnitus that can be perceived or heard by someone else in addition to the patient. So typically you can detect a sound simply by standing next to the patient using a stethoscope or maybe even a microscope to record the sound being emitted from the ear canal. The source of this type of tinnitus is internal and is often a result of things such as a muscle spasm or a vascular problem, such as a tumor in the middle ear space.

Now, it is noted that objective tinnitus is really rare and it actually accounts for less than 1% of the tinnitus cases. Now, the most common form of tinnitus is subjective tinnitus. So this term refers to tinnitus that can only be heard by the patient. So subjective tinnitus can arise from several different health conditions, say, involving the head or neck or other related systems. And in other cases, the cause of subjective tinnitus is really unknown.

And because we know that subjective tinnitus is rather broad, it actually encompasses 99% of those tinnitus cases. And there's additional classifiers on how subjective tinnitus can be broken down, such as primary and secondary tinnitus identifiers.

So every tinnitus patient really experiences tinnitus differently. So it's extremely important to have a specialized plan in place for each patient so that you can help manage their tinnitus in a way that is best for them. And while today we're going to focus on sound therapy options for tinnitus, it's good to be aware that there's numerous other techniques for tinnitus management. And these can include things such as behavioral, medical, prosthetic, or pharmacological treatments. And it is also noted that cognitive behavioral therapy, or CBT, is the only treatment that has really been thoroughly researched.

And CBT is based on the perception of tinnitus and determines the impact on a patient's well being and lifestyle. And like other treatments, CBT or. Yeah, CBT does not eliminate tinnitus, but it does restructure the patient's reaction to it. So today we're going to go more over the sound therapy options. But having this knowledge is good as you start seeing patients with tinnitus coming in.

So sound therapy uses habituation to teach the brain to take unwanted sound, like their tinnitus, and reclassify it to something else that is not as important. And it really involves the use of external noise in order to alter a patient's perception of or reaction to that tinnitus. So, like other tinnitus treatment options, sound therapies do not cure the condition, but they may significantly lower that perceived burden and the intensity of tinnitus that a patient is experiencing.

So there's actually four different categories of sound therapy options, starting with masking. This is going to expose a patient to an external noise at a loud enough volume that it either partially or completely covers the sound of the tinnitus. And here we can hear an example of a masking sound.

The second type is called distraction, and this is using an external sound to divert a patient's attention from the sound of tinnitus. And it may sound something like this.

So there you can hear that white noise kind of with a stream sound. In addition, the third type is habituation. And this is helping a patient's brain reclassify tinnitus as something that is unimportant sound. And it can be, you know, consciously ignored. And it may sound something like this.

So that's more of that stream type of sound. And the fourth type is neuromodulation. And this uses specialized sounds to minimize that neural hyperactivity thought to be that underlying cause of the tinnitus. And it may sound something like this.

So while there's many different types of sounds, there's also many different types of sound therapy devices, such as portable maskers, sound masking devices, also hearing aids with onboard maskers, also notched music devices. And these are going to use the theory of notching, which is giving white noise at all frequencies, except where that tinnitus is utilized to suppress that underlying neural activity, which can potentially inhibit a patient's Tinnitus. There's also a variety of different sound generator and sleep apps that can help a patient relax, meditate, or even help that patient fall asleep. And there's different ways that these can be delivered. Sometimes it's even through things such as a sleep sound pillow.

So many different options when working with your tinnitus patients.

Now, there are many different masker options built into hearing aids. And it's noted that each company really has their own philosophy on how to best manage tinnitus with that onboard masker. And today I'm going to discuss Starkey's multiflex tinnitus pro option later in my talk. But I do want to mention here that tinnitus maskers within a hearing aid usually provide additional masking types of sounds below that patient's tinnitus level to help potentially cover up that patient's tinnitus.

We're going to take a look at some research studies here, but acoustic therapy really involves that sound stimulation from amplification of external sounds or the generation of an additional sound. And this is commonly referred to as a tinnitus massacre or tinnitus stimulus. And tinnitus maskers are commonly set to a level below the level of that tinnitus so that the tinnitus is partially covered up. But looking at this research study here, for this study, participants completed an eight week field trial wearing hearing aids that had three different tinnitus master options programmed into them.

Now, in this study, they were provided multiple masker options and they were able to use those at their discretion to achieve relief from their tinnitus. Now, this study was comprised of 26 individuals with hearing loss. They completed an eight week field trial wearing hearing aids, providing acoustic therapy with those three different masking options set just below the minimum masking level. And here in the results, you can see that after going through the tinnitus treatment plan, patients reported a significant reduction in their tinnitus symptoms and on average, 34% of the time the participants spent using that masker. Now, how they measured this was the Tinnitus Handicap inventory was used as a baseline before starting that acoustic therapy, and then it was used post treatment to measure the patient's tinnitus handicap.

And the results of the tinnitus Handicap Inventory here show a significant reduction after the eight week trial compared to the baseline. So it does show that this was an effective solution for patients experiencing tinnitus.

And I really like this analogy, but we know that tinnitus will probably never completely go away for most patients. But by utilizing appropriate treatments, what we can hope is that Tinnitus is no longer going to be the primary focus. So an analogy that we can use here to conceptualize the world would be lighting the candle in a really well lit room versus lighting the candle in a dark lit room. And here we can see that the flame of that candle is very bright in this dark room, but once we move it to a well lit room, you can

see that that flame becomes less noticeable, less bright. So, in essence, Tinnitus is most notable when there's no other environmental sounds around and, you know, as you start talking to tinnitus patients, indeed, some of the most common situations where they notice the most challenges and difficulty is, say, in a quiet room when they're trying to focus on tasks or, or maybe even difficulty while trying to fall asleep.

So now let's take a closer look at Starkey's onboard Tinnitus management options. And our Multiflex Tinnitus Pro is Starkey's solution for Tinnitus. So Multiflex Tinnitus Pro is available on all styles of our Genesis AI devices, our Signature Series, and our latest Edge AI devices. So all these devices feature three different white noise stimulus options that are going to vary by technology tier. And we'll take a closer look at those specifics here.

And after we examine the white noise options, we're going to take a look at some new color options that are going to be exclusive to the Signature series and our latest Edge AI devices.

So to utilize the Multiflex Tinnitus Pro, what we're going to do is we're going to open out the flyout menu within the Profit fitting software and select Tinnitus. It's also noted too, that if you're used to our previous fitting software in Spire, you can indeed pin this sidebar, this fly out menu. So it's always available for you. Then what we want to do is we want to select the stimulus we wish to use, and no matter which stimulus we choose, we can adjust out to about 10,000 kilohertz and we can use 16 different bands of adjustability with that. So what's nice about this Tinnitus feature is that you can enable the Tinnitus feature on a per memory basis.

So if a patient only wants to hear the Tinnitus at night, you could add it into their program too. For example, another option for the Multiflex Tinnitus Pro is that you can add additional stimulus to each program and shape each one of those differently if needed. So really, this is giving you a lot of ability and flexibility to address the patient's needs and kind of experiment with it and find the optimal sound

for helping manage their tinnitus.

So the stimuli you see here are all based on the same audiogram. And it's really just showing that there's three different stimulus options available for your patients when looking at the white noise options. So our white noise is available on all tech tiers and styles, and it's going to be based on the pure tone average. Now our audiogram shape noise is going to be available on all styles on our top three tech tiers. And then our custom stimuli is available for all styles on the top two tech tiers.

And it really is providing a personalized stimulus solution with greater degree of precision using the audiogram and considering personal preferences and perceptions of the patient.

Another adjustment we have available in our profit fit software is the tilt control. And with this we can click that left arrow and this is going to increase the low frequency output while decreasing the high frequency output to create a signal with greater low frequency emphasis. And the opposite, by clicking that right arrow, you're going to increase that high frequency output while decreasing that low frequency output. And this is going to create a signal with more high frequency emphasis. So one of the primary advantages of having this tilt control is to quickly shape that tinnitus stimulus masking option in a way that is consistent with different noise colors.

So like brown or pink noise. And that can help kind of resemble different soothing sounds that you may find in nature by choosing a different colored type of noise.

And then what we can see in this graph is after five clicks, you can see the stimulus change in either direction where that original response is going to be highlighted by that yellow line in the graph.

Now, the maskers I'm showing here are based on an audiogram of a flat 40dB loss. And we've started with a white noise stimulus, so we can use that tilt control to try to approximate different noise colors.

And noise colors are characterized by a change in intensity relative to frequency. So an example of this would be a change of 6dB per octave for both brown and purple noise. And the tilt control within profit can really help quickly determine that general shape of the noise.

And then we can use the tinnitus fine tuning tool to further refine the frequency response of the masker to achieve the patient's preference.

And we also offer the ability for professionals to enable modulation. And this is going to change the frequency and amplitude level of the signal over time. So modulation does default to off, but when enabled, it offers three different Speeds. And this feature provides you and your patient with additional options for customizing that setting of the multiflex tinnitus technology based on the patient's needs and preferences. It's also noted that modulation can be enabled in the My Starkey app, which we're going to discuss here shortly.

Now, our white noise signal is based on a patient's PTA or their pure tone average, and it's going to provide equal energy distribution across frequencies with a flat response. Now, sometimes this can result in certain segments of that stimulus being too loud or too soft. But also, you know, with the white noise tinnitus masker, the patient's vent interactions are accounted for, and it gives you control as the provider to adjust that stimulus within profit.

Taking a look at our audiogram shaped stimulus, it's going to use a patient's hearing loss looking at their entire audiogram to shape that stimulus appropriately. Now, this eliminates the possibility that the signal is either going to be too loud or too soft in certain frequency regions. And it's going to be calculated based on a per channel basis, considering their hearing loss as well as the coupling utilized in the devices.

And then the third type is our custom. And this really gives you the ability to create a custom stimulus. And it's a great option for, for patients who perhaps tried other stimulus and have not achieved satisfactory results. So another tool in your toolbox for you when you're working with your patients and to use the custom stimulus option, we're actually going to use two different psychoacoustic measures which include the minimum detection level and the minimum masking level. Now, the minimum detection level and minimum masking levels are going to provide a personalized shape to that sound of the tinnitus stimulus.

And really, the goal of creating that custom stimulus using the minimum masking and minimum detection levels is to quickly design a noise that can effectively and efficiently mask a patient's tinnitus. It makes sense that it effectively masks the tinnitus. Only those frequency bands that are effective at masking tinnitus will be included in that final stimulus that you're providing to the patient. And the level of the stimulus in these bands should be no greater than needed to achieve proper masking. So let's take a look at how to run through this custom stimulus wizard and show how easy and efficient it is to build the stimulus for your patients.

So we choose in the options the custom tinnitus masking option. And this is gonna launch a toolbox where you're gonna complete both the minimum detection level and minimum Masking level test. Now, the goal of the minimum detection level is to identify that softest detectable level using our multiflex tinnitus stimulus. While the goal of the minimum masking level is to identify the softest level required to either just notice or mask the tinnitus, depending on your, your management approach of choice.

So here you're going to see the different active frequency region you're testing in purple, and there's going to be instructions provided for the test that you're currently performing. And then you're going to be able to access the stimulus controls there to adjust as needed throughout that testing procedure. So it really does walk you through how to do this.

Now, the minimum masking level and minimum detection levels will be obtained for three different frequency regions, including low, which is going to be from 150 to 1300 hertz, mids, which is from 1900 to 3100 hertz and highs from 38 to 94 kilohertz.

So for the minimum detection level, it's similar to finding that threshold for an audiogram. And the professional is going to present the stimulus to the patient through their hearing aids and adjust up and down using those arrows to either increase or decrease that stimulus for those frequency regions. When we do this, it's actually going to mute the microphones on the hearing aid when we're obtaining this measure.

Then, for the minimum masking level, the goal here is to find that softest level required to just notice or mask that tinnitus. And to do this, they're going to increase that stimulus level for each one of those frequency bands until that level of masking is achieved. And once the wizard is complete, Profit is going to calculate the difference there between the minimum masking and minimum detection level, and it's going to create that custom stimulus for you. So for frequency bands where that difference is really small, it indicates efficient and effective masking. And those bands are going to be kept.

Now, those bands where there's a larger difference between those two are going to be excluded from that final masker. And again, the stimulus personalization tool here, it only takes a few minutes, and it's much less time consuming than some of those conventional measures that we utilize in clinics, such as pitch matching.

And then once a tinnitus stimulus is programmed, a clinician can enable tinnitus volume user controls and change the range of adjustability that a patient has.

And then another thing to note here is you can create multiple tinnitus programs for your patient, which may be useful for a patient whose tinnitus or hearing loss does indeed fluctuate.

So to recap those white noise options, the multiflex Tinnitus Pro is going to be available on all styles of Genesis Signature Series and our latest Edge AI devices. And all these devices feature three different white noise stimulus options and they're going to vary by tier of technology. But indeed, we know that every patient is unique and has really individual needs and preferences. So with the spirit of continued innovation, we did expand our tinnitus management options by providing some different colored noise options. And these are going to be exclusive to our Signature series and Edge AI devices.

So let's take a look at those.

So we're happy to introduce three new low frequency weighted options which are going to include ocean noise, pink noise and red noise. We can see in the graphs how those are shaped.

Now, in addition to the low frequency weighted options, we also introduced two high high frequency weighted options as well, which include blue noise and purple noise, illustrated here in the graphs.

And then this graph shows the breakdown of the technology tiered style differences where those different tinnitus masking options are available. So these new tinnitus masking options are indeed not available for Genesis AI devices. But the white noise, audiogram and custom masking options will continue to follow the existing tiering options and that's going to be available for Edge AI Signature series and Genesis AI devices.

Now taking a look at the My Starkey app, which is the control app for Genesis AI and Edge AI devices. And we know that even though we can program, you know, different tinnitus masking options in our software, some patients like having that additional control and they're able to do that with the My Starkey app. So when you give a patient a tinnitus masker within their hearing aids, it does open up this tinnitus control within the My Starkey app. And here patients can adjust the volume and modulation rate

of that masker to give them that relief that they are looking for.

Another option for tinnitus patients is the use of our Relax app. And this is the app that's free for both Apple and Android and it's going to provide informational resources and it's really a self management tool for patients and it can be used alongside, you know, your already existing Tinnitus protocol. But let's take a look at what this app offers.

So Relax is going to give users 12 unique different relief sounds and it's going to provide a comprehensive tinnitus education and self management tools. So Relax is also going to allow them to create new and customized relief sounds. And as we can see here in the images, they're really kind of partnered with a soothing image. And this is really to change that perception of tinnitus over time. Additionally, you can modify the volume modulation frequency response of these to really create a custom tinnitus sound.

And another great feature of this too is the timer. So a lot of patients will utilize this when trying to fall asleep.

And then as we close out today's session. But you know, I'm sure that you're aware, having worked with tinnitus patients, that really none of those patients experience it differently. And our tinnitus management solutions really need to be personalized for every patient. And I really like this quote, but it says the quickest way to ruin a customer experience in healthcare is to treat everyone the same. Patients don't want to feel like a number.

They really want that personalized service that helps them find the right solutions. And I think this is really what helps us set us apart as hearing healthcare professionals.

So there's an extensive list of resources. These are some of the most common ones. But the American Tinnitus association has a wealth of information available for you and there's all the links here that you can access. Some great other resources on tinnitus.

Additionally, Starkey has a lot of resources available on starkeypro.com so we have quick tips, we have a handbook going over the multiflex tinnitus technology, and then there's different resources for your patients.

Additionally on Starkey Pro, we do have white papers that are looking at different studies that we've conducted using our multiflex Tinnitus Pro as well as our Relax app. So lots of good resources for you there. But wanted to thank everybody today for attending today's session. And hopefully after going through this, you'll have a little bit more comfort when a patient comes in with tinnitus and how to use different tools that Starkey has to offer in terms of managing your patients tinnitus. So thank you again for attending and if there's any questions, please feel free to reach out to your Starkey field representative for more information.

Thank you.