



# Transforming Tinnitus Through Mind-Body Medicine

## Case Study in Integrative Tinnitus Treatment Using Mind-Body Skills Development

By Sara Downs, AuD

**Being one of a handful of tinnitus** specialists in the Midwest region of the United States, I often see people who have been struggling with tinnitus for many years and have tried numerous treatment modalities without success. Most of the individuals who travel great distances to see me have complicated cases and have been referred to me by colleagues who have done their best to help patients whose progress has plateaued.

Many individuals have already been fit with amplification, have tried at least one form of sound therapy, and are working with a behavioral health therapist at home—all recommended practices to ease tinnitus distress. However, when taking a very thorough

case history, it becomes evident that, although a patient was provided the individual tools of amplification, sound therapy, and mental health counseling, such as cognitive behavioral therapy (CBT), the patient does not adequately understand how to harness the tools to successfully manage their tinnitus. It is at this intersection that an integrative approach can help an individual push past the plateau and into successful tinnitus management.

In the case study that follows, I outline how integration of amplification, sound therapy, and mind-body skills helps a patient, whom I refer to as Michael, move into stage 4 habituation, when tinnitus is no longer an issue. This integrative approach helped Michael shift into habituation within six months after

years of suffering. The case also illustrates how a multidisciplinary team collaborated to provide exceptional care.

### Case History

Michael had non-bothersome tinnitus for several years. After a bout of upper respiratory illness, he developed acute intrusive tinnitus.

Initially, he was seen by his primary care physician and otolaryngologist (ENT physician). Because of the intensity of his experience and the accompanying anxiety and depression, he was referred to a psychiatrist for CBT and medical management. He was prescribed medications for sleep, anxiety, and depression.

Michael's psychiatrist referred him to our clinic when he was not

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making adequate progress or finding meaningful relief from his tinnitus. At the intake appointment, Michael had not slept well for several weeks. His spouse reported that he was constantly agitated, could not sit still, and could only sleep an hour or two at a time. He experienced suicidal ideation. He kept a color-coded calendar of tinnitus symptoms, showing most days colored in red, meaning a “bad tinnitus day.”

## Assessment

Michael’s baseline score on the Tinnitus Reaction Questionnaire (TRQ) was 89, on a scale of 104, indicating severe tinnitus reaction.<sup>1</sup> He had mild-moderate high-frequency sensorineural hearing loss that was untreated.

His self-reported tinnitus habituation stage was 1, indicating no substantive habituation to tinnitus. The four stages of habituation, which were proposed by British psychologist Richard Hallam in 1989, offer a clinically useful tool for helping patients understand the habituation process and outcomes they can expect as their tinnitus becomes less intrusive.

Pitch and loudness matching, minimum masking level, and residual inhibition were also measured.

## Treatment Plan

Demystification: Michael was counseled about the neurophysiological mechanisms of tinnitus and how the nervous system responds to unknown input. Utilizing both Pawel Jastreboff’s neurophysiological model, which is part of Tinnitus Retraining Therapy (TRT), and Stephen Porges’s polyvagal theory, I explained to Michael how his body is responding to tinnitus, which is a novel auditory experience that is activating his stress response, making it hard for him to habituate naturally.<sup>2,3</sup>

It is helpful for many individuals to understand that their stress response to tinnitus can be considered a protective mechanism, meaning that their nervous system is doing exactly what it is intended to do when it detects something unknown. Once it’s understood that tinnitus can be a natural byproduct of hearing loss, or a symptom of something else, it can

help to ease the stress response from an intellectual perspective.

However, according to Porges, the evaluation of danger or safety—called neuroception—is a subconscious process through which the nervous system evaluates levels of safety, danger, or threat in the environment; it’s reflexive.<sup>4</sup> So, understanding that tinnitus is a neutral sound must also be learned at the physiological level so the body stops responding defensively. This shift can be facilitated by incorporating mind-body skills into a sound therapy protocol.

## Amplification and Sound Therapy

Michael was fit with combination hearing aids, using real ear measures to ensure accurate programming. The sound generators in the devices were optimized for his tinnitus, and soothing nature sounds that incorporated fractal tones were selected. Most importantly, he found the sounds to be relaxing when set to the volume just below the tinnitus loudness, thereby ensuring both sounds were heard simultaneously.

## Active Sound Therapy Protocol

Over the course of 20 years, I’ve developed an active sound therapy protocol that incorporates a customized TRT treatment plan while integrating mind-body medicine approaches, in which I was certified about 10 years ago.

Michael learned to identify his body’s cues (interoception) when his sympathetic (threat) response was being triggered by his tinnitus. Conscious of his body’s response, he

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understood when he should utilize sound therapy to diffuse the state.

He began each session with breathing techniques designed to induce relaxation. By repeatedly and consistently pairing sound therapy and breathing practice, Michael was engaged in classical conditioning to help the nervous system recognize tinnitus as a neutral sound, thereby facilitating habituation. It is important to note that once patients can induce relaxation through targeted breathing practice, they can choose to leave the sound therapy on or turn it off.

### **Additional Considerations**

Michael had struggled with sleep for more than a month. Together, we crafted an evening wind-down routine, which included a sound therapy app on his smartphone that played over a Bluetooth speaker, paired with progressive muscle relaxation.

He continued taking medications under the direction of his psychiatrist. We also discussed the value of continuing to journal about his tinnitus symptoms, since, as an analytical person, the process gave him a sense of control. To ensure that journaling didn't trigger a stress response, he agreed to only record his reaction and coping progress once daily at the end of the day, as opposed to recording

the quality of his tinnitus. Michael continued seeing his psychiatrist twice a month during his tinnitus treatment program.

### **Two-Week Follow-Up**

Michael reported some improvement in his reaction to tinnitus while utilizing sound therapy. But he needed to play the sound continuously to sustain relief. He also expressed dislike of the breathing exercises because he felt too agitated and doubted the efficacy. This became an experiential learning opportunity. I did an in-office biofeedback session with Michael, using a thermistor on his fingertip, breathwork, and autogenic phrases, which are self-suggestion statements that can be said out loud or silently to induce a state of relaxation and self-regulation.<sup>5</sup>

At the end of the session, he saw that the temperature of his fingertip had risen, which is a physiological relaxation response. To address Michael's complaint of feeling too agitated to "sit and relax," I recommended that he do something physical prior to sound therapy. He opted to walk and jump up and down to release nervous energy, making it easier to engage a relaxation response while doing a sound therapy session. We did some exercises together

before he began his sound therapy session so he understood how easy it was. He agreed to incorporate these mind-body techniques over the next few weeks at home.

### **Six-Week Follow-Up**

Michael reported that he had successfully incorporated the movement and breathwork into his sound therapy sessions, and that he was able to feel the relaxation response following the sessions.

His TRQ score was 42, down from 89 at baseline. He said he was sleeping more consistently and walking outside daily, often after noticing he was struggling to relax. He said he felt he was at 1.5 in the four stages of habituation, meaning he was more able to tune out his tinnitus while engaged in activities.

On the basis of that progress, we added an attention-shifting exercise in which he tuned in to his tinnitus and then turned his attention to something else, such as a sound in the environment or a physical sensation. Directed attention enabled Michael to observe how his tinnitus perception changed depending on where he focused his attention. We concluded the session with a commitment to add directed attention training to his daily protocol.

### **Twelve-Week Follow-Up**

Three months into his treatment, Michael walked into his appointment looking well rested and cheerful. He was excited to share his color-coded calendar, which had gone from red-colored "hard" days to lots of days of yellow, indicating that even when



tinnitus was present, he felt able to cope by drawing on his new skills.

On days he perceived his tinnitus to be louder or needed more than one mind-body tool to induce a relaxation response, he added a red line to the yellow day. He had gone from having solid red days to having mostly yellow days or days with just a little red line for a spike he could handle, and even some white days with stars when he wasn't conscious of his tinnitus.

His TRQ score was 21, down another 21 points from the six-week follow-up and down 68 points from baseline. He continued to journal and noted he felt that he was a 3.5 in the four stages of habituation. Considering his progress and the four-hour commute to my office, Michael said he felt ready to move to the maintenance phase of treatment, which meant he felt confident to manage on his own. I assured him that I would be available via telehealth if something changed.

## Six-Month Follow-Up

Michael's TRQ was 0, and he reported feeling fully habituated to tinnitus. He continues to be seen for routine hearing aid maintenance and annual tests but is no longer bothered by his tinnitus. He no longer takes medication for sleep and anxiety.

## Discussion

Michael's case is not unique in my practice. Although many patients come to my clinic having tried various interventions, it is the integrative mind-body approach that moves them into effective habituation. Every patient in our practice is taught the active sound therapy protocol, which is customized to each individual as they progress through the process of learning to manage tinnitus distress to full habituation. Individuals experiencing intrusive tinnitus are responsible, with guidance from the clinician as needed, for following the protocol to achieve the desired outcome of habituation to the sound. The clinician serves as

a compassionate guide through the process.

In Michael's case, we utilized the top-down approaches of demystification counseling, reframing of thoughts, and attention exercises. We also addressed his hearing loss with amplification and added sound therapy for tinnitus relief. The mind-body techniques of breathwork, movement, and biofeedback provided synergistic bottom-up approaches to achieve a relaxation response that facilitated habituation of reaction with intermittent habituation of perception. Michael learned how to monitor physiological cues of distress and use sound therapy and mind-body tools to induce a relaxation response needed to support habituation.

At his most recent hearing aid visit, I asked him to recount the tinnitus treatment from his perspective. "I was a wreck when I first came in. I wasn't sleeping, couldn't eat. I was desperate for help. I circled the day on the calendar when we met because it [the tinnitus treatment] saved my life," he



said. "Once I started hearing better and learned how to use the sounds with the breathing, it kept getting better and better to the point that most days I don't even hear it." He noted that he still has spikes in the sound but that it no longer fazes him because he knows how to handle it and that the initial negative feeling will pass. "Now I don't even think about it. I'm just living my life and that's really good." 🌈



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*the American Tinnitus Association Board of Directors, and served as ATA's interim executive director from June 2023 to May 2024. In addition to being Board Certified in Audiology, she is also certified in Mind-Body Medicine and in providing the Safe and Sound Protocol.*

*When Dr. Downs is off the clock, you'll likely find her in the garden, on a mountain bike, or cheering her kids on at a sporting event.*

#### Reference

1. P. H. Wilson, J. Henry, M. Bowen, & G. Haralambous. (1991). Tinnitus Reaction Questionnaire: Psychometric properties of a measure of distress associated with tinnitus. *Journal of Speech, Language, and Hearing Research, 34*(1), 197–201.
2. P. Jastreboff. (2011). Tinnitus Retraining Therapy. In A. R. Møller, B. Langguth, D. Ridder, & T. Kleinjung (Eds.), *Textbook of Tinnitus* (pp. 575–596). Springer.
3. S. W. Porges. (2011). *The polyvagal theory: Neurophysiological foundations of emotions, attachment, communication, and self-regulation*. W. W. Norton.
4. S. W. Porges. (2022). "Polyvagal theory: A science of safety." *Frontiers in Integrative Neuroscience, 16*(2022). <https://doi.org/10.3389/fnint.2022.871227>
5. D. Breznoscakova, M. Kovanicova, E. Sedlakova, & M. Pallayova. (2023). Autogenic training in mental disorders: What can we expect? *International Journal of Environmental Research in Public Health, 20*(5), 4344. <https://doi.org/10.3390/ijerph20054344>

## Harnessing the Power of the Mind for Better Health

The term mind-body medicine (MBM) refers to a group of modalities, including biofeedback, yoga, meditation, hypnosis, and guided imagery, that focus on the interactions between the mind, body, and behavior and how these interactions effect physical and mental well-being. MBM integrates conventional medical practices with evidence-based approaches that address psychological, emotional, social, and spiritual health.

By utilizing the mind-body connection, healthcare providers working with tinnitus patients can enhance treatment outcomes, improve patient satisfaction, and foster holistic well-being. Patients, on the other hand, can take a more proactive role in managing their tinnitus and overall health, which can reduce stress and anxiety, and improve quality of life by fostering coping skills, improving mood, and providing outlets for greater social engagement.

Key components of mind-body techniques include:

- **Mindfulness, meditation, and relaxation exercises, including breathing practices**, are to manage stress and reduce patterns of reactivity that undermine mental and physical health.
- **Cognitive behavioral techniques** to shift negative thought patterns and behaviors that contribute to health problems, including anxiety and depression.
- **Biofeedback**, which uses noninvasive electronic monitoring devices, to increase awareness and control over physiological functions, such as heart rate, respiration rate, and blood pressure.
- **Yoga and Tai Chi**, which combine physical movement, breathing exercises, and meditation, to improve physical and mental health with sustained practice.
- **Hypnotherapy**, which uses guided relaxation and focused attention, to achieve a heightened state of awareness and suggestibility to alleviate symptoms, distress, or negative behaviors.
- **Creative arts therapy**, which uses art, music, and other creative outlets, to express emotions and enhance mental health.
- **Spiritual practices** that incorporate religious or spiritual beliefs to foster a sense of meaning and purpose in life.