Tinnitus in a Time of Chaos
Calming the Mind

Finding Mental Health Support

Tinnitus Treatment Online

Creating a Caring Community

Apps for Managing Stress and Anxiety

Visit & Learn More About Tinnitus at ATA.org
ATA thrives through the dedication of a vast number of people, all of whom make a difference.

Join the Jack Vernon Legacy Society

Jack Vernon co-founded ATA in 1971 to lead the way in researching a cure, developing effective treatments, and creating broad-based support and awareness of tinnitus.

ATA invites individuals and organizations to join our journey. How can you contribute?

♥ Monthly or annual financial contributions
♥ Name ATA in your trust or estate
♥ Ask ATA to create a Tribute Page in memory of a loved one
♥ Convert stock and/or real estate into a unitrust
♥ Gifts of stock
♥ Gifts of real estate
♥ Deferred gift annuities
♥ Donations to ATA in lieu of flowers in memory of a loved one

We hope you’ll be a part of the legacy of securing silence for those with tinnitus through a variety of treatments, as well as finding a cure for the millions who endure incessant noise and anxiety.

For more information about adding ATA as a beneficiary or ways to reduce your taxes through charitable contributions, please contact Torryn Brazell, ATA’s Executive Director, via email at: legacy@ata.org
# Table of Contents

## SPECIAL FEATURES

1. **A Variety of Therapy Options Offer Hope for Coping With Tinnitus**
2. **Launching Internet-based Tinnitus Care**
3. **Does Tinnitus Bother You? It Might Be Time to Join or Form a Support Group**

## SCIENCE & RESEARCH NEWS

1. **Using Machine Learning to Predict Outcomes for Multimodal Tinnitus Treatment**
2. **Assessing Hyperacusis in Tinnitus Patients Using a Less Painful Approach**
3. **The Correlation Between Glaucoma and Tinnitus**

## PERSONAL STORIES

1. **Tinnitus Took Trudy From Perfect Health to Thoughts of Suicide**
2. **How Mindfulness Helped Me Create Peace With My Tinnitus**
3. **Hearing Aids Can Enhance Hearing, Enrich Lives and Well-Being**

## TINNITUS TOOLS & RESOURCES

1. **Making Sense of Titles and Specialties of Mental Health Professionals**
2. **Apps for Calming the Mind**
3. **Qualifying for Disability Benefits with Hearing Loss and/or Tinnitus**
4. **Journalist’s Odyssey Begins With Tinnitus**
5. **Support Group Locations**
6. **Spotlight on Patient Providers**

## YOUR HEALTH

1. **Questions on Tinnitus Sound Management**
2. **Limitations of Medications for Tinnitus: Things to Consider**

## YOUR HEALTH

1. **Understanding Speech in Noisy Backgrounds With Normal Hearing**
2. **Better Imaging Device for Investigating Tinnitus**

## ATA NEWS

1. **Christopher Cederroth Receives Prestigious Award**
2. **The ATA and BTA Bring Together Leading Tinnitus Researchers**
Meaningful Support is Available and Can Change Lives

We know our thoughts, perceptions, and behaviors influence our general sense of well-being as well as our immune system. But when it comes to tinnitus, it’s difficult to predict how the condition will impact someone because each person responds differently to the intrusion of this unwanted sound.

We don’t yet understand why 80 percent of people with tinnitus aren’t particularly bothered by it, while 20 percent find it disruptive, even incapacitating. Among the latter group, tinnitus typically interferes with sleep and concentration, which can have a negative ripple effect on work, socializing, and one’s mental health. Left untreated, those negative stressors can trigger or exacerbate anxiety and depression.

In some cases, tinnitus is so disruptive a person may question whether life with tinnitus is worth living. My message here is don’t give up hope. I have met so many people who have gone from extreme lows brought on by tinnitus to living with tinnitus without feeling particularly burdened by it. Things can and do get better with help!

In recent years, the tinnitus research community has turned its attention to examining the effect of tinnitus on quality of life as opposed to such things as tinnitus pitch and loudness. That shift is significant because the perception of tinnitus — even when it’s loud — may or may not bother someone; hence, the impact on quality of life is the central issue.

While the percentage of people severely impacted by tinnitus is relatively small, it is a huge and an unacceptable number, in my mind, because help is available. Tools for managing tinnitus exist and many skilled healthcare providers, including tinnitus-trained audiologists and mental health professionals, are capable of understanding the emotional distress caused by tinnitus and helping patients work through it.

We at the ATA are also here to help, so if you or someone you know is struggling with tinnitus, please reach out to us via email at tinnitus@ata.org or telephone at 1-800-634-8978.

Jill Meltzer, AuD
Chair, Board of Directors
The ATA Will Never Tell You to Just Get Used to Tinnitus

Tinnitus can be debilitating and finding people who grasp its negative effects can be hard. This can leave a person feeling alone and boxed in by constant sound. No one should feel that way. But how do you find help if everyone you’ve spoken to — from your family physician, friends, and family to your ENT doctor — has said “You’ll just have to get used to it”?

When the ATA says we’re here to help you that means we will share credible information on treatments and tools for tinnitus management and point you in the right direction for utilizing healthcare resources in your local community. We will never tell you to get used to it!

Tinnitus that upends your life by taking away your ability to sleep well, concentrate, socialize with friends, and relax isn’t something to “get used to.” It’s something that affects your mental and physical health, which can further contribute to a downward cycle in quality of life.

In this issue, you’ll discover a growing network of mental health professionals and tinnitus-trained audiologists who are available to help you work through the anxiety, stress, and depression that can accompany tinnitus.

If an audiologist who assesses your hearing and tinnitus believes you need more support working through the emotional turmoil of intrusive tinnitus, he/she can and should refer you to a therapist. If your circumstances prevent you from seeing a therapist, there are resources. You can get help online and through such tools as teletherapy, which allow you to access help from the comfort of your own home and on your schedule. The point is help is more readily available today than ever before.

Please reach out for help today by utilizing resources outlined in this issue.
On an early August morning in Massachusetts, the symphony of sounds from the wetlands was momentarily on pause as the crickets and frogs fell silent, and the birds had yet to wake. In that blissful lull, Lynn G. smiled, feeling grateful for the vast expanse of nature right outside her door. “I never imagined that morning would be the last day I’d enjoy the serenity of silence,” she said, recalling how tinnitus upended her life just 24 hours later. “It raised my anxiety through the roof,” she said, and set into motion countless consultations with doctors and specialists in her search for answers to why it started and how to turn it off.

“All I did was focus on the tinnitus,” Lynn said, remembering how she was unable to leave the house and unable to imagine how she’d get through another day engulfed by the noise in her head. She felt a ray of hope when she learned there was a tinnitus specialist at Massachusetts General Hospital. That hope, however, was quashed when she was told the earliest available appointment was four months later. Gripped by anxiety, unable to sleep, and rapidly losing weight, Lynn knew she needed help immediately, so she booked an appointment with a clinical social worker she knew socially and hoped for the best.

“Ann didn’t know about tinnitus, but she understood anxiety,” Lynn said. “My weekly appointments in those early months [after developing tinnitus] were the only times I felt at ease.” By the time her appointment with Massachusetts General came around, she said she felt like a different person. “I was in a much better place,” she said. “I worked really hard to get to that point — it was not easy — and my therapist worked to understand more about tinnitus.” Had Lynn fixated on only working with a tinnitus specialist in those early weeks, her journey to restore a sense of control over her life and the tinnitus would likely have taken longer. Had her distress been more manageable, working with an audiologist might have been an option. The four-month wait to see a tinnitus specialist...

“Therapy cannot change the level of tinnitus, but it can change the level of anxiety, stress, and depression.”
specialist might have even been acceptable.

Cognitive behavioral therapy (CBT) has the most research evidence for treating the functional and emotional effects of tinnitus. However, finding a behavioral health therapist who specializes in CBT and who also understands tinnitus can be hard, even in large cities. Many of these therapists, however, have CBT training and can teach skills to cope with tinnitus.

According to James Henry, PhD and tinnitus researcher at the National Center for Rehabilitative Auditory Research and professor at Oregon Health & Science University, audiologists can teach some of the skills that are part of CBT, such as relaxation training, but providing CBT per se would be outside of their scope of practice without proper training and supervision. He said, “Audiologists have minimal, if any, training in counseling techniques, and being qualified as a CBT provider requires basic counseling skills plus specific CBT skills.”

David Kelley, PhD and clinical psychologist in New York City, has spent nearly 40 years matching patients with therapists best suited to meet their needs through his company Kenwood Psychological Services. He agrees that someone struggling with tinnitus shouldn’t be overly focused on finding a therapist who understands tinnitus, but rather on finding a therapist who has a strong track record working with patients experiencing stress, anxiety, and depression. “These are very common problems today,” he says. “And tinnitus is not that difficult to understand,” Kelley said, adding that he’s had tinnitus since childhood. “Therapy cannot change the level of tinnitus, but it can change the level of anxiety, stress, and depression.”

Kelley also noted that while CBT is a well-validated tool for helping people cope with tinnitus, it isn’t always the best therapeutic intervention for every patient. “Where does the stress, anxiety, and depression come from? If a person had anxiety before they developed tinnitus, then that particular person may need more [than CBT],” he says. “If anxiety is causing stress that [amplifies] tinnitus, CBT will have a limited effect.” In such cases, he said, analytical therapy would help a person address the underlying causes of anxiety and/or depression. Once root causes have been addressed, the emotions tied to tinnitus can be tackled.

Elaine Hess, PhD and clinical psychologist at Baylor College of Medicine where she provides therapy to patients coping with a variety of health issues, said, “Tinnitus is so challenging, because it’s a sensory experience that you can’t escape, similar to chronic pain.” Hess has worked with tinnitus patients and observed that the greatest challenge for many people is learning to live with a new normal while recognizing that you can manage your response to tinnitus but may not be able to eliminate or reduce the sound. “I think the fact that there is no cure for tinnitus — only therapies to manage its impact — can make it particularly challenging for people,” she noted. “Our medical system, while incredible for many acute illnesses, struggles to help people with chronic conditions with no known cure.” Because tinnitus can disrupt concentration, sleep, and the ability to do basic day-to-day tasks, Hess said getting help early is critical.

So, how do you find the “right” therapist?

As noted in Lynn’s case, the right therapist can make the difference between making progress and living a diminished life plagued by emotional suffering. But how does one determine whether a therapist is a good fit?

Satisfaction with a therapist is a very personal matter, because it entails delving into difficult emotions while the therapist offers guidance, understanding, and tools for coping. Kelley emphasized that because therapy is a two-way process, it’s important that patients feel a connection with their therapist and believe he/she is smart enough to help, well trained, authentic, and ethical.

For an initial evaluation, you should expect to describe:
• the problems and stress in your life,
• your feelings about those situations, and
• key people in your support system.

Together with your therapist, you should develop a treatment plan that has clear goals and expectations for outcomes. “Sometimes one session is all that is needed to resolve something. Sometimes it takes much longer,” Kelley shared, explaining that timelines for improving aren’t always helpful. Nonetheless, research shows that approximately 50 percent of patients with emotional issues show improvement after eight sessions of therapy and 75 percent show improvement after six months of therapy, according to the American Psychological Association.

Since therapy cannot change tinnitus, acknowledging that the goal of therapy is to work through the emotional impact of tinnitus and lessen its perceived presence and influence in daily life is key. Hess said that even if someone is unable to “accept” tinnitus, therapy can be extremely helpful. “Therapists are trained to help people who are at different stages of the change process. Even if you are continuing to seek answers and treatment options for your tinnitus, a therapist can help you manage the stress and distress that can come along with that. Also, therapists can help you explore how you can live a meaningful life despite living through this stressor.”

Basic questions to ask yourself when considering therapists include:
• Do you feel a rapport with the therapist?
• Does he/she have the right temperament for you?
• Does he/she seem to understand the issues associated with tinnitus?
• Is the office location manageable?
• Can you afford it? (Check insurance coverage and availability of lower fees based on income)

Your primary care physician can be a good place to start when looking for a therapist, because he/she can assess your symptoms and make a referral to a mental health professional. Other resources include asking for a referral from your audiologist, family and friends, your place of worship, or using internet search tools, such as www.psychologytoday.com or professional organizations’ directories (see sidebar), to locate nearby therapists.

To sort through options, call or email to inquire about the therapist’s licensure, level of experience, participation in insurance plans, and fees (some practitioners use a sliding scale based on income). Many therapists will speak with prospective clients over the phone, which can

Professional Resources for Finding Therapists
The National Institute of Mental Health (NIMH) suggests using the following professional organizations’ directories or the locators on their websites for help finding mental healthcare practitioners. Many state psychological associations also have referral services for individuals seeking mental health support.

Note: This list is not comprehensive and does not constitute an endorsement by NIMH or the ATA

• Academy of Cognitive and Behavioral Therapies (https://www.academyofct.org/search/custom.asp?id=4410)
• American Psychiatric Association (http://finder.psychiatry.org/)
• American Psychological Association (https://locator.apa.org)
• Association for Behavioral and Cognitive Therapies (http://www.findcbt.org/FAT/)
• National Register of Health Service Psychologists (https://www.findapsychologist.org/)
• Society of Clinical Psychology (https://www.div12.org/therapist-search/)

National advocacy organizations that have information on finding mental health professionals on their websites include the following:
• Anxiety and Depression Association of America (https://members.adaa.org/page/FATMain)
• Depression and Bipolar Support Alliance (https://www.dbsalliance.org/)
• Mental Health America (https://arc.mhanational.org/find-an-affiliate)
• National Alliance on Mental Illness (https://www.nami.org/Find-Support/NAMI-HelpLine#crisis)
be helpful in making a decision to proceed with an appointment. If the therapist seems like a good fit, schedule an appointment to discuss therapy options and expectations.

If you’re in therapy and feel you are not improving, talk to your therapist. You might decide to work with someone else or to try a different type of therapy.

Can’t see someone in person?

Not everyone is able to access mental health services in person, because of location, work hours, or medical/physical conditions that limit mobility. Fortunately, there’s been a steady uptick in telepsychology, which is sometimes called web therapy, phone therapy, or online therapy. “Telehealth therapy has been found to be just as effective as in-person therapy. However, telehealth is not for everyone, so it’s important to discuss with your therapist if telehealth is a fit for your specific concerns,” according to Hess.

Telehealth also has been shown to work in providing tinnitus relief, as researchers at the National Center for Rehabilitative Auditory Research found in 2018. They conducted a randomized controlled clinical trial with 205 participants who had bothersome tinnitus to test the efficacy of telehealth therapy using Progressive Tinnitus Management, which included CBT.1 Results of the study provided strong support for the method, which enables therapy to be provided to far more individuals than in traditional clinical settings.

Major draws of internet-based therapy, as noted in the research article on using the internet to offer cognitive behavior therapy (iCBT) for tinnitus on page 14, are convenience and affordability. Online therapy can be done from the comfort of one’s home and can be far less expensive than in-person therapy, depending on the subscription services. For younger adults who grew up using technology to communicate, online options can be easier than face-to-face discussions about challenging topics.

The American Psychology Association recommends that anyone interested in pursuing teletherapy should confirm the following:

- Is it the right tool for the issue you’re trying to resolve?
- Is the therapist licensed? Therapist and psychotherapist are not legally protected words in every state, meaning anyone can claim to be a therapist. Confirm the state where your therapist is licensed (a therapist must be licensed in your state to provide you with therapy), the therapist’s license number, and his/her areas of expertise.
- Is the site or app secure? Verify that it is HIPAA-compliant and able to verify both your identity and the identity of your therapist. This is to ensure that your identity is protected.
- How are services paid for? Many insurance plans cover treatment for mental health in a clinical setting, but do not cover online therapy.

To locate therapists offering telehealth services, Hess suggested using the Psychology Today directory — www.psychologytoday.com. “You can do an ‘Advanced Search’ and select providers who do ‘online therapy’ and this will give you a list of individuals who offer this service.”

Seeking help for coping with tinnitus can be extraordinarily hard when you’re barely managing to get through the day. If you can’t muster the strength to find a therapist on your own, ask your family physician for help or reach out to sympathetic family and friends who can make calls for you.

If you’re on your own, call the ATA to speak with one of our tinnitus advisors, who offer 15-minute consultations on managing tinnitus and how to locate resources in your local community. This free service is intended to provide meaningful guidance to people struggling with tinnitus by outlining free or inexpensive tools for tinnitus relief, what to expect when seeing specialists, tinnitus treatment options, and tips on advocating for oneself.

“We know how hard it is to find substantive help for tinnitus, so the ATA wants to ensure that anyone burdened by tinnitus knows that there are many options for managing it and finding relief,” Jill Meltzer, AuD and chair of the ATA’s board of directors shared. “No one should ever feel alone in their tinnitus journey, and the ATA is here to ensure that you don’t.”

Making Sense of Titles and Specialties of Mental Health Professionals

By Joy Onozuka

An individual with bothersome tinnitus may be best served by working with an audiologist trained in tinnitus management while seeing a mental health professional for additional help to cope with the negative emotional effects of the condition.

There are tinnitus-trained audiologists who provide counseling for tinnitus distress through programs such as tinnitus retraining therapy, tinnitus activities treatment, and Progressive Tinnitus Management. However, when emotional distress is interfering with the patient’s ability to function, an audiologist should refer a patient to a mental health practitioner for more in-depth and targeted counseling.

Mental health practitioners include psychiatrists, psychologists, psychiatric nurse psychotherapists, social workers, and psychotherapists/counselors. Oftentimes, mental health practitioners work together, such as when a psychiatrist prescribes medication and another professional provides psychotherapy.

Here’s an overview of the types of mental health professionals and what types of treatment they provide:

**Psychiatrists** are medical doctors who can provide medical and psychiatric evaluations, diagnose psychiatric conditions, manage medical issues, and provide psychotherapy. Many primarily oversee psychopharmacotherapy, which refers to the use of medications to treat psychiatric conditions for patients. Psychiatrists often collaborate with other healthcare practitioners to provide the best medical care.

*Training:* MD or DO (Doctor of Osteopathy) degree, with at least four years of special training in psychiatry.

**Psychologists** provide psychological evaluations and diagnostic testing as well as therapy in various settings. They provide psychotherapy to work through mental health issues. They cannot prescribe medications.

*Training:* A doctorate (PhD, PsyD, or EdD) in clinical, educational, counseling, or research psychology. Complete postgraduate training and a nonmedical doctoral program.

**Psychiatric/Mental Health Nurse Practitioner (PMHNP)** can evaluate and diagnose mental health disorders, provide psychotherapy, and, in some states, prescribe medication under supervision of a psychiatrist.

*Training:* Master of Science in Nursing (MSN) or Doctor of Nursing (DNP) degree, with additional mental health education.

**Psychiatric/Mental Health Nurse** may be able to assess mental illness, provide psychotherapy, or prescribe medication under the supervision of a psychiatrist, depending on the education level of the nurse and the state he/she is located.

*Training:* Associate’s degree (RN), bachelor’s degree (BSN), master’s degree (MSN or APRN), or doctoral degree (DNSc, PhD).

**Clinical Social Workers** help clients understand their own inner strengths and build upon them so that individuals can successfully overcome challenges. Clinical social workers assess, treat, and evaluate individual, interpersonal, and societal problems through the use of social work knowledge, skills, and strategies. They typically work in multidisciplinary teams with health and education professionals. Professional social workers are the largest group of mental healthcare service providers. They cannot prescribe medication.

*Training:* A master’s degree (MA, MS, MSW) or doctoral degree (DSW, PhD).
**Definition**

Licensed Professional Counselors/Therapists can assess mental health conditions and provide psychotherapy or counseling to individuals and families or in group therapy in a variety of settings and specialties. They come from a variety of backgrounds and are licensed by individual states.

**Training:** A master’s degree (MA or MS) in psychology, counseling, or a related mental health field. Typically have two years of supervised postgraduate experience.

Pastoral Counselors, such as ministers, priests, rabbis, or imams, can provide individual and group counseling.

**Training:** Clinical pastoral education. Some states require clergy members to be licensed to provide counseling.

Peer Specialists are counselors who have experienced mental health issues or substance use disorders. They help clients with recovery by helping them to recognize and develop strengths and set goals.

**Training:** Certification varies by state. Peer support programs often require several hours of training.

Other Therapists, such as art therapists and music therapists, have advanced degree training in specialized forms of therapy that can be helpful for exploring and resolving emotional distress.

---

**Medical Disclaimer**

The content in *Tinnitus Today* magazine is intended to provide helpful health information for the general public. It is made available with the understanding that the American Tinnitus Association (ATA) is not engaged in rendering medical, health, psychological, or any other kind of personal professional services. The magazine content should not be considered complete and, therefore, does not cover all physical conditions or their treatment as it relates to tinnitus and tinnitus management.

The ATA always recommends that you consult and work with a medical, health, or other competent professional, when considering the best course of tinnitus management. This begins with a medical examination to rule out possible underlying medical causes for tinnitus. If you’re interested in adopting guidance/suggestions made in the magazine, you should discuss this first with your medical provider before doing so.

Any information about drugs and supplements contained in the magazine are general in nature, and does not cover all possible uses, actions, precautions, side effects, or interactions of the medicines mentioned. The content of the magazine is not intended as medical advice for individual problems or for making an evaluation for pursuing a particular course of action.

The ATA and authors of articles in the magazine specifically disclaim all responsibility for any liability, loss, or risk, personal or otherwise, which is incurred as a consequence, directly or indirectly, of the use and application of any of the content in the magazine.
Apps for Calming the Mind

Few people would argue that an app can take the place of a well-trained therapist who understands a patient’s challenges and goals. However, apps are wonderful tools to augment therapy, foster habits that promote greater awareness of mood and breathing, and reduce the negative impact of tinnitus on sleep, concentration, and anxiety. The list below represents a limited selection of apps used for mental health support and tinnitus relief. Some are free, and others have fees that vary depending upon the subscription. Normally, a trial period allows you to test an app to see whether it meets your needs and expectations.

**MoodKit | ThrivePort, LLC | $4.99; iOS**
MoodKit draws on cognitive behavioral therapy (CBT) and provides users with more than 200 mood improvement activities. Two clinical psychologists developed it to help you learn how to change how you think, develop self-awareness, and cultivate healthy attitudes. Its journal feature enables you to practice self-care by reflecting on the day, noting any troubling thoughts and how you overcame them.

**Self-Help for Anxiety Management (SAM) | University of the West of England | Free; iOS and Android**
Self-Help for Anxiety Management (SAM) may appeal to those who are interested in self-help but don’t like meditation. Users build their own 24-hour anxiety toolkit, which enables tracking anxious thoughts and behavior over time. The app teaches 25 different self-help techniques. You can also use SAM’s Social Cloud feature to connect confidentially with other users in an online community for peer support.

**CBT Thought Record Diary | Eddie Liu | Free; iOS and Android**
CBT Thought Record Diary is used to document negative emotions, analyze flaws in thinking, and reevaluate thoughts more neutrally, reflecting the process of using cognitive behavioral therapy to change emotions and distorted thinking patterns. It can be used for gradually changing your approach to tinnitus and anxiety and altering thinking patterns about future situations.

**iMoodJournal | Inexika Inc. | $2.99; iOS and Android**
iMoodJournal can be used to record everything from mood and symptoms to sleep and medications, making it part personal journal and part mood tracker. By tracking various factors, users can analyze daily feelings through summary charts that indicate where stress levels rise and fall.

**Breathe2Relax | National Center for Telehealth & Technology | Free; iOS and Android**
The National Center for Telehealth and Technology created Breathe2Relax to help users learn to breathe and remind themselves to relax. The stress management tool teaches users a skill called diaphragmatic breathing, which can help decrease the body’s fight-or-flight stress response.

**Headspace | Headspace Inc. | $12.99/Month or $9.99/Year for students; iOS and Android**
The Headspace app aims to help users develop mindfulness and meditation skills by using the app a few minutes per day. It has hundreds of meditations on everything from stress and anxiety to sleep and concentration. It also has a daily reminder to encourage practice, which can be helpful when getting started.

**Calm | Calm Radio | $12.99/Month; iOS and Android**
Apple named Calm the 2017 iPhone App of the Year. Calm is well regarded by tinnitus-trained audiologists and therapists for use by their patients struggling with stress, anxiety, and difficulties sleeping. It offers guided meditations, sleep stories, breathing programs, and relaxing music, making it useful for a variety of situations and concerns.

The ATA does not endorse products or treatments. The list is intended only for informational purposes. If you are seeing a therapist and/or audiologist for tinnitus treatment, discuss which apps they recommend and why.
By Trudy Jacobson

Let me start off with a bang: Tinnitus made me feel suicidal.*

I have always been the happiest person on Earth: no health problems, great job, lovely husband, and cute dogs. As a retired medical writer from the University of Arizona College of Medicine, I was involved with my retirees and alumni groups. Everything was wonderful.

Although I have had tinnitus for 30 years, it was never a big problem; it would come and fade. I never sought help for it. That was until (and I’m not sure why) it spiked a few months ago and began to completely devastate my life.

In the course of a couple of weeks, I became a “sick” person. The loud unrelenting screaming in my ears made me so anxious I actually felt like I was losing my mind. It was like walking around with two police whistles blaring all day. I would get up at six on a beautiful Tucson morning, look at the clock, and wonder how I’d get through the next five minutes, much less the next hour, and much, much less the rest of my life.

I began — to my own shock — to feel suicidal and did hours of research on the easiest and most sure way of ending it all. Then every day I would delete my browser history so my husband would not panic in case he saw it. I found there is no surefire way, that most of the time it fails and you are in a much worse place; luckily, I abandoned the idea.

The fact that at 66 I was basically “healthy as a horse” actually depressed me! I felt like if I had to live the rest of my life with this, I simply could not.

After about a month of extremely bothersome tinnitus, I began having terrible anxiety. I would wake up from horrible nightmares, having hot and cold sweats, with my mind racing, and even thinking nonsensical thoughts with words put together that made no sense. It scared the daylights out of me. I went to the ER a few times, only to be given a benzo and sent home. If you are not seriously suicidal when they ask, or you don’t tell them you are, they just don’t deal with it. I even went for an evaluation at a psychiatric hospital and was told: You’re not bad enough. We can’t help you.

I had new, scary symptoms every day. This was very unlike me and horrifying. My husband tried to do everything, looking up ENTs, doing research, because I was too frozen in fear to do anything.

I finally went to my doctor and went on Effexor®, an antidepressant used for general anxiety and panic. The first couple of weeks were terrible — I got every side effect there was. Slowly, it began to improve. The doctor also had given me Adival™ for a couple months as a “bridge” until the meds kicked in. Those were lovely, but as you may know, benzodiazepines are harder to give up than anything.

Once I was off the benzos, I developed severe insomnia. I have always had trouble sleeping, even as a child, but it would not plague me for years at a time. Some people complain they can only sleep four hours a night; try getting no sleep for days (although, paradoxically, I wasn’t tired at all, but hyped up). This may have been from the Effexor® or withdrawal from the benzos.

I tried sleep medication and never again — it was agony. I was surprised to find out how many common

“All of a sudden, I loved crickets, as they matched the ringing and calmed it a bit.”

www.ATA.org
medications cause or worsen tinnitus! What’s a person to do? I figured out how to sleep with tinnitus with the help of soothing sound: a white noise machine situated next to my pillow. All of a sudden, I loved crickets, as they matched the ringing and calmed it a bit.

After further hours of research, I came to find out that hearing aids with tinnitus maskers are a thing now. I was elated. I found a wonderful audiologist, and I’m sure I drove her crazy. She was very sensitive and responsive to me. She said she could hear the panic in my voice the first time I called.

When I went to get the hearing aids, we discovered I did indeed have some hearing loss. Because many noises hurt my ears, I thought I had superwoman hearing, but discovered instead that it is called hyperacusis.

The hearing aids, maskers, and phone apps are great, but of course there are still bad days when you can’t mask it at all. I am still trying to habituate.

I looked feverishly for a support group in Tucson, but sadly, there was not one in the state of Arizona! With all the retirees and older people here, I couldn’t believe it.

Things turned around for me the day I decided to start a support group, and ATA staff were very encouraging to me. The name I came up with is TATS: Tucson Arizona Tinnitus Support Group.

My severe and quickly appearing tinnitus was terrible, but, when I took action for myself and others, I felt like I had transformed something devastating and horrible into a positive. That has helped me immensely.

I'm not here to say “I'm sure a cure will come, there are many treatments,” and so on. I am only saying: “You are not alone in the way you feel; millions of people feel the same way. Never give up.”

By being honest with ourselves and each other, we can help each other cope with this terrible affliction and attempt to live our lives the way we did before the Demon T. kicked us good and hard.

Are You or a Loved One in Crisis?

If you or a loved one are in crisis, call the toll-free National Suicide Prevention Lifeline (NSPL) at 1-800-273-TALK (8255), available 24 hours a day, 7 days a week.
The service is available to anyone. All calls are confidential.

Additional Resources

- National Suicide Prevention Lifeline (https://suicidepreventionlifeline.org/)
- Veterans Crisis Line (https://www.veteranscrisisline.net/get-help/chat)
- National Action Alliance for Suicide Prevention (https://theactionalliance.org/)
- Take 5 To Save Lives (https://www.take5tosavelives.org/)
Depression can emerge for someone struggling with the various stresses brought on by tinnitus, which disrupts sleep, concentration, and the sense of well-being, and can create anxiety about the future. Within that context, a person may experience a fundamental shift in mood and mindset that feels overwhelmingly negative. This might include feelings of sadness, shame, anger, anxiety, and create the inability to find pleasure in everyday activities.

Getting help for depression early is critical to recalibrate thoughts, particularly since depression can make tinnitus treatment/management more challenging. Like tinnitus, no two people are affected the same way by depression, so treatment is customized for each individual. While some trial and error in determining what works best may occur, typically depression is treated with psychotherapy and medications.

As outlined by the National Institute of Mental Health, if you’re experiencing some of the following signs and symptoms most of the day, nearly every day, for at least two weeks, you may be suffering from depression:

- Persistent sad, anxious, or “empty” mood
- Feelings of hopelessness or pessimism
- Irritability
- Feelings of guilt, worthlessness, or helplessness
- Loss of interest or pleasure in hobbies and activities
- Decreased energy or fatigue
- Moving or talking more slowly
- Feeling restless or having trouble sitting still
- Difficulty concentrating, remembering, or making decisions
- Difficulty sleeping, early-morning awakening, or oversleeping
- Appetite and/or weight changes
- Thoughts of death or suicide, or suicide attempts*
- Aches or pains, headaches, cramps, or digestive problems without a clear physical cause and/or that do not ease even with treatment

What’s Your Story?

Everyone’s tinnitus is somewhat different, which is why sharing your story is important. If your tinnitus was caused by temporomandibular joint, or TMJ, issue, we’d like to hear more about what happened. We’re also seeking stories related to diet and/or exercise and how that helps you manage your tinnitus, as well as use of personal sound amplification products. Please send your story or story idea to editor@ata.org by May 15 for possible publication. We’re happy to work with you on developing/polishing your story, so don’t hesitate to share how tinnitus has affected you. Suggested word length is between 500 and 1000 words.

Share Your Story
How can there be so many unanswered questions after so many doctor’s appointments?

Launching Internet-based Tinnitus Care

By Eldré Beukes, PhD, and Vinaya Manchaiah, AuD, MBA, PhD

One Patient’s Journey

The journey people with tinnitus undertake in their search for help and cures is often long and by no means straightforward. A typical tinnitus patient goes to various appointments, including primary care visits, referrals for diagnosis-focused secondary care, and hearing evaluations. Often, people feel their appointments with healthcare providers fail to provide meaningful help, even when suggestions for management are made. That’s partly because research-based evidence showing efficacy for various management options is lacking. Because tinnitus has no cure at this time and is seldom linked to an underlying medical problem, the patient’s journey often culminates in frustration and disillusionment: How can there be so many unanswered questions after so many doctor’s appointments?

The tinnitus treatments showing the greatest efficacy are psychological therapies, such as cognitive behavioral therapy (CBT), and these are often not offered to people with tinnitus.1,2 If they are provided, it’s generally much farther down the road in the patient journey, when patients are skeptical and cynical after having already tried many other options.3

More effective early interventions could be provided for patients to reduce the negative effects of tinnitus, inevitably leading to more clinically and cost-effective tinnitus treatments. To address this need, internet-based CBT (iCBT) was developed and adapted for the tinnitus community in the United States.4 What sets this intervention apart is that a trained tinnitus management professional provides individuals with personal and individualized support as they work their way through online modules. Patients are, therefore, guided during the intervention and encouraged along the way with regular messages about their progress. Those undertaking the intervention are supported and need not work through the program alone.

Testing iCBT for tinnitus in Sweden, Germany, and the United Kingdom revealed promising results.5,6 What we do not know yet is whether this iCBT model of care suits the needs of the tinnitus community in the United States. We have implemented a trial tailored to Americans to determine whether internet-based tinnitus care could yield positive results on par with what we found in Europe. This article explores one U.S. patient’s journey.

Robert’s Story

Robert woke up one morning hearing a deafening ringing and roaring sound, which terrified him and upended his entire life. He was initially prescribed medication to help him sleep despite the noise. Later, he was prescribed pain medication for the ensuing headaches that were triggered by the loud tinnitus. He was then referred for diagnostic testing,
which led to an appointment with an audiologist who found some hearing loss. Robert declined to get hearing aids, because he didn’t believe that the hearing loss was causing communication difficulties. The audiologist suggested that he register for an online study investigating the usefulness of iCBT for decreasing tinnitus distress. Robert registered for the study reluctantly. He doubted that he would find it helpful, because nothing he had done in more than two years had helped.

His involvement with the study began with a comprehensive online assessment, which confirmed that he heard a complex presentation of different sounds. His tinnitus was causing a range of problems, including difficulty sleeping, concentrating, hearing conversations, and tolerating sound, all of which made him irritable and unable to participate in activities that he had previously enjoyed. He found himself withdrawing from family outings, such as school concerts, in venues where noise exposure might make his tinnitus worse. Hence, his tinnitus was negatively impacting not only him, but also the quality of his family life.

**Internet-based Self-Help**

The internet-based intervention Robert took part in was comprehensive, consisting of approximately 20 modules provided in sets of two to three each week over eight weeks. The intervention aimed to promote his understanding and acceptance of tinnitus and empower Robert to manage his tinnitus independently. Because tinnitus affects individuals differently, the intervention can be tailored specifically to the patient’s areas of difficulty. For instance, individuals can select optional modules related to difficulty with sleeping, concentrating, and sound sensitivity.

A range of techniques is provided, including progressive relaxation, thought restructuring, and CBT strategies such as reinterpreting the tinnitus or using positive imagery. The intervention accommodates different learning styles. Written information is supplemented with demonstrations, videos, and diagrams that explain techniques (Figure 1). Interactive features, such as quizzes, are included to promote engagement. To help monitor progress, an online journal is provided. Robert took notes on daily practices and gauged how effective they were in reducing the negative impact of tinnitus on his daily life.

**Robert’s Thoughts on iCBT**

Robert: *The modules were well structured in terms of developing techniques and understanding in*
tandem and building on each other. I liked going back and checking if I could find something else new there that I didn’t see the first time around. I found the relaxation techniques so informative. I realized that by being more relaxed, the tinnitus flares up less. The positive imagery and reinterpretation provided me with excellent results. Trying to look at my thought patterns from a different angle has also helped tremendously in many aspects of my life.

Therapeutic Support
Robert found the therapeutic support greatly beneficial. Initially, he had a 20-minute phone consultation with a tinnitus management professional who provided information about how to approach the program and the goals of the intervention. Realizing that there was an actual person interested in helping him convinced Robert to do the study. The email messaging system offered him the opportunity to ask questions and receive feedback from the healthcare professional assigned to him. His progress was monitored weekly using tinnitus questionnaires. Robert’s results show a gradual decline in the severity of his tinnitus over time, as shown in Figure 2.

Robert’s Thoughts on Therapeutic Support
Robert: The personal feedback I received, usually once or twice a week, was so encouraging. When I felt despondent, they kept me going. I liked the structure and regularity of the weekly questionnaires. They helped me focus and evaluate what I still needed to work on.

Post-treatment Outcomes
Robert’s intervention outcomes were carefully monitored. Improvements were seen in all areas, as shown in Table 1. Critically, Robert maintained these improvements one year after finishing the program, suggesting that he was still successfully using the tools he had learned. Many of the tools can be used anywhere, which was helpful for Robert, who traveled extensively. For instance, when he found himself becoming tense, he would draw on relaxation strategies to recalibrate his outlook.

Robert’s Thoughts on Recommending the Program
Robert: I always found appointments stressful, because I had to take so much time off from work. Doing the iCBT program at home minimized so much stress, which was something I hadn’t considered before starting. I could do it when I was traveling, at work, or basically anywhere, which was so convenient. I actually enjoyed doing it, to be quite honest. It was certainly the most useful thing I have done and the best option I tried. For me, the change was so positive.

Because clinical scores do not always relate to patient perceptions, we asked Robert about his experiences.

Robert: I would say that now — for the majority of the time — I’m not conscious of my tinnitus, even though it’s still there. It’s not controlling me like it used to. The game-changer was cultivating a different attitude and emotional reaction to the tinnitus. Today, I have a much more positive attitude, and the tinnitus doesn’t stop me from doing things anymore. I can attend events and have a wonderful time without constantly worrying like I used to. I have also formed new habits that will remain part of my daily routine.

Is Internet-based Care an Option in the United States?
Opening clinical pathways to effectively helping the estimated 26 million American adults with tinnitus is challenging. Although CBT can be an effective intervention, it is difficult for people with tinnitus to locate a therapist trained in CBT and familiar with tinnitus, even in urban areas. This is why internet-based tinnitus care offers real possibility.

Results from iCBT trials in Europe indicate that tinnitus distress and related problems, such as problems with sleeping, anxiety, and depression, can be improved.5,6 Most encouraging is that improvements are maintained over an extended period, suggesting that participants continue to draw on
the techniques for different areas of their lives. Participants who didn’t show much progress were generally people who were unable to commit time to doing the program.

When results from different studies are aggregated in a meta-analysis, the evidence indicates the potential of iCBT to reduce tinnitus distress and tinnitus-associated comorbidities. Most importantly, internet-based care was valued by individuals experiencing tinnitus and provided opportunities to deliver evidence-based care to tinnitus patients in a timely manner.

Because of limited access to CBT in the United States and the large number of people with tinnitus, iCBT could be a viable option. The iCBT trial here is currently ongoing and offered free of charge. For more information about iCBT for tinnitus studies or to register for a study, see the Tackling Tinnitus website at https://www.tacklingtinnitus.org.

Funding
This work was funded by the National Institute on Deafness and Communication Disorders (NIDCD) of the National Institutes of Health (NIH) under the award number R21DC017214.

Table 1: Robert’s Post-intervention Outcomes and One-Year Follow-up Outcomes

<table>
<thead>
<tr>
<th>Domain</th>
<th>Outcome measures</th>
<th>Range of scores</th>
<th>Pre-intervention score</th>
<th>Post-intervention score</th>
<th>One-year follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinnitus</td>
<td>Tinnitus Functional Index</td>
<td>0–100, &gt;25 = significant tinnitus</td>
<td>72</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Hearing disability</td>
<td>Hearing Handicap Inventory</td>
<td>0–40, &gt;10 = 50% probability of mild-moderate hearing impairment</td>
<td>14</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Generalized Anxiety Disorder Questionnaire</td>
<td>0–21, &gt;5 = mild anxiety</td>
<td>13</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Depression</td>
<td>Patient Health Questionnaire</td>
<td>0–28, &gt;5 = mild depression</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Insomnia Severity Index</td>
<td>0–28, &gt;8 = sub-threshold insomnia</td>
<td>18</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sound sensitivity</td>
<td>Hyperacusis questionnaire</td>
<td>0–42, &gt;28 = strong hypersensitivity</td>
<td>28</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Vinaya Manchaiah, AuD, MBA, PhD, is a Jo Mayo Endowed Professor of Speech and Hearing Sciences at the Department of Speech and Hearing Sciences at Lamar University, Beaumont, Texas. He received his BSc in India, his MSc from the University of Southampton, United Kingdom, and his PhD from Linköping University in Sweden. He has worked in various clinical, research, teaching, and administrative roles, although his current academic appointment centers predominantly on research. His research focuses on improving the accessibility, affordability, and outcomes of hearing loss and tinnitus by promoting self-management and use of digital technologies. He was awarded a grant from the National Institutes of Health to develop and investigate iCBT for tinnitus for patients living in the United States. He has published more than 100 peer-reviewed manuscripts and three books. He received the Bharat Samman Award from the NRI Institute in India in 2017 and was named a Jerger Future Leader of Audiology by the American Academy of Audiology in 2016.

Eldré Beukes, PhD, is a postdoctoral researcher at the Department of Speech and Hearing Sciences at Lamar University, Beaumont, Texas. She received her BSc in South Africa, her MSc in Audiology from the University of Manchester, and her PhD from Anglia Ruskin University, Cambridge, England. She is a clinical scientist in audiology and was awarded the Richard May Prize following her training. She received the Shapiro prize from the British Tinnitus Association for three consecutive years (2017, 2018, 2019) for her research and the Hallpike Research Prize (2019) from the British Association of Audiovestibular Physicians. Her research focus is the development and running of clinical trials to assess the effectiveness of internet-based interventions.


Using Machine Learning to Predict Outcomes for Multimodal Tinnitus Treatment

Summary by John A. Coverstone, AuD

The science of treating tinnitus continues to move forward, even if it sometimes seems that progress comes at a snail’s pace. This is because the scientific process is purposefully incremental and builds on itself. However, as we discover new treatment approaches, one part of the process is still missing. That missing piece is the ability to connect the results of diagnostic testing — or perhaps even the need for new and different diagnostic tests — with the most effective treatment options. As new and different treatment options become available, it will be ever more important for clinicians to selectively choose the best option for each patient.

A group out of Germany may be offering insight that will help this process.1 They used machine learning to perform an analysis of patients undergoing multimodal tinnitus therapy in a Berlin clinic, and the results were published in PLOS One earlier this year.

Their analysis included 1,416 patients seen for tinnitus complaints who were enrolled in a 7-day multimodal plan of treatment at Charité — Universitätsmedizin Berlin. Treatment consisted of cognitive behavioral therapy (CBT), physiotherapy (a discipline involving manipulation of the head, neck, and spine), and information counseling. Approximately 32 percent of patients reported bothersome tinnitus — called decompensated tinnitus — prior to treatment, and about 20 percent of patients continued to have decompensated tinnitus after treatment.

Each patient was given 10 questionnaires that included assessments of depression, tinnitus distress, tinnitus characteristics, stress, quality of life, and sociodemographics. From those questionnaires, the team was able to add an extra 205 data points for analysis from each of the 1,416 patients. Data points included single items on the questionnaires, subset scores, total questionnaire scores, and even time necessary to complete each questionnaire. Data was analyzed post-treatment and refined in multiple sequences of analysis. Each iteration was intended to refine the process and weed out nonpredictive items while targeting the smallest group of data points that accurately predicted post-treatment distress.

The authors ultimately identified 26 data points that most accurately predicted tinnitus distress after treatment. These data points varied widely in their scope, from specific items on the depression scale and tinnitus characteristics to level of education, physical health, stress, and amount of time taken to complete questionnaires. Notably, all of the questionnaires contributed data to the finalized group of predictive items. Of the questionnaires, the general depression score showed the strongest correlation with tinnitus distress before and after treatment. This correlates well with most tinnitus experts’ anecdotal observation that mental health is a key factor in bothersome tinnitus.

The predictive process identified by the authors is narrow in scope, because it was intended only to predict tinnitus distress after a specific multimodal treatment process. Further, this process resulted in a positive change for only 12 percent of the total population, or approximately 38 percent of those who initially had decompensated tinnitus. However, the authors have shown that prediction of outcomes is possible for patients with tinnitus and further such analyses may yield better decision-making tools for clinicians.

Does Tinnitus Bother You?
It Might Be Time to Join or Form a Support Group

By Trudy Jacobson, ATA’s Newest Support Group Leader

“It’s only a sound, just ignore it.”
“At least you don’t have cancer.”
“It’s not like it’s going to kill you.”

For those of us living with tinnitus, we hear these kinds of statements often from well-meaning people who advise us to just ignore it. If only it were that easy! People who do not experience this chronic condition have no idea what it is like to not be able to escape the constant 24/7 noise in our heads.

They are sympathetic — there’s no doubt about that — but they just can’t imagine how stressful and debilitating it can be. This is one reason I decided to start a local support group. I desperately needed to interact with people who understood how difficult life is with tinnitus. Just ignore it? Not possible.

Not being able to ignore the loud noises in their heads brought 35 people from southern Arizona to the inaugural meeting of the Tucson Arizona Tinnitus Support Group (TATS) in February 2020. Almost everyone commented on how grateful they felt to finally find a group of people who were in the same boat, who could completely understand what they were experiencing, who could relate to how difficult life often is with this condition, and who understood how much life changes when tinnitus arrives.

People who share distressing conditions such as tinnitus and hyperacusis — conditions that are generally not understood by people who do not experience them — can bond almost immediately. I have bonded with people I had only emailed and who I had not even met yet! Feeling understood by others who also are learning to deal with an unalterable condition goes a long way toward helping us cope. Sharing information and experiences also contributes to the search for well-being.

Although almost everyone in the group had tried many unproven methods that did not help, we unanimously decided that the two best avenues for relief were distraction and masking. None of us have been able to successfully habituate yet. We all agreed that the three worst triggers of spikes, as most of you have discovered on your own, were loud noises, ototoxic drugs, and stress.

Many of the participants relayed their frustrations about the fact that nobody in their lives could relate to what they were feeling. One woman, who had survived Stage 4 cancer (her doctors called her a miracle patient), developed tinnitus after chemotherapy (not surprisingly). She said she beat cancer and was “rewarded with this?” Her friends constantly asked her to go to movies because they thought getting out of the house would lift her spirits. When she said she could no longer go to movie theaters because of the loudness, everyone in the support group nodded. All of us had also given up going to the movies because even with earplugs, the noise is overwhelming. She shared with me after the meeting that she was elated to find people she could relate to and that it was definitely going to help her cope.

Several participants offered tips on what helped them, including meditation, hot baths, constant background sound, sound machines (including white-noise machines), hearing aids with maskers, ear muffs when vacuuming and using a blender, dramatically cutting down on salt and sugar intake, trying to stay calm and not get angry, and, unfortunately, giving up alcohol! We all moaned and said, “Oh, yes…”

Most of us have heard the concept of not fighting the noise but accepting it. The theory is that if

“I desperately needed to interact with people who understood how difficult life is with tinnitus. Just ignore it? Not possible.”
you can remove the fear and anxiety brought on by tinnitus and can relax about it, your brain will eventually realize that it is not a “real” danger and eventually tune it out as an unimportant and uninteresting noise, like a fan or refrigerator running in the background.

One man said, “I read that you should make the noise your friend. Well, when I wake up in the middle of the night with loud screaming going on in my head, that is no friend of mine!”

Very few people in the group were able to not pay attention to the noise and just go on with their lives. Everyone admitted, though, that when they got distracted or in times of deep concentration, they didn’t notice the noise. Every person there agreed that focusing on the tinnitus always made it worse.

A number of people with tinnitus feel isolated and alone. As with other challenges, we might feel that we are the only ones suffering to this degree. In addition, some people with hearing loss and hyperacusis might be reluctant to go places where people congregate.

Participating in a support group where you can meet and interact with other people who are trying to cope can help in many ways. The camaraderie and comfort you can get from others who understand can ease anxiety and a sense of isolation.

You can pick up tips from people who found relief from something they tried.

Sharing ideas that have been effective for you, which could help and inspire other people, is a good feeling and can help you cope, because you know you are contributing to others’ well-being.

Sharing your struggles and emotional distress with a group that understands because they live with the same condition can be beneficial, because it’s an authentic connection. The compassion is sincere. It’s a safe space to open up. For some people, it might be the first time they’ve talked openly about tinnitus or hyperacusis, because talking about the “sounds in your head” with someone who doesn’t get that can be embarrassing and deflating.

If there is no support group in your area, why don’t you start one? The process of creating a support group has helped me cope immensely because of the distraction, my improved mood from feeling good about myself, and the new friends I have made very quickly. Staff at the American Tinnitus Association can provide you with helpful tips and information, including a comprehensive support group manual. You would be making a difference in your life and the lives of many others!

To learn more about starting a support group, email tinnitus@ata.org, or contact Trudy at trudyj@cox.net to discuss how she began her group. The ATA supplies a one-time starter kit of materials for new groups, a manual on how to start and sustain a group, and email and website-listing services on upcoming meetings.
What Is an Audiologist?

Audiologists are hearing healthcare specialists who hold an Audiology Doctorate (AuD) degree, which is the current requirement, or a master’s degree in audiology, which was the previous requirement. Audiologists are distinguished from hearing instrument specialists (dispensers), the basic differences being education and scope of practice. Although state requirements differ, dispensers generally must have completed high school, passed a licensing exam, and completed on-the-job training. With respect to scope of practice, audiologists are trained to conduct diagnostic evaluations of the entire auditory system (outer ear to brain); dispensers are trained to conduct evaluations for the purpose of fitting (dispensing) hearing aids.

Because as many as 90 percent of people who experience chronic tinnitus also have hearing loss, a diagnostic hearing evaluation by an audiologist is recommended. If the person chooses to purchase hearing aids, both audiologists and dispensers are legally qualified to dispense hearing aids.

Are Audiologists Trained in Tinnitus Management Procedures?

Clinical management of tinnitus includes two basic components: assessment and intervention. Performing the diagnostic evaluation is the assessment phase of management. Audiologists are exceptionally well trained in performing diagnostic assessments of the auditory system. The intervention phase includes fitting hearing aids and administering any therapeutic procedures intended to reduce the personal impact of tinnitus.

Unfortunately for people with tinnitus, most audiologists do not receive comprehensive training in tinnitus management as part of their education. This lack of training seems rather inexplicable, given that 10 to 15 percent of all adults have tinnitus, but it is indeed the case. It should be acknowledged that some AuD programs provide excellent training in tinnitus management, but that is not the norm. Motivated audiologists typically seek tinnitus training from conference presentations, online courses, and multi-day training workshops. Because tinnitus management is not standardized, the type of training varies greatly. When individuals request tinnitus services from an audiologist, it is important for them to ask what kind of tinnitus training the audiologist acquired and what services that healthcare specialist offers.

Regardless of whether a particular audiologist specializes in tinnitus management, all audiologists have knowledge about tinnitus and can answer many patient questions.
Audiologists also know when a patient should be referred to an otolaryngologist (ear, nose, and throat physician — ENT) for a medical evaluation. Note that the American Academy of Otolaryngology — Head and Neck Surgery Foundation (AAO-HNSF) recommends that any person with tinnitus receive a medical evaluation by an otolaryngologist. This is best practice, although it may not be possible in some circumstances.

**Is the Tinnitus Problem Actually a Hearing Problem?**

It is obvious that a “hearing problem” refers to difficulty hearing, but a “tinnitus problem” is not so readily defined. It can be argued that the mere presence of tinnitus is a problem. The distinction of a “tinnitus problem” warranting intervention is that the tinnitus is bothersome.

Tinnitus is bothersome for about 20 percent of people who experience it, whereas 80 percent of people are not particularly bothered by their tinnitus.

How can tinnitus be bothersome? Sleep disturbance is the most common effect. Tinnitus can affect any task that requires concentration, such as reading and writing. Also, ample evidence shows that tinnitus is associated with depression and anxiety.

An audiologist’s primary concern when conducting a tinnitus evaluation is determining whether the tinnitus is indeed bothersome. It might seem that use of a tinnitus questionnaire would enable such a determination. After all, tinnitus questionnaires are designed to assess the impact of tinnitus on a person’s life. Here is the problem with tinnitus questionnaires: Many people who have both hearing difficulties and tinnitus blame the tinnitus for the hearing difficulties. When this occurs, questions such as “How much of a problem is your tinnitus?” can prompt a person to respond, “It’s a huge problem, because it affects my hearing.” Such a response actually indicates a hearing problem. The questionnaire score, however, suggests a tinnitus problem. This scenario illustrates why a tinnitus questionnaire is not recommended as part of the initial evaluation by an audiologist.

My research group has conducted more than a dozen clinical trials to evaluate methods of intervention for tinnitus. Such trials require participants who have bothersome tinnitus. When we conducted our first trial, we screened people over the telephone to determine whether they had bothersome tinnitus. If they complained that their tinnitus was very bothersome, we scheduled them for a full assessment in our lab. In many cases, the full assessment revealed that they were very bothered by their hearing problem and that they were blaming their tinnitus for the hearing problem. They did not need to be treated for tinnitus — they needed to be treated for hearing loss, usually with hearing aids. Therefore, they did not qualify for the study, and we spent many hours doing assessments that were unnecessary to recruit participants for our trial. We remedied this conundrum by developing a questionnaire called the Tinnitus and Hearing Survey (THS), which is explained in detail below. Our continued use of the THS, and its use by clinicians and other researchers, has led to this instrument being recommended as part of the audiologic assessment of patients who complain of tinnitus.

**Audiologic Assessment of Patients With Tinnitus**

Our recommended protocol for the audiologic assessment of patients with tinnitus has been published in detail. The protocol is technically the Level 2 Audiologic Evaluation part of the stepped-care method of Progressive Tinnitus Management. What follows is a brief description of that protocol.

As mentioned, up to 90 percent of people who experience chronic tinnitus have some degree of hearing loss. Because hearing loss tends only to get worse, it is critical that a person with tinnitus receive a...
hearing evaluation. For the person with tinnitus, the hearing evaluation is essentially the same as it is for the person without tinnitus.

A typical hearing evaluation includes pure-tone audiometry (finding the softest detectable level — the threshold — of hearing tones at different frequencies), speech audiometry (finding the threshold levels for detecting and understanding speech), and immittance audiometry (determining the condition of the eardrum and the middle-ear space behind the eardrum). Many other diagnostic tests can be performed, but pure-tone, speech, and immittance audiometry are the most basic tests to establish a person’s hearing function.

If the person also has tinnitus, then it is recommended they complete the THS in addition to the hearing evaluation. The 10-item THS includes three sections: A. Tinnitus; B. Hearing; and C. Sound Tolerance. (Please see Figure 1.)

**THS Section A: Tinnitus.** This section includes four items that describe typical tinnitus problems that would not be confused with hearing problems. Each item is rated as “not a problem,” “small problem,” “moderate problem,” “big problem,” and “very big problem” — with a respective score of 0 to 4. For example, the person may rate sleeping as a “big problem” because of the tinnitus (score = 3), concentration as a “very big problem” (score = 4), relaxation as a “moderate problem” (score = 2), and intrusiveness as a “big problem” (score = 3). The four scores are added and, in this case, the total score is 12. It can be safely concluded that this person has a significant problem with tinnitus.

**THS Section B: Hearing.** This section includes four items that describe typical hearing problems that would not be caused by a tinnitus problem. The four items address: hearing in a noisy background, understanding speech on TV and in movies, understanding people with soft voices, and understanding speech in group conversations. The items are worded to ensure the person is referring to effects specifically due to hearing problems and not tinnitus. As in the Tinnitus section, responses are rated from “not a problem” to “very big problem,” with scores of 0 to 4. As an example, the person may rate hearing in a noisy background as a “very big problem” (score = 4), understanding speech on TV and in movies as a “moderate problem” (score = 2), understanding people with soft voices as a “very big problem” (score = 4), and understanding speech in group conversations as a “big problem” (score = 3). The grand total for these four scores is 13. Clearly, this person has a significant hearing problem.

**THS Section C: Sound Tolerance.** This section is included because so many people with tinnitus also report a sound tolerance problem. The first of the two items in this section states that “sounds were too loud or uncomfortable for me when they seemed normal to others around me.” As in the Tinnitus and Hearing sections, response options are 0 to 4 (“no problem” to “very big problem”). Only if the response is 1 or more is the second item completed, which asks the person to “list two examples of sounds that are too loud or uncomfortable to you, but seem normal to others.” On the basis of the responses to these two items, along with some follow-up questioning, the astute audiologist will have a good idea of what kind of sound tolerance problem the person is experiencing and its degree of impact on the person’s life.

It is beyond the scope of this article to go into detail about the different kinds of sound-tolerance problems, but to summarize: Hyperacusis is...

“If the individual has a significant tinnitus problem, then hearing aids or combination instruments (hearing aids with a built-in sound generator) are generally the first option.”
physical discomfort or pain when any sound reaches a certain loudness. *Misophonia* refers to emotional reactions only to certain sounds, regardless of their loudness. *Noise sensitivity* refers to general discomfort (annoyance or feeling overwhelmed) due to a perceived noisy environment. These definitions are not consensual, and distinguishing among them is nuanced and not well understood by most audiologists.13

Whereas a sound tolerance problem is reported to commonly occur in people who have tinnitus, in the experience of most audiologists, such a problem is usually in the mild to moderate category, whereas very few patients have a severe sound tolerance problem. A mild to moderate sound tolerance problem would normally be treated with sound therapy (using procedures that desensitize the person to sound), which can double as sound therapy for bothersome tinnitus. A severe sound tolerance problem would normally be treated separately from tinnitus.14

**Tinnitus Problem? Hearing Problem? Or Both?**

Results from the THS and hearing assessment can help an audiologist determine whether the patient has a tinnitus problem, a hearing problem, or both problems. The above examples of responses to the THS Tinnitus and Hearing sections illustrate a person who has significant problems with both tinnitus and hearing. In contrast, a person who blames the tinnitus for a hearing problem would typically have a low score for the Tinnitus section and a high score for the Hearing section. People with essentially normal hearing who complain of bothersome tinnitus typically have a high score for the Tinnitus section and a low score for the Hearing section.

Note that the specific scores on the THS are less important than the ensuing discussion between clinician and patient to develop an understanding of what the scores mean and to inform decisions about any future services that might be considered. Audiologists should ask patients whether they desire intervention for the types of problems described in the Tinnitus section. If so, then tinnitus-specific intervention should be made available.

**Options for Tinnitus Therapy**

With the hearing assessment and THS results in hand, the audiologist and individual will discuss options. If the individual has a significant tinnitus problem, then hearing aids are generally the first option. Hearing aids have been shown in numerous trials to work as a form of sound therapy to reduce the emotional and functional effects of tinnitus.15–19 Although there is no research evidence that hearing aids that include a built-in sound generator are more effective than hearing aids that only provide amplification, a built-in sound generator gives the capability of delivering constant sound to the ears in a very controlled fashion. Every major hearing aid company offers hearing aids with built-in sound generators. Many hearing aids also offer the ability to “stream” sound from a smartphone to the aids, enabling sound therapy using any number of apps that are available for this purpose. The audiologist can explain the different features of hearing aids and streaming-capable hearing aids to enable patients to make informed decisions about the potential use of ear-level devices for tinnitus management.

If the person starts wearing ear-level devices, then it is suggested that the tinnitus problem be reassessed after one or two months of wearing the devices. The THS can be used again for this purpose, followed by a discussion with the audiologist to determine whether further therapy is needed. If so, it is strongly suggested that the patient learn about the various interventions available and the evidence that exists for each. Some sources for this information are listed in the references below.5,20–22

A resource for knowing what apps are available for sound therapy is provided by the American Tinnitus Association (https://www.ata.org/sites/default/files/SoundTherapy_Apps_Page.pdf). Interventions for bothersome tinnitus include tinnitus retraining therapy, cognitive behavioral therapy, and Progressive Tinnitus Management.23–25

Sound therapy always is an option for intervention, and countless free or low-cost apps can be downloaded onto a smartphone to accomplish this purpose.

Before a patient receives intervention for bothersome tinnitus, they should complete a questionnaire assessing tinnitus impact. The questionnaire should be validated for “responsiveness,” that is, for assessing changes in tinnitus impact resulting from intervention. The Tinnitus Functional Index (TFI) is validated for responsiveness and is recommended for this purpose.26 The patient should complete the baseline (pre-intervention)
TFI only after any hearing needs have been met and then complete it again following intervention. The desired result is a reduction in the TFI score, which would reflect a reduction in tinnitus impact.

It was explained above why a traditional tinnitus questionnaire, such as the TFI, is not recommended as part of the initial assessment. The point is that hearing problems and tinnitus problems tend to be conflated, which can artificially inflate the questionnaire score—exaggerating the degree to which tinnitus is a problem. Use of such a questionnaire is, however, an option to obtain additional information about how tinnitus impacts the individual. It can be very useful for this purpose provided there is awareness of the potential to blame the tinnitus for any hearing problems.

**Conclusion**

A protocol is recommended for audiologists to address the concerns of people who complain of tinnitus. This protocol is based on 25 years of continuous research, which has included numerous clinical trials. The essence of the protocol is to conduct a routine hearing evaluation, administer the THS, and fit hearing aids or combination instruments as needed. If tinnitus is bothersome following the assessment and use of ear-level devices, then various interventions are available. A tinnitus questionnaire, such as the TFI, should be administered both before and after intervention to assess for any changes in the emotional and functional effects of tinnitus.

---

**Figure 1: The Tinnitus and Hearing Survey (THS)**

The THS is recommended for use by audiologists when conducting an evaluation of a person who complains of tinnitus. The THS is unique, because it separates items that pertain specifically to tinnitus from those that pertain specifically to hearing problems. Use of the THS enables an accurate assessment of whether tinnitus is bothersome apart from any hearing problems that might otherwise be ascribed to the tinnitus. Section C includes two items to screen for a sound tolerance (usually hyperacusis) problem.

### A. Tinnitus

<table>
<thead>
<tr>
<th></th>
<th>No problem</th>
<th>Yes, a small problem</th>
<th>Yes, a moderate problem</th>
<th>Yes, a big problem</th>
<th>Yes, a very big problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the last week, tinnitus kept me from sleeping.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, tinnitus kept me from concentrating on reading.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, tinnitus kept me from relaxing.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, I couldn’t get my mind off of my tinnitus.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total**

Total of each column

### B. Hearing

<table>
<thead>
<tr>
<th></th>
<th>No problem</th>
<th>Yes, a small problem</th>
<th>Yes, a moderate problem</th>
<th>Yes, a big problem</th>
<th>Yes, a very big problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the last week, I couldn’t understand what others were saying in noisy or crowded places.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, I couldn’t understand what people were saying on TV or in movies.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, I couldn’t understand people with soft voices.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the last week, I couldn’t understand what was being said in group conversations.</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total**

Total of each column

### C. Sound Tolerance

<table>
<thead>
<tr>
<th></th>
<th>No problem</th>
<th>Yes, a small problem</th>
<th>Yes, a moderate problem</th>
<th>Yes, a big problem</th>
<th>Yes, a very big problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the last week, sounds were too loud or uncomfortable for me when they seemed normal to others around me.*</td>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If you responded 1, 2, 3, or 4 to the statement above:

Please list two examples of sounds that are too loud or uncomfortable for you, but seem normal to others:

*If sounds are too loud for you while wearing hearing aids, please tell your audiologist.

---

For office use only (II): [ ] M [ ] H [ ] N
Using the Tinnitus and Hearing Survey: Guide for Audiologists

By Tara Zaugg, AuD, and James Henry, PhD

Sections A and B
The four items in the A (Tinnitus) subscale describe common problems with tinnitus that are unrelated to hearing problems. The four items in the B (Hearing) subscale describe common hearing problems that would not be caused by tinnitus. Step-by-step instructions for using the THS to collaboratively determine if intervention for tinnitus is desirable and appropriate are provided below. With the patient’s filled-out THS in view:

1. Explain that intervention for tinnitus can help with the problems in Section A.
2. Explain that intervention for tinnitus would not help with any of the problems listed in Section B.
3. Describe what would be required to engage in the tinnitus intervention that is offered (logistics, cost, etc.).
4. Be available to answer questions or concerns about the tinnitus intervention that is offered, or about tinnitus in general.
5. Allow the patient to decide whether or not to engage in the intervention.

Use of cut-off scores to determine candidacy for an intervention for tinnitus is strongly discouraged as it promotes decision making that does not take into account all of the factors in a patient’s life. The most effective use of the THS is as a tool to quickly and efficiently separate hearing problems from tinnitus problems, which then allows the clinician to describe the available interventions relative to the specific problems the patient is experiencing. The patient can then decide if any of the interventions being offered are a good match for their lifestyle and for problems they wish to address.

Section C
Sound tolerance problems are often reported by patients with tinnitus. The two items in the C (Sound Tolerance) subscale can be used to assist the clinician in developing an initial impression regarding the existence and type of sound tolerance problem. Item 1 is used to screen for the existence of a sound tolerance problem. Any answer other than zero indicates some level of difficulty with tolerating sound.

Item 2 is intended to elicit examples from the patient (that the clinician will discuss with the patient) to: (1) ensure the patient really is experiencing a sound tolerance problem (and not something else); and (2) inform the clinician’s opinion regarding the type of sound tolerance problem.

Examples for Item 2 that would suggest the patient may not have an abnormal reaction to sound include: (1) sounds that would be too loud for anyone (e.g., gunfire, nearby siren); (2) references to problems tolerating crowds or other situations for reasons other than sound tolerance (e.g., hypervigilance or other PTSD symptoms, trouble understanding what people are saying); and (3) complaints from hearing aid users who are only having trouble tolerating sounds that are commonly problematic for hearing aid users (e.g., silverware or dishes clanking, paper rustling).

After discussing the examples, if it appears the patient does have trouble tolerating sounds that most people can tolerate well, then the clinician will form an initial impression about whether the sound tolerance problem appears to be hyperacusis, misophonia, or a combination of the two. Use the definitions below to guide your impressions as you talk through the patient’s examples.

Hyperacusis = physical discomfort caused by sound at levels that are comfortable for most people. With hyperacusis, all sounds are uncomfortable once they reach a certain loudness level, which varies from person to person with hyperacusis.

Misophonia = emotional reactions to sound. With misophonia, it is not the loudness of a sound that causes discomfort (as is the case with hyperacusis), but an emotional reaction to the sound that causes it to be experienced as uncomfortable. It is common for a person with misophonia to find particular sounds to be uncomfortable at a relatively low level, but to find other sounds at the same level to be acceptable.

“For office use only (II)” refers to Interviewer’s Impressions as to whether/not the person has a sound tolerance problem.

• M would be checked if Misophonia was suspected.
• H would be checked if Hyperacusis was suspected.
• Both M and H would be checked if both were suspected.
• If Neither condition is suspected, then N would be checked.
Distinguishing Between Hearing Loss, Tinnitus, and Hyperacusis: A Recommended Tinnitus-Evaluation Protocol for Audiologists (continued)

James A. Henry, Ph.D., is a certified and licensed audiologist with a doctorate in behavioral neuroscience. He is employed as a Veterans Affairs (VA) Rehabilitation, Research & Development (RR&D) Senior Research Career Scientist at the VA RR&D National Center for Rehabilitative Auditory Research (NCRAR) located at the VA Portland Health Care System. He is also Research Professor in the Department of Otolaryngology — Head and Neck Surgery at Oregon Health & Science University. For the past 25 years, he has devoted his career to tinnitus research. His overall goals are to develop and validate clinical methodology for effectively helping individuals with bothersome tinnitus and to increase accessibility to evidence-based tinnitus care.

The Association for Research in Otolaryngology (ARO) announced Christopher Cederroth as the recipient for the Geraldine Dietz Fox Young Investigator Award at its 2020 ARO Annual MidWinter Meeting. The award recognizes the impact of his research on the genetic influences on tinnitus, the scope and achievements of his research, and the potential for advancing progress in the field. “This award confirms that my research has had a significant impact on the auditory field,” said Cederroth, PhD, in a press release. “It also indicates that I have the support from the auditory community for my current research.”

He emphasized that the award was important for tinnitus research, because tinnitus remains one of the more difficult disorders of the auditory system to understand. Cederroth is an associate professor at the Department of Physiology and Pharmacology, Karolinska Institute, Sweden, and member of the ATA’s Scientific Advisory Committee.

The American Tinnitus Association and the British Tinnitus Association held their first Tinnitus & Big Data networking dinner on January 25 during the Association for Research in Otolaryngology (ARO) 43rd Annual MidWinter Meeting from January 25 to 29, in San Jose, California. The annual conference showcases cutting-edge research in the field of auditory science, attracting close to 2,000 attendees from around the world. The networking dinner, which was underwritten by Neuromod, was attended by approximately 50 attendees, including up-and-coming early career researchers and well-established ones from various areas of tinnitus research, as well as industry representatives.

The formal portion of the evening began with a brief introduction of the activities of the ATA and BTA. Torryn Brazell, ATA CEO, unveiled the ATAs commitment of $252,000 to new research and student award funding for 2020 through 2022. Speaking for the ATA board were David Hadley, who addressed patient concerns and the desire among those without bothersome tinnitus for a solution to eliminate the sound, and Jinsheng Zhang, who spoke on how ATA seed-grant funding early in his career helped launch him in the field. ATA board member Philip Gander was also in attendance, as was Rich Tyler, who serves on the ATAs Scientific Advisory Committee.

The evening featured a thought-provoking presentation called “Tinnitus, Big Data, and Genetics” by Christopher Cederroth, PhD, from Karolinska Institute in Sweden. (Cederroth was awarded the ARO’s prestigious Geraldine Dietz Fox Young Investigator Award the following evening.)

Will Sedley, MD, PhD, a leading tinnitus researcher at Newcastle University, in the United Kingdom, gave a presentation called “Tinnitus, Big Data, and Objective Measures,” highlighting the importance of how we define tinnitus and research and report on it.

The closing presentation was delivered by Gary Curhan, MD, from Harvard School of Public Health: “Tinnitus, Epidemiology, and Big Data.” Curhan had been engaged in the long-term epidemiological study called the Nurses’ Health Study, which was launched in the 1970s to investigate women’s health issues, including smoking, contraception, and cancer. He noted that hearing health and tinnitus would benefit from a similar type of investigation that could provide valuable data for tinnitus researchers and public health officials.
**Questions on Tinnitus Sound Management**

*Answered by Grant Searchfield, PhD*

**Question:** I have tinnitus in my right ear only, but my audiologist suggested a pair of hearing aids with maskers. For the ear with tinnitus, the masker is louder. For my other, normal ear, the masker emits faint sound. Since I don’t have hearing loss, why should I wear hearing aids with masking in both ears?

**Dr. Grant Searchfield:** I’m frequently asked this question. Our auditory system uses information from both ears to perceive and analyze our auditory environment. Tinnitus can be heard as if it’s coming from one ear, both, or somewhere in and around the head. Because we hear tinnitus coming from a particular location and process it this way, it means that part of the auditory system that localizes where sound comes from must be involved.

Activation of the processes in normal localization of sound (both ears) is, therefore, likely to interfere with tinnitus better than sound from a single ear. Sounds played in both ears also means the overall volume can be lower. In our clinic, we would certainly recommend a pair of hearing aids for tinnitus when a person has a hearing loss in both ears — even if the tinnitus appears in just one ear.

If there is a hearing loss in just one ear, and that ear is where the tinnitus is located, we would try one hearing aid; but if that didn’t help, we would turn on “masking” sounds and then add a second aid with masking sounds to the other ear. Generally, the use of two devices is more successful, but there are some reasons why only one device might be chosen:

1. Hearing loss and tinnitus in only one ear — a single hearing aid may be enough
2. No usable hearing in an ear — only one hearing aid/masker can be used

Correcting hearing loss, even if mild, can make a big difference in how tinnitus is heard.

When there is normal hearing, tinnitus apps and earbuds also can be used and tend to play sounds to both ears. This is a lower-cost option and can be very helpful, but people often find use of earbuds annoying after a while. Hearing-aid-style maskers tend to be very comfortable, by contrast. It is important to note that sometimes a masking sound in one ear will change the tinnitus so that it is partially covered in that ear, but tinnitus is then heard in the other ear. The solution is to add sound in both ears.

Using an ATA grant, our research group has been trialing different masking sounds. One of these uses three-dimensional (3D) sounds to try to target from where tinnitus is perceived. Our results have been...
promising, and we are undertaking more work to improve the method. We also have found that a person’s initial response to sound is a good indicator of long-term success. If low-level sounds are effective when first used, we believe the likelihood of improvement in tinnitus related to quality of life is strong.

In summary, our hearing system relies on information from both ears, so in most cases we would play therapy sounds in both ears. There are exceptions to this rule, however. It is important that an individual feel comfortable with the sounds used and the volume in each ear. So, if the different levels in each ear are annoying, have the audiologist adjust them so that the balance between ears is comfortable for you.

**Question:** What’s your advice on sounds that might promote a restful night’s sleep?

**GS:** Natural sounds, especially water sounds, are often helpful in inducing calm and sleep. In addition to using sound for masking tinnitus at night, sound-based attention exercises for relaxing prior to bedtime can be helpful. For instance, visualizing a relaxing holiday, a time when it was raining, or when you were at the ocean listening to the surf can create a greater sense of calm. There are apps for attention and relaxation, and our clinicians use brain-training exercises from our clinic website, www.tinnitus tunes.com, with tinnitus patients. Counseling strategies also can help reduce the impact of waking up due to tinnitus.

Associate Professor Grant D. Searchfield has been an audiologist since 1994 and obtained his Doctorate in Audiology in 2004. He is the clinical director of the University of Auckland’s Hearing and Tinnitus Clinic, scientific director of the tinnitus treatment website Tinnitus Tunes, and deputy director of the Eisdell Moore Centre for hearing and balance research. Searchfield is a primary investigator in Auckland University’s Centre for Brain Research and Brain Research New Zealand, a national center of research excellence. He is an associate editor for the International Journal of Audiology, Scientific Reports, and Frontiers in Neuroscience and Psychology. He is well known internationally for his research investigating the use of sound and hearing aids for tinnitus management. In addition to his tinnitus research, he is the lead investigator in a major multisite trial of hearing aids as a potential method to slow cognitive decline, which is funded by the Health Research Council of New Zealand. He also is a member of the ATAs Scientific Advisory Committee.
How Mindfulness Helped Me Create Peace With My Tinnitus

By Lisa Caldwell, MA

In 2005, I lost my hearing on one side and gained tinnitus in its place. Initially, I was quite fascinated by its varied repertoire of pings, squelches, whirs, and clicks. I have a very clear memory of walking home from the train station in those early days captivated by the constantly changing noise in my head. That was before my ENT told me that my tinnitus was going to be a permanent fixture, not just something temporary to keep me entertained.

That news changed my relationship with tinnitus completely. Once I knew that I could potentially have these noises for the rest of my life, my tinnitus became invasive, annoying, distracting, frustrating, and the source of both anxiety and depression. I couldn’t sleep, I couldn’t concentrate at work, I was addicted to Google — convinced the tinnitus was a sign of a tumor or illness the doctors hadn’t picked up. I became acutely aware of every change in my tinnitus pitch and volume. No longer amusing, it was irritating and, frankly, scary. It felt like my tinnitus had a life of its own and was utterly beyond my control.

That didn’t stop me trying to control it, of course! I became an expert patient in tinnitus. At every whiff of a success story, I was all over social media to find out more. The tinnitus was tiring enough in itself, and my obsessive pursuit of the all-elusive cure just made me feel worse. My friends and family couldn’t understand how tinnitus could make me feel the way it did. It’s not that they didn’t try, but I’m not sure anyone can really “get” tinnitus until they have it. So, I became increasingly isolated. I sent my husband to parties alone, claimed I was too busy to join girlfriends for dinner in the latest restaurants, and avoided the booming cinema like the plague.

I lived like this for nine exhausting years. By then, I’d also acquired slipped disks in my neck and back and was living with chronic pain. I was desperate for anything to make my life better. Fate stepped in. Redundancy from a job I adored coincided with a space at an eight-week mindfulness course in the nearest city. I signed up and changed my life.

Mindfulness is a series of practices that train us to pay inquiring attention to our thoughts and sensations, without judging what we experience as good or bad. We learn to distinguish between what actually exists in the here and now and

“The tinnitus was tiring enough in itself, and my obsessive pursuit of the all-elusive cure just made me feel worse.”
what is created by our thoughts or emotions. That awareness then gives us a choice in how to respond.

After the eight-week course, and with continued practice, I found that I was learning to manage my life with chronic pain better. The pain was still there, but I was less aware of it, less worried by it, and I spent less time harking back to the good old days before it became a permanent fixture in my life. I’m embarrassed by how long it took me to realize that I could adapt the techniques I had learned to managing my tinnitus! But I did. And it opened the gateway to a life where I live with tinnitus, but it doesn’t control me. And there are many moments I forget it’s there.

I knew I couldn’t keep this to myself when so many people are suffering with tinnitus. So, I went on to qualify as a mindfulness meditation teacher. And my job — my life’s vocation — is teaching mindfulness to fellow tinnitus travelers, so they can live with tinnitus rather than suffer with it.

Living on Automatic

One of the key things that I have learned from mindfulness practice is to be aware of the automatic thoughts, feelings, and behavior that kick in when certain events happen. These can be both helpful and unhelpful.

If you’re driving a car, automatic processes can be really useful. You likely will not be aware of the process of shifting gears, the movement of your feet, and the way you hold the steering wheel. Can you imagine having to think carefully about driving like you did when you were learning? It would be exhausting!

But not all automatic processes are helpful. Let’s imagine that our tinnitus changes sound or gets louder. Whether we’ve had months or years of tinnitus, it won’t take us long to develop automatic thoughts about these changes, such as the following:

“Something must be really wrong with me.”
“Is this going to last forever?”
“I can’t cope with this!”
“I can’t concentrate — I’m going to lose my job.”

And with these thoughts come the clenched teeth, panicky breathing, knotted stomach, hunched shoulders, and headache. Why? Because our thoughts affect how we feel, and how we feel feeds back into our thoughts.

Even if we notice this cycle, we often employ strategies like suppression (“mustn’t grumble”) or putting things in perspective (“it could be worse — at least it’s not...”). These not only fail to get us out of the cycle but also actually pull us back into it.

So how do we start to release those automatic thoughts and behaviors that aren’t helpful? By paying attention.

Paying Attention

Mindfulness encourages us to pay attention to the feelings, thoughts, and sensations that we’re experiencing right now. We become aware, for example, if we are worrying about our future life with tinnitus or ruminating about what we might have done to have caused this challenging condition. This awareness allows us to press pause for a moment … then gently refocus our attention on our experience right now and whatever we are doing in this present moment.

The result is that we disrupt the cycle — the ping-pong between thoughts and emotions — and step off the tinnitus roller coaster. And, believe me, that is really liberating!
Let’s take an example. Whenever I wake up at night, the first thing I become aware of is my tinnitus. Before learning mindfulness, my head would fill with these automatic thoughts:

“Urgh, there it is. I bet that’s what woke me up. I can’t escape it. Why did I have to get tinnitus? It’s not fair. I can’t live like this. I can’t go the rest of my life getting so little sleep. I can’t function without my seven hours. I might as well get up — I’m never going to get back to sleep.”

As I became increasingly wound up, my heart rate would raise, my breathing would become shallow, and my body would become tense. No wonder I couldn’t get back to sleep, and my husband would find me doing laundry at four in the morning!

I still wake up at night, but now, thanks to regular mindfulness practice, my automatic thoughts run pretty differently:

“Oh, hello again, tinnitus! What shall I do to get back to sleep this time? Some mindful breathing? A body scan? Play some masking sounds? Okay, let’s pop the masking sounds on and start a breathing anchor meditation.”

No drama, no catastrophizing. No tossing and turning for hours gnashing my teeth about the unfairness of it all. Instead, I acknowledge my tinnitus and accept it is there. I then decide what mindfulness tool I am going to use to get back to sleep.

It doesn’t work all the time. As I write this, I have a full-on head cold, and my tinnitus is having a party. Last night, even mindfulness and masking weren’t enough to help me get straight back to sleep. So, I got up and puttered for a little while, playing masking sounds through my hearing aids.

Whereas before I’d be stressed about the sleep I was missing and how exhausted I’d feel the next day, now my automatic thoughts have changed to the extent that I can accept that the situation is what it is — a temporary increase in my tinnitus, thanks to my cold. And the head and heart understanding that no matter how challenging my tinnitus may seem, I actually can manage it, if I take it moment by moment.

Lisa Caldwell studied law at Cambridge University and was a solicitor in London and Manchester before losing her hearing on one side overnight. She is a certified Mindfulness Meditation teacher. Since 2015, she has walked alongside people who have hearing loss or tinnitus and has used her unique combination of expertise and personal experience to help them live their best lives, regardless of these challenges. Like everyone with tinnitus, she wishes there were a cure. But until that day arrives, her mission is to change our relationship with tinnitus so it becomes just one part of a great life, rather than the sole focus of a hard one. You can read more at www.thehearingcoach.co.uk, and contact Lisa at lisa@ thehearingcoach.co.uk
By Sarah M. Theodoroff, PhD

Background

Hyperacusis is defined as an intolerance to sounds at low-to-moderate intensity levels that also may result in physical discomfort.\(^1\)

It is an important and under-researched type of decreased sound tolerance that commonly co-occurs with tinnitus. In tinnitus patients, prevalence of hyperacusis has been estimated to be from 60 percent to 79 percent.\(^2,3\)

Many forms of tinnitus management take a sound-based approach to reduce tinnitus-related distress.\(^4\)

When hyperacusis and tinnitus coexist, it is important to address the hyperacusis first, because patients with hyperacusis often find everyday sounds to be intense and overwhelming and would reject any form of sound-based tinnitus therapy.

One significant barrier to studying the causes and potential therapies for hyperacusis is that the standard measurement technique, Loudness Discomfort Level (LDL) testing, can expose patients to unbearably loud sounds that can exacerbate symptoms.\(^5\)

The purpose of the test is to identify the minimum level of sound that is found to be uncomfortable by the patient. LDL results are not a good predictor of an individual’s real-world experience of loudness discomfort, so the usefulness of LDL test results for hyperacusis patients is unclear.\(^6\)

In the literature, LDL testing shows a large degree of variability and poor sensitivity to diagnose hyperacusis.\(^7\)

The primary reason it has been used clinically is because an alternative behavioral metric is lacking. Therefore, there is a strong need to improve the clinical procedure to behaviorally measure loudness perception in a manner that minimizes the risk of exacerbating hyperacusis symptoms, which was the primary goal of this pilot study.

Categorical Loudness Scaling: A New Measurement Approach

Categorical Loudness Scaling (CLS) is a cutting-edge behavioral method of measuring loudness perception. CLS is an automated procedure used to quantify loudness judgments by presenting various sound intensities, from below an individual’s audiometric threshold (“can’t hear”) to a maximum level (“too loud”), to establish a listener’s dynamic range. One advantage of CLS over other loudness tests or scaling methods is that it uses a finer grading scale by having listeners select one of 11 loudness categories. The categories represent a range of individual categorical units (CUs), from 5 to 50 in 5 CU steps (see Figure 1). These categories are displayed on a touchscreen computer and the listener assigns each sound-presentation level a loudness category (“can’t hear”; “very soft”; “soft”; “medium”; etc.).

In the literature, multiple scaling procedures are referred to as “CLS.” Our research used the specific CLS procedure that has documented reliability and an associated ISO standard (from the International Organization for Standardization).\(^8-10\)

We modified this standard CLS procedure to present stimuli only at low-to-moderate intensity levels, minimizing the risk of presenting sounds that would be uncomfortable or painful. By modifying the CLS procedure in this way, we took the first...
step in achieving one of our long-term goals: to have an alternative metric that could provide the information LDL testing attempts to capture without distressing patients or exacerbating hyperacusis symptoms.

In this study, all participants experienced chronic tinnitus and were divided into two groups: those who also experienced hyperacusis and those who did not. We defined hyperacusis as any affirmation to the screening question from the Tinnitus and Hearing Survey: “Over the last week, sounds were too loud or uncomfortable for me when they seemed normal to others around me.” Individuals who responded yes to any degree (“yes — a small problem”; “yes — a moderate problem”; “yes — a big problem”; or “yes — a very big problem”) were then asked to provide examples of the sounds that were too loud or uncomfortable to confirm whether their reports were consistent with hyperacusis and not a different type of decreased sound-tolerance condition.

Preliminary data are presented in Figure 2 and show average loudness growth for hyperacusis participants (in red) compared to loudness growth in controls without hyperacusis (in gray) as a function of presentation level (decibels of sound pressure level, or dB SPL) standardized to the dynamic range for each person. On average, at all presentation levels, participants in the hyperacusis group judged sounds to be louder than control participants did, lending support to our hypothesis that at any given presentation level or frequency, loudness judgments are greater in participants with hyperacusis. Results show that it was not necessary to present high-intensity levels (e.g., 100–110 dB SPL) to detect differences in loudness perception between individuals with hyperacusis and individuals without it. On average, listeners with tinnitus who did not report hyperacusis had loudness growth functions that did not reach the “loud” category (i.e., 35 CUs), whereas listeners with tinnitus and hyperacusis had loudness growth functions that usually reached between “loud” and “very loud” for judgments using the same range of intensities (audiometric threshold to 85 dB SPL).

Conclusions
By modifying the CLS procedure and only presenting low- and moderate-intensity levels, we found it was possible to characterize deviations in loudness perception using levels that represent the majority of sounds individuals encounter in everyday life —
intensities below the levels that typically result in loudness discomfort. The sounds listeners encounter throughout the day, including in conversations and complex listening environments, typically are at intensity levels below the threshold of hearing damage and pain. Therefore, it would be ideal for a clinical measure to be able to identify deviations from normal loudness perception and capture this information using presentation levels below those that may cause loudness discomfort.

With this study, behavioral evidence now exists for an alternative approach to measure loudness perception in a manner that minimizes the risk of exacerbating decreased sound tolerance symptoms. This research has significance for many disciplines outside of auditory research. Scientists and clinicians examining similar patient complaints of sound intolerance associated with migraines, concussions, traumatic brain injury, and post-traumatic stress disorder also would benefit from knowledge gained from this research.

Currently, CLS exists only in research form. Important next steps are to create a clinical version of CLS and validate its use. To continue this avenue of investigation, pilot data from this study, which was funded by the ATA, were used as the basis for a multi-year grant application recently submitted to the Veterans Health Administration Office of Research and Development.

Acknowledgments

This work was supported by the guidance and help from Drs. Gallun, Jesteadt, Rasetskhwane, Neely, Konrad-Martin, and McMillan and by grants from the American Tinnitus Association (PVARF #403002) and National Institutes of Health (NIH R01 DC011806). This material is the result of work supported with resources from and the use of facilities at the VA Rehabilitation Research and Development Service National Center for Rehabilitative Auditory Research (Center Award #C9230C) at the VA Portland Health Care System in Portland, Oregon. The content does not necessarily represent the views of the U.S. Department of Veterans Affairs, Department of Defense, or the United States government.

Sarah M. Theodoroff, PhD, is a research investigator at the U.S. Department of Veterans Affairs, Rehabilitation Research and Development, National Center for Rehabilitative Auditory Research (NCRAR), located at the VA Portland Health Care System and an assistant professor in the Department of Otolaryngology — Head and Neck Surgery at Oregon Health & Science University. Her research focuses on auditory complaints presented in the clinic that are not adequately captured by the standard test battery nor effectively treated. Her work is informed by her clinical background and aims to improve patient-centered clinical protocols and to increase awareness of the needs of patients with tinnitus, hyperacusis, and other decreased sound tolerance disorders among medical professionals and the general public.

The Correlation Between Glaucoma and Tinnitus

Summary by John A. Coverstone, AuD

What could eye disease and tinnitus have to do with each other? There may be a common underlying cause, according to researchers from the University of Groningen in the Netherlands. A recent study published in the journal Hearing Research details an investigation into this potential comorbidity.1

While collecting data for a previous study correlating glaucoma with hearing, the researchers noted that many patients also complained of tinnitus. The reports were frequent enough to lead the researchers to perform a literature search. They found two studies that mentioned poor regulation of blood flow (termed “vascular dysregulation”) as a possible underlying cause of both glaucoma and tinnitus. They found another study that specifically mentioned a relationship of glaucoma to tinnitus as part of Flammer syndrome, a condition involving a complex array of disorders caused by poor regulation of blood supply in the brain. After finding these studies, the researchers at University of Groningen decided to launch a separate study focusing specifically on tinnitus.

This study looked at a type of glaucoma called primary open-angle glaucoma (You guessed it — there is a secondary form that is characterized by increased damage to eye structures. There also is a primary and secondary closed-angle glaucoma).2 Primary open-angle glaucoma is the most common form, and patients with this condition have a higher incidence of vascular-related diseases than the general population. This suggests that there may be an underlying cause related to compromised blood flow.

To study the correlation between these conditions, the researchers used both a large-scale population-based approach and a clinical study component. For the latter, 371 patients from a university glaucoma study database were sent two questionnaires: one for themselves and one to give to a friend or partner without glaucoma. The latter served as a control group for the study. Chosen subjects needed to be over 50 years of age and have a diagnosis of glaucoma. The questionnaires included identification of tinnitus (“Do you ever hear a ringing or rushing sound in your ear?”) and questions to qualify and quantify what people reported as tinnitus, which included questions regarding the presence of pulsatile tinnitus that often is due to problems with blood flow.

The authors also accessed a population study called Lifelines that includes a 30-year look at health behaviors from 167,729 people in the northern part of the Netherlands. The study included questions about various eye diseases, including glaucoma, and about hearing and ear disease. The authors used data from the first available 79,866 participants in the study for their analysis.

They received 209 responses from patients in the clinical database and 109 responses from people with no glaucoma. Analysis of data from the Lifelines study yielded 390 individuals identified with probable glaucoma and 72,319 controls. In each study, more people with glaucoma reported tinnitus symptoms either “sometimes” or “always” (options were “never,” “rarely” [clinical study participants only], “sometimes,” and “always”). During statistical analysis, the authors controlled for age, gender, body mass index, hypertension, and diabetes in both populations. They found from the clinical study data that patients with glaucoma had an 85 percent increased chance of tinnitus compared to those without glaucoma. From the Lifelines data, they found that patients with glaucoma had a 19 percent increased chance of tinnitus.

There were no significant differences in prevalence of pulsatile tinnitus between those with and without glaucoma, indicating that a specific blood flow disorder did not contribute to the correlation between glaucoma and tinnitus. Also, because the authors controlled for age, gender, and other
demographic factors that might be associated with higher incidence of hearing loss, they concluded that a higher incidence of hearing loss in one population could be ruled out as a cause for tinnitus.

The authors were able to show an increased incidence of glaucoma and tinnitus occurring together and concluded that vascular dysregulation could be the cause. They specifically discussed the possibility of inhibited production of nitric oxide, which has been linked to tinnitus in previous studies. It also has been shown in a previous study that nitrates in the diet can reduce risk of glaucoma by 20 to 30 percent. So, pour yourself a glass of beetroot juice (high in natural nitrates) as you continue reading this issue of Tinnitus Today!

Moving for the Mind
Moderate Exercise Decreases Depression, Anxiety, and Stress

Summary by Joy Onozuka

Exercise triggers a biological cascade of events that improve physical and mental health, which can be helpful for those with mild to moderate depression who prefer not to take medication. Moderate exercise, in particular, is effective in reducing stress, anxiety, and depression, which is why the World Health Organization recommends 150 minutes of moderate-intensity exercise per week.

But how much, what context, what intensity, and what types of exercise are really necessary to reap mental health benefits? A group of researchers from the University of South Australia (UniSA) and MSH Medical School Hamburg in Germany sought to answer that question because research in this area is limited.¹

The researchers recruited 682 recreational athletes who completed a questionnaire on the characteristics of their recreational exercise, the Centre of Epidemiologic Studies Depression Scale (CES-D), and the Generalized Anxiety Disorder (GAD-7). Key findings included:

1. Lowest depression and lowest anxiety scores were found for indoor team athletes, followed by outdoor individual athletes.
2. Those who did not meet the minimum 150-minute recommendation of weekly exercise reported higher depression scores, whether they exercised indoors or outdoors, and whether they participated in individual or group exercise.
3. Higher depression scores were found among those individuals engaged in vigorous-intensity exercise compared to those engaged in moderate-intensity exercise indoors on a team and meeting the 150-minute per week guideline.

The findings reaffirm the WHO exercise guidelines and indicate that meeting the guideline recommendations has a positive effect on reducing symptoms of anxiety and depression.

While noting that further research is needed, the researchers concluded that individuals should set modest, achievable exercise goals based on what they enjoy doing to reap the rewards of improved mood and outlook. If you can’t manage 30 minutes of exercise five times a week, then start with five minutes of daily exercise and gradually increase the duration as your body adjusts. It should be noted that exercise only is not effective for helping people with disorders such as bipolar, schizophrenia, or severe depression, which require treatment and supervision by trained mental health professionals.²


By Rachel Gaffney

If your hearing loss prevents you from working, you might be eligible for financial assistance. The Social Security Administration (SSA) offers monthly resources for people with a disability that has impacted their lives for at least 12 months. Although hearing loss does not automatically qualify someone, many people are able to receive aid.

Considerations for Hearing Loss

Before applying for disability benefits for hearing loss, it’s important to note that the SSA will need evidence proving your hearing is seriously affected in your best ear. This means that people who are deaf in one ear, but can hear well in the other, will not qualify.

You also will not qualify if you’re able to modify your job in a way that you’re still able to earn income. For example, if a marketing specialist experiences hearing loss but requires only writing skills to maintain employment, he or she will not qualify.

Medically Qualifying With Hearing Loss

The SSA uses its own medical guide, known colloquially as the Blue Book, to evaluate Social Security disability applicants and potential award benefits. There are a few ways to qualify for disability with hearing loss. The Blue Book has two listings, Sections 2.10 and 2.11, for hearing loss. Without a cochlear implant, you will qualify if you can meet either of the following criteria:

- You have an average air conduction hearing threshold of 90 decibels or greater in the better ear AND have an average bone conduction hearing threshold of 60 decibels or greater in the better ear, OR
- You have a word recognition score of 40 percent or less in the better ear, determined by using a standardized list of phonetically balanced monosyllable words.

Cochlear implantation is considered a disability for one full year after surgery. After the year has passed, you still can qualify for disability benefits, if you have a word recognition score of 60 percent or less using the Hearing in Noise Test (HINT).

The complete Blue Book listing for hearing loss can be found online. Review the listings with your audiologist to get a better idea of whether you’ll qualify.
What About Tinnitus?

Those with tinnitus also may qualify for disability benefits. Tinnitus doesn’t have its own listing in the Blue Book. However, you may be able to qualify, if you are experiencing another condition that causes tinnitus. For example, if you have Meniere’s disease, you can qualify if you have frequent tinnitus attacks, balance disturbances, and progressive hearing loss as well as a disturbed function of vestibular labyrinth demonstrated by caloric or other vestibular tests and if your hearing loss is established by audiometry.

Starting Your Application

The easiest way to apply is online on the SSA’s website. There you’ll find a complete list of paperwork and materials you will need to submit your application successfully. Be sure to list every hearing specialist you’ve seen to ensure the SSA can gather accurate and up-to-date medical evidence on your behalf.

If you prefer to apply in person with the help of a Social Security representative, you can visit your local SSA office. You also can call the SSA at 1-800-325-0778 TTY to get the process started. It should take between three to five months to hear back from the SSA regarding your claim.

Rachel Gaffney is an outreach specialist at Disability Benefits Center, an independent organization dedicated to helping people of all ages receive the Social Security disability benefits they deserve. She lives in Boston but helps those seeking assistance nationwide. If you have any questions about this article or would like a little more information on how to qualify for disability benefits, Gaffney can be reached at rsg@ssdef.org.


Social Security Administration. Listing 2.10 and 2.11: Disability evaluation under Social Security: 2.00 special senses and speech — adult. In SSA Blue Book. Retrieved from https://www.ssa.gov/disability/professionals/bluebook/2.00-SpecialSensesandSpeech-Adult.htm#2_10

Question: I developed tinnitus recently and am struggling to cope. My doctor suggested that I take medication to reduce my anxiety. What are your thoughts?

Sara Pastoor, AuD: Currently, there are no FDA-approved medications specifically for the treatment of tinnitus. The antianxiety medications and/or antidepressants often prescribed for tinnitus patients are intended to treat only the negative emotional effects of tinnitus. These medications may help relieve the stress, anxiety, and depression that may coexist with tinnitus; however, no medications have been shown to actually reduce the underlying neural hyperactivity that researchers have identified as the cause of tinnitus.

In some cases, medications prescribed to alleviate the negative effects of tinnitus actually may worsen tinnitus in some patients. Moreover, the medications often come with undesirable side effects, including dizziness and nausea, drowsiness and fatigue, headaches, problems with concentration, insomnia, and undesirable interactions with other medications.

Some evidence suggests that antianxiety medications and antidepressants may impact the neural plasticity of the brain, which might affect one’s ability to habituate to the sound of the tinnitus over time. Hence antianxiety medications and antidepressants should be used cautiously, and patients should work closely with their prescribing physicians. This is particularly important when discontinuing the medication, if tinnitus worsens. The only way to know whether a medication can help alleviate issues associated with tinnitus is through trial and error, as is often done by physicians who prescribe medication to “treat” tinnitus. As such, it is often better for patients who are not bothered significantly by tinnitus to treat their tinnitus through counseling and use of sound therapy. Those with a history of anxiety might find it beneficial to pursue interventions that don’t rely on medications, such as cognitive behavioral therapy, deep breathing exercises, meditation and mindfulness training, exercise, and progressive relaxation techniques. All of these can build self-resilience and skills that can be drawn on for a lifetime.

Because the underlying neural mechanisms associated with tinnitus are unbelievably complex, clinical implementation of drug therapies for specifically targeting tinnitus has been largely unsuccessful. This can be very frustrating for a patient with debilitating tinnitus, and most patients would prefer a drug therapy that would rapidly improve their tinnitus or even eliminate it completely.

Unfortunately, many people with tinnitus have been told “you need to learn to live with it” by various medical providers, which can be extremely frustrating for those experiencing this debilitating sound. More importantly, it’s incorrect. Today’s tinnitus treatments can help reduce awareness of it and the level of emotional disruption it can cause through sound therapy, counseling, and education. If you’re struggling with tinnitus, seek help early on from qualified professionals who can properly diagnose and develop a treatment plan that suits your unique needs. It may or may not be the case that medication plays a role in that plan, so know your options and decide what makes the most sense for your specific situation.
Understanding Speech in Noisy Backgrounds With Normal Hearing

Summary by John A. Coverstone, AuD

In recent years, it has generally been accepted that hearing loss is more complex than was previously presumed. Many people complain of difficulty understanding conversation, even though they show normal hearing during an audiology exam. These complaints often are about difficulty hearing in noisy environments in which multiple people are talking. The traditional hearing test is not targeted to diagnose this kind of condition. Current tools, such as speech-in-noise testing, are being used more widely but are somewhat limited in what they tell us.

Researchers from Massachusetts Eye and Ear noted this trend and wanted to see whether they could identify the mechanisms that cause these kinds of problems. They also hoped to find a clinical test that would uncover the biological conditions they found. Their initial search of more than 100,000 records found that roughly 10 percent of patients who scheduled audiological appointments complained of difficulty with conversation but were found to have normal hearing.¹

The authors recognized that processing of speech in background noise may involve two different systems acting on the auditory signal. Bottom-up processing (starting at a lower level of processing) involves encoding the acoustic information as it enters the sensory organ of the ear and is passed to the auditory nerve and farther up the hearing system. Top-down processing begins at a cortical level in the brain and applies increased attention and effort and linguistic information to try to make sense of a poor signal coming from the ear.

For this study, 23 subjects were recruited. Each had normal hearing on traditional tests but complained of difficulties with speech understanding, particularly in noisy settings. The subjects first completed a test during which they repeated sequences of four numbers that were presented while a male and a female voice talked in the background (the competing digits task). The researchers established a speech threshold at the poorest signal-to-noise ratio where the subject correctly repeated at least 70 percent of the numbers. A signal-to-noise ratio is defined as the loudness (intensity, in decibels [dB]) of the stimulus compared to the loudness of the background noise. The thresholds of different subjects varied significantly.

The researchers first looked to existing clinical tests to see whether these might correlate well with the results of the speech-in-noise task. They measured extended high frequencies (above 8 kHz) and Wave I of the auditory brainstem response (ABR), which is generated by the auditory nerve. Both of these showed significant variability compared to the speech-in-noise test results.

They next presented subjects with a low-pitch tone with frequency modulation (think of a warbling tone, like a siren) of various degrees. A threshold was established at the lowest level of modulation where the subject could accurately identify the modulated tone versus a steady tone. The authors found that thresholds in this test correlated well with results of the speech-in-noise test.
They also wanted to test a hypothesis that loss of afferent auditory nerve fibers might reduce a listener’s ability to detect subtle cues in the frequency modulation (FM) stimulus and contribute to decreased understanding of speech in noise. To test this, the authors measured an electroencephalogram (EEG) response to an FM stimulus and isolated the response from the auditory nerve. The measured response, called the FM following response (FMFR), was found to be a good predictor of performance on the FM detection test and correlated well with the competing digits task. This was taken to mean that the hypothesis about afferent auditory nerve fiber loss may be correct.

Whereas FM detection and FMFR are tasks requiring bottom-up processing, the authors also wanted to look at top-down processing strategies that use cognitive resources. To do this, they measured pupil dilation in subjects who were attempting to hear and understand speech in the presence of other speakers. Pupil diameter correlates with the amount of effort and attention being allocated to a task. It can indicate how cognitively challenging a task is. The amount of change in pupil size was plotted on a graph against the signal-to-noise ratio (SNR) of the speech task. The authors found that a steeper slope (more change in pupil size for a given change in SNR) correlated with those subjects who had the greatest difficulty with speech in noise, measured as higher speech thresholds in the earlier task.

The authors performed further statistical analysis of these results and concluded that a combination of the speech thresholds, FMFR, and pupil measurements provided the best prediction of difficulty hearing speech in noise for patients with normal hearing test results. These additional measures may be able to provide a basis for identifying and treating people with auditory damage that does not show up during a more traditional hearing test.


---

28th Annual International Conference at the University of Iowa
Management of the Tinnitus & Hyperacusis Patient

The 28th Annual International Conference, Management of the Tinnitus & Hyperacusis Patient is scheduled to be held June 11–12, 2020*, at the University of Iowa. The educational event is intended for otologists, audiologists, hearing aid specialists, and other healthcare professionals providing clinical services for tinnitus patients. Topics include an overview of current evaluation practices, management strategies, and research. Presentations are given by leading researchers, practitioners, and leaders in advocacy and include the latest developments in the areas of medical treatments, neuroscience, sleep therapy, noise-induced hearing loss, and hyperacusis.

The conference is intended to increase the knowledge and skills of clinicians; however, it is open to patients and their families, with the understanding that no individual diagnosis or treatment will be offered.

For more information, visit the University of Iowa’s website: https://medicine.uiowa.edu/oto/education/conferences-and-events/ international-conference-management-tinnitus-and-hyperacusis

*Due to the coronavirus pandemic, check the organizer’s website for updates on the conference status.
A social gathering sparked a life-changing event for Jill Jones, a retired nurse who bakes the most amazing breads. One balmy evening, she sat with us and several of our friends as we enjoyed snacks and conversation on our back deck. “Before sunset I could understand everyone fairly well, but once it got dark, I couldn’t understand anyone’s speech,” she said. Just like that, her hearing diminished to such a low point that she felt compelled to do something about it.

She had endured poor hearing for much of her life and had found ways to compensate, such as using closed captioning on her television and always sitting with a friend who could tell her what the speaker was saying. But the sudden hearing loss she experienced on our deck prompted her to get fitted for hearing aids.

“I’m guessing I’d miss at least 30 percent of words before I got hearing aids. I learned to read lips, and in school would always sit at the front of the room so I could clearly see the teacher,” she said.

After getting hearing aids, Jones became more conversational and felt less socially isolated. She also could enjoy conversation outdoors after dark. The hearing aids changed her life.

Whereas Jones’s hearing challenges began in childhood, the experiences of Mark Ogden and Bill Desmarais are more typical of hearing loss progression. Ogden, an attorney, gradually found it harder to hear and understand his clients. “That’s not good for a lawyer,” he said. Desmarais, a high school science teacher, found it increasingly difficult to hear his students. “I especially had trouble hearing girls, who speak at a higher frequency than boys,” said the veteran teacher.

By working with an audiologist, Jones, Ogden, and Desmarais each discovered that hearing aids could enhance their hearing, which helped them in every dimension of their lives where sound and communication matter. Unfortunately, they are in the minority of the growing population of Americans with hearing loss.

Jones’s hearing loss may have stemmed from childhood ear infections, but for Ogden and Desmarais, steps to reduce exposure to loud noise could have made a difference in the degree of their hearing loss, which progressed so gradually that it wasn’t apparent until they realized they weren’t hearing things that others could. “Noise-induced hearing loss is 100 percent preventable,” says Bob Ghent, AuD, who tests hearing protection devices in a Honeywell lab.

“After getting hearing aids, Jones became more conversational and felt less socially isolated. She also could enjoy conversation outdoors after dark. The hearing aids changed her life.”
Foam earplugs that cost only pennies and inexpensive ear muffs, when used consistently from an early age, can help someone save thousands of dollars on hearing aids later in life and also avoid all the frustrations that result from poor hearing. Unfortunately, too few people use them.

Ironies abound in the area of hearing protection. Industries and businesses that expose employees to loud noise usually provide hearing protection and expect employees to use it. But some businesses don’t provide protection, mostly because the noise to which their employees are exposed doesn’t seem dangerous. Think dentist drills, tavern and kitchen mixers, hairdryers at salons, and vacuum cleaners that cleaning crews use for hours. Over time, such noise exposure can lead to problems.

A factory foreman expressed another irony: “Most of our workers are young. I require them to wear hearing protection on the job. Then, when their shift ends, they jump in their car and turn the radio on at such high volume, I can hear it across the parking lot,” she said.

“Preventing hearing loss and tinnitus is always best,” Reekers shared. “But too many people suffer hearing loss and don’t seek the help of an audiologist. Sometimes they simply don’t realize their hearing is not good, but cost and procrastination also keep people enduring poor hearing.”

Among the weaknesses of U.S. healthcare is that most insurance plans omit or limit coverage for many conditions. Dentistry, hearing, vision, and sometimes mental illness are left partially or completely uncovered. That’s a particular problem for the approximately 40 percent of Americans with such sparse savings that they are unable to pay for an unexpected car repair. Even relatively high-wage earners may have no financial cushion.

At a cost of approximately $1,500 and up for a pair of hearing aids, cost is a barrier to better hearing for many folks. While it’s hard to ignore a toothache or serious vision problem regardless of financial standing, it is possible to live with diminished hearing by unconsciously or consciously developing compensating techniques.

“Some people balk at the relatively high cost of audiologist-fitted hearing aids,” said Ghent, “but they should know that they get much more than aids. The cost covers the services of a trained, certified audiologist. During evaluations, these professionals often are able to spot hearing issues that require more than amplification.”

Reekers agreed, saying, “A person with hearing challenges is really forming a long-term relationship with an audiologist.”

Reekers cites research that reveals that in countries where hearing aids are covered by insurance, a minority of people with hearing difficulties seek help. This seems to indicate that denial, stigma, and procrastination are among the key factors keeping people from seeking help from an audiologist.

Because hearing loss usually is gradual, it is hard to notice it as it advances. Often a spouse identifies the difficulty first and recognizes how it stresses the marriage. Overcoming denial and procrastination is challenging until a life-changing event takes place, such as what happened with Jill Jones. Sometimes it takes a combination of triggers to initiate a call to the audiologist. “In my case, cost and procrastination caused my delay, but my wife encouraged me to find a solution,” said Ogden.

“One of the amazing things about getting hearing aids was my surprise at being able to hear simple sounds, like floorboards creaking under my feet and birds singing,” Desmarais said.

“I used to be able to hear them but hadn’t for years.”

Ogden related having better conversations and communication with his law clients, and Jones found herself less socially isolated and more able to participate in conversations. Often, conversations with someone who has been successfully treated with hearing aids encourages someone with hearing problems to call an audiologist.

Though hearing aid technology advances rapidly, an epidemic of hearing loss and tinnitus looms as today’s young and middle-aged people shun hearing protection and allow their ears to funnel booming noise into their auditory system.

“I urge teachers, coaches, work supervisors, and anyone else who can influence people to join audiologists in encouraging the use of muffs and earplugs to suppress loud noise,” Reekers said. “I also urge people with hearing problems to realize that finding solutions is a gift to themselves, their family, their friends, and work colleagues.”

Rich Patterson is a member of the Circle of Conservation Chiefs and a past Outdoor Writers Association of America (OWAA) board president. He and Marion Patterson, both OWAA members, own Winding Pathways, LLC, a business devoted to encouraging people to create wondrous yards. For more information, visit www.windingpathways.com.
Better Imaging Device for Investigating Tinnitus

Summary by John A. Coverstone, AuD

One of the difficult things about working with ears is that we can’t see most of what is going on. Researchers and doctors use imaging devices when they need to see whether structural or functional abnormalities are present. One of the biggest discoveries for neuroscience in the modern era has been functional magnetic resonance imaging, or fMRI. Instead of just taking pictures of the body’s structure, fMRI measures blood flow. Because the brain increases blood flow in areas that are being used, this technology can track areas of the brain that are activated either while resting or in response to external stimuli.

Traditional fMRI is used up to 3 Tesla (a measure of magnetic field strength) and is somewhat limited in resolution of the image. Newer machines available in the last 20 years can operate at 7 Tesla, which is called ultra-high-field fMRI. These have been used in research with animals and are now being used in humans with the promise of increased resolution of imaging.

A group of researchers from the Netherlands sought to use ultra-high-field fMRI to study tinnitus in humans.1 Their primary goals were to investigate the feasibility of improving image resolution in key auditory structures and to gain insight into possible causes of tinnitus.

Because this was a feasibility study, the researchers recruited just six patients with tinnitus and six control subjects without tinnitus who were matched in age, gender, dominant hand, and hearing loss (if any). The patients with tinnitus each had the condition only on one side and any potential physiological causes were ruled out, as were psychological conditions and other auditory conditions (misophonia — fear of specific sounds - or phonophobia — a persistent fear of sound). Subjects listened to tones at eight frequencies from 200 Hz to 10,000 Hz (most of the range of adult hearing) as well as tones centered at the frequency of each patient’s tinnitus. Control subjects listened to the same tones as the patient to which they were matched. After presentation of the tones, data was acquired while subjects were resting.

The human auditory system is highly organized by frequency. From the inner ear up to the structures of the brainstem, our sensory receptors and nerve fibers are organized according to frequency, from highest frequencies to lowest frequencies (depending on which way you look). For instance, in the cochlea — the organ of hearing — sensory cells that respond to the highest frequencies are in the outer part of the cochlea and sensory cells that respond to the lowest frequencies are in the very innermost portion. The auditory nerve is organized so that nerves carrying high-frequency information are on the outside and...
nerves carrying low-frequency information are on the inside. This is called tonotopic organization.

The researchers created tonotopic maps of the structures they studied, which primarily included the inferior colliculus (a central auditory center for the brain), the medial geniculate body (a gatekeeper for auditory information in the brain), and the auditory cortex.

There is a popular theory of tinnitus where extra nerve cells respond to certain frequencies and this causes us to hear additional sound at a certain frequency or frequencies. This idea comes from a long-held notion that, when auditory nerve cells are no longer being used because of hearing loss, they may begin to synchronize with adjacent nerve cells and respond to other frequencies of sound. In this study, there were no observed changes in the tonotopic maps between those subjects with tinnitus and those without. This suggests that tinnitus does not arise from additional nerve cells responding to certain frequencies of sound. There was some indication, however, that other frequency areas (nontested frequencies) showed a greater response in patients with tinnitus in the inferior colliculus and the auditory cortex.

The researchers also noticed that the response to sound stimuli was no greater in subjects with tinnitus than in those without tinnitus. There is another common idea that tinnitus may result from hypersensitive auditory neurons (nerve cells), but this finding refutes that concept.

What was different between subjects with tinnitus and those without tinnitus was the connection between auditory structures — specifically between the medial geniculate body and the auditory cortex. Scans showed a significant decrease in overall strength of the connection between these structures, although not specifically for the frequency region of the tinnitus.

It should be noted that this was a very small study, given the primary purpose of addressing feasibility. Therefore, the results described here are suggestive only and cannot be considered conclusive. Further study will be necessary with larger groups that include people with different types and degrees of tinnitus. Only then will we be able to develop firm conclusions about how the auditory system changes to either create tinnitus or in response to having tinnitus. The authors do believe this study successfully demonstrated the value of increased resolution of ultra-high-field fMRI for studying tinnitus and encouraged others to utilize this tool for further research into the causes and effects of tinnitus.


Inaugural Brain Imaging and Tinnitus Conference

The University of Illinois at Urbana-Champaign is scheduled to host the first-ever Brain Imaging and Tinnitus: International Interdisciplinary Conference on May 18–19, 2020*. Renowned tinnitus researcher Jos Eggermont, PhD, is the keynote speaker at the event, which brings together neuroscientists, clinicians, psychoacousticians, and other researchers in an effort to better understand how a multidisciplinary brain imaging framework might be used to advance pathways to treatments for tinnitus patients. Topics include the latest advances in understanding the neural bases of tinnitus through a variety of techniques, including magnetic resonance imaging (MRI), functional MRI (fMRI), electroencephalogram (EEG), and electrocochleography (ECOG), as well as significant contributions from psychoacoustics, animal neuroscience, and interventional studies, such as mindfulness-based cognitive therapy and neurostimulation.

Registration for the conference, which is intended for researchers, clinicians, and students, is free. Seating is limited, so register early. For more details, see https://tinncon.beckman.illinois.edu/.

*Due to the coronavirus pandemic, check the organizer’s website for updates on the conference status.
Journalist’s Odyssey Begins With Tinnitus

Review by David M. Sykes

**Book:** *Volume Control: Hearing in a Deafening World*, by David Owen, 260 pp., Riverhead Books, NY

**For an author, writing a book is a voyage of discovery — an odyssey — with all the threats and risks involved in any adventure. For readers, it’s an armchair guided tour. That’s why many of us like well-written nonfiction books whose authors use novelists’ techniques to artfully guide us through subjects that might be daunting on their own.**

A case in point is *New Yorker* journalist and author David Owen in his latest nonfiction book, *Volume Control: Hearing in a Deafening World*. Owen sails into the tiny and infinitely mysterious labyrinth of the human ear, which contains the smallest and least-understood bone in the body — at a time when hearing disorders have suddenly become mainstream news in the United States after years of absence. Indeed, he quotes one researcher, who notes, “There’s never been a better time to be alive if you suffer from hearing disorders.” That statement sets a hopeful, even lighthearted, tone for the book: a meandering search for answers and for solutions, though these always seem to be just around the next peninsula.

Owen is best known for his wry, relaxed observations so well suited to the pages of the *New Yorker*, so what lured him into the ear canal? He’s one of us — his personal experience with the siren call of tinnitus led him there. Like any odyssey, this book unfolds as Owen’s personal journey, a wonderfully entertaining narrative filled with fascinating first-hand stories as he seeks answers and explores “cures.” That cures are so elusive and changeable is what makes the book interesting. Ultimately, it is a search for who’s doing what and when one technology or solution or another will hit the market and maybe fix the author’s hearing disorder.

With uncanny skill at spotting the most intriguing ideas — and the talented researchers behind them — Owen coasts through 13 chapters that cover everything from his grandmother’s deafness that resulted from a boyfriend’s shotgun blast to his own youthful absurdities that caused his tinnitus and hearing loss. He discusses

“If you belong to a book group or a tinnitus support group whose members enjoy artful, witty nonfiction that is shaping public opinion, read Owen’s book…”
why the world is so noisy, how the ear works, the history of hearing aids, the search for earplugs that actually work, cochlear implants, the controversy over American Sign Language, the emerging tech revolution, and the battle between the Big Six manufacturers of traditional hearing aids and high-tech companies like Bose and Apple. He delves into the emerging world of apps and personal sound amplification products that are advertised on the pages of Smithsonian and Natural History and AARP’s magazine.

Owen’s book has been attracting national media attention. In his interviews with national media outlets, Owen discusses the latest research into noise and hearing and new technology that can help turn down the volume in one’s external environment. This type of media exposure is a wonderful outcome for all of us who suffer from hearing disorders, because media attention helps awaken legislators and government regulators to the fact that hearing disorders really matter to many people and that there is a need for public investment in research and development. “Noise” is not “merely annoyance for a few complainers” anymore. Now it’s a burgeoning public health problem.

If you belong to a book group or a tinnitus support group whose members enjoy artful, witty nonfiction that is shaping public opinion, read Owen’s book — it’s a wonderful place to dive into a subject that is clearly of personal interest to anyone with tinnitus, hyperacusis, or other hearing disorders.

David Sykes is lead author of the book Sound & Vibration 2.0 and a contributor to the National Academy of Engineering report Technology for a Quieter America, the General Service Administration’s Sound Matters, and other books. He is vice chair of The Quiet Coalition and cofounder of LARA, the Laboratory for Advanced Research in Acoustics, at Rensselaer Polytechnic Institute. A graduate of the University of California, Berkeley, with advanced degrees from Cornell University, he served as a member and officer of ATAs board of directors from 2014 to 2017.
As an environmental psychologist, I have long been interested in how elements in our environment impact our mental and physical health. I have especially focused my research and writings on the effects of noise. I wrote this article to call attention to the adverse impact of noise on mental health, but I could not have written it without first noting the effects of noise on overall health. In early discussions of how noise affects people, researchers frequently stated that noise was found to be annoying and disturbing. Although these words do not fully represent the scope of noise effects on our physical health, they do clue us in to the psychological effects.

A quick survey of any city’s 311 call-center operators, who accept noise complaints, would find operators describing callers’ voices as distressed and upset. I am a member of the board of GrowNYC in New York City (www.growNYC.org), an organization whose mission is to improve the livability of the city through environmental programs, including farmers’ markets, recycling, and school gardens, as well as through providing information on the negative effects of noise and how to protect against them. New Yorkers often call our office for assistance with their noise problems, and, for the past 30 years, I have been the one to respond to these calls. I can most certainly attest to how unhappy these callers are.

A research study examining how people react to noise intrusions found that individuals respond emotionally to such intrusions by becoming angry or anxious. The New York State Comptroller’s Office studied how noise complaints were handled in New York City and found that 92 percent of people who reported a noise complaint indicated that it was a recurring issue. Many of the respondents believed their complaints were not taken seriously, and a large percentage were dissatisfied with how their complaints were handled. Unresolved noise complaints can exacerbate emotions of anger and anxiety. In addition, when noise complaints are not taken seriously, individuals may develop what has been called “learned helplessness,” a condition in which a person believes nothing can be done about the problem. The individual may then give up trying to ameliorate the noise problem, and this, in turn, may create even greater mental stress and unhappiness.

In a review of studies on environmental noise impacts on mental health published between 1993 and 1998, Stansfeld et al. “Anti-noise groups can pressure their local authorities to pass bylaws that limit noise intrusions from construction, nearby highways, and noisy neighbors.”
concludes that we cannot definitively relate noise impacts to more serious mental health problems. But the researchers also state: “Current evidence does seem to suggest that environmental noise exposure, especially at high levels, is related to mental health symptoms.”\(^3\)

Another team of researchers found noise annoyance to be associated with depression and anxiety in the general population, but they suggest that follow-up data are needed to definitively address the causal relationship.\(^4\) Ma et al. examined perceived noise pollution and mental health impacts in Beijing and conclude: “Higher noise-pollution

---

### Tools and Suggestions to Advocate for a Quiet Environment

You may not live in New York City, but you can learn about advocacy tools and noise standards from the city’s online resources to advocate for a quieter environment in your hometown. Here are a few suggestions:

1. At www.growNYC.org/noise, visit both the Noise Awareness and Publications sections to learn about the hazards of noise to health and well-being. The Solving Noise Problems section assists people seeking solutions to noise problems in their communities. You will find information about the New York City Noise Code and suggestions on how to ask public officials about noise bylaws in your town or city.

2. If you live somewhere that has noise bylaws, familiarize yourself with them. If not, ask local public officials why such bylaws don’t exist.

3. Ask local public officials whether a community group exists that is involved in reducing noise in the environment. If a group exists, consider joining it or supporting its efforts.

4. If no local group addresses noise issues, ask people living in your neighborhood whether they, too, are bothered by noise. With a like-minded group of people, you can work to bring about change, drawing on the resources you garnered about how other communities do it and what standards/issues exist in your community. Remember, there is strength in numbers.

Be prepared to work hard. Be patient and be persistent. You can reasonably expect initiatives to be introduced, if you work with officials on defining the noise problem and ways to combat it.
exposures are significantly associated with worse mental health of urban residents in general.6

As reported in the Winter 2019 issue of Tinnitus Today, Rick Neitzel, PhD, conducted a systematic review on behalf of the U.S. Centers for Disease Control and Prevention (CDC) National Center for Environmental Health to measure the adverse effects of noise exposure on 11 categories of health. His study found moderate evidence of a negative impact on mental health and psychological effects from noise exposure.6

Although the recent research cited above does indicate the impact of noise on mental well-being, let me add that the U.S. Environmental Protection Agency (EPA) in its 1978 brochure Noise: A Health Problem stated: “When noise becomes sufficiently loud or unpredictable…our initial annoyance can become transformed into more extreme emotional responses and behavior” (p. 18).7 More than 40 years ago, the United States federal government noted the adverse effects of noise on mental well-being, and today we have even more support for this conclusion. Yet, have we responded adequately to these findings with actions to reduce noise? Have we acted sufficiently to lessen the effects of noise on hearing health and overall physical health, considering the many studies linking noise to hearing deficits and poorer physical health? In an earlier paper, I argued that there is a gap between the research on the deleterious effects of noise on mental and physical health and the policies governments have introduced to lower noise levels in our environment.8 In that paper, I criticized the EPA for abandoning its efforts to lessen noise as directed by the Noise Control Act of 1972. Noise reduction, for the most part, has been left to cities and states.

Anti-noise groups can pressure their local authorities to pass bylaws that limit noise intrusions from construction, nearby highways, and noisy neighbors. For example, the New York City Noise Code, updated in 2007, attempts to reduce noise in a city that has been traditionally perceived as a “noisy” urban environment. Agents in the city’s Department of Environmental Protection respond to many of the noise complaints in the city, and more agents were hired to deal with city noise in response to the Comptroller’s report discussed above. Is this enough to protect people’s mental and physical well-being?

With respect to mental well-being, I must call attention to how disillusioned people become when their calls for help with noise problems are dismissed and how this increases their stress. Although public officials may not yet be able to limit the effects of overhead aircraft noise on people’s well-being, they can work on legislation to curb aircraft noise and other neighborhood-level noise disturbances.

Public officials must take noise complaints seriously and assist people who call for help. Additionally, local noise bylaws should be reviewed and strengthened. I believe citizens’ mental health would be less stressed if people knew their public officials were taking noise problems seriously. Of course, the greatest comfort will come when their noise problems are truly remedied.

Arline L. Bronzaft, PhD, is a professor emerita of the City University of New York, member of the board of GrowNYC (appointed by five mayors, nonpaid position), and worldwide consultant on the deleterious impact of noise on health. Her groundbreaking research on the impact of transit noise on classroom learning is frequently cited by the media and academia. As a researcher and writer on the negative impact of noise, Bronzaft has published extensively, including chapters in books and encyclopedias, articles in academic journals and the popular press, the children’s book Listen to the Raindrops, and the book Why Noise Matters (Earthscan, 2011) as co-author.

People with tinnitus at every stage in their journey, from the first few days to many years later, can benefit from membership in a support group. Each tinnitus support group operates differently, but they all share a passion for providing meaningful discussion and a caring environment where one can be understood through shared experience. Below is a list of groups and meeting dates, current at time of print. To reconfirm dates and times, please email/call the point-of-contact person listed.

**Arizona**

**Tucson Tinnitus Support Group**
ALOHA (Adult Loss of Hearing Association) 4001 E. Fortt. Lowell Rd. Contact: Trudy Jacobson T: (520) 982-7813 E: trudyj@cox.net
Fourth Saturday of the month from 10:00–noon. Limited seating so please RSVP.

**California**

**Los Angeles/Orange County Tinnitus Support Group**
La Purisma Catholic Church 11712 N. Hewes St. Orange, CA 92869 Contact: Barry Goldberg E: bargold06@yahoo.com Visit the ATA website/contact Goldberg for times.

**San Diego Tinnitus and Hyperacusis Support Group**
San Diego City Library North University City Branch 8820 Judicial Dr. San Diego, CA 92122 Contact: Michael J. Fischer, Loretta Marsh, Dave Phaneuf, Tom Sutton E: michaeljohnfischer@hotmail.com E: loret tam rash@hotmail.com, P: 858-484-9267 E: djphaneuf@yahoo.com E: tomsutton63@gmail.com First Wednesday of the month from 6:00–7:30 pm.

**San Francisco Tinnitus Support/ Education Group**
Hearing and Speech Center of Northern CA Second Floor Conference Room 1234 Divisadero St. San Francisco, CA 94115 Contact: Tracy Peck Holcomb T: 415.921.7658 E: tracy@hearingspeech.org Meeting dates and times TBD.

**The Palo Alto Tinnitus Support Group at Avenidas**
Avenidas Center 450 Bryant Palo Alto, CA 94301 Contact: Ken Adler, Amy Nelson, AuD, Brandon Cyrus, AuD E: karmitac@aol.com E: Amy.Nelson@kp.org E: brandon@landmarkhearing.com Third Thursday of the month from 6:30–8:30 pm.

**Colorado**

**Denver Tinnitus Support Group**
Lutheran Medical Center 2nd Floor Learning Center, Classroom #1 8300 West 38th Arvada, CO 80033 Contact: Rich Marr T: 303-875-5762 E: r.marr@comcast.net Meeting dates and times TBD.

**Mesa County Tinnitus Support Group**
Community Hospital, Legacy Room 1 2351 G Road Grand Junction, CO 81505 Contact: Elaine Conlon T: 970-589-0305 E: conlonelaine@aol.com Third Wednesday of the month from 6:00 pm.

**Florida**

**Clermont Tinnitus Support Group**
Citrus Hearing Clinic 835 7th St., Suite 2 Clermont, FL 34711 Contact: Laura Pratesi, AuD T: 352-989-5123 E: drlaura@citrushearing.com Second Monday of the month from 1:00–2:00 pm.

**Sarasota Tinnitus Support Group**
Silverstein Institute 1901 Floyd St. Sarasota, FL 34239 Contact: Carmen Trotta, Tom Terrenzi T: 941-993-7616, 941-462-1311 E: sarasota.ata@gmail.com Third Friday of the month from 2:00–4:00 pm.

**Georgia**

**Atlanta Tinnitus Support Group**
Dekalb County Public Library Dunwoody Branch, Meeting Room 5339 Chamblee Dunwoody Rd. Dunwoody, GA 30338 Contact: Erica Caplan E: elcat@aol.com Meeting dates and times TBD.
Illinois
Chicago Suburban Tinnitus Support Group
Contact: Margie B.
E: maggie318@yahoo.com
Meeting dates and times TBD.

Maryland
DC & MD Tinnitus Support Group
Potomac Audiology
11300 Rockville Pike, Ste 105
Rockville, MD 20852
Contact: David Treworgy, Gerry Baill, Ann Ramsey
E: david_treworgy@yahoo.com, gsbaill@yahoo.com, TinnitusDC@gmail.com
Meeting dates and times TBD.

University of Maryland Tinnitus and Hyperacusis Support Group
University of Maryland College Park campus
1010 Meramec Station Rd.
Manchester, MO 63021-6943
Contact: Tim Busche
T: 636-734-4936
E: tennisfancincy@gmail.com
Meeting dates and times TBD.

Michigan
Holland Tinnitus Support Group
399 E 32nd St.
Holland, MI 49423 (or TBD)
T: 616-392-2222
E: info@holaud.com
RSVP requested
Meeting dates and times TBD.

Missouri
St. Louis Tinnitus Support Group
Grand Glaize Branch
1010 Meramec Station Rd.
Manchester, MO 63021-6943
Contact: Tim Busche
T: 636-734-4936
E: tennisfancincy@gmail.com
Meeting dates and times TBD.

New Jersey
Tinnitus Self-Help Group, Ewing
First Presbyterian Church
100 Scotch Road
Ewing, NJ 08628
Contact: Dhyan Cassie, AuD
T: 215-984-8380
E: Dhyan1@verizon.net
Visit the ATA website for dates and times.

South Jersey Tinnitus Support Group
Advanced ENT/HeartMD
1020 North Kings Highway, Ste. 201
Cherry Hill NJ 08034
Contact: Beth Savitch, Erin Lustik
E: tsg@advancedent.com
Meeting dates and times TBD.

Oregon
VA Portland Health Care System Tinnitus Education Group
National Center for Rehabilitative Auditory Research
3710 SW US Veterans Hosp. Rd.
Portland, OR 97239
Contact: Bryan Shaw
E: Bryan.Shaw2@va.gov
Meeting dates and times TBD.

Pennsylvania
Lehigh Valley Tinnitus Support Group
Location of Meetings: To Be Determined
Contact: Ed Kozelnicky
T: 610-797-7251 (H), 610-739-6675 (C)
Meeting dates and times TBD.

Texas
Dallas/Ft. Worth Tinnitus Support Group
Texas Health Presbyterian Hospital Plano
6200 W Parker Rd.
Plano, TX 75093
Contact: John Ogrizovich
E: dfwtsg@yahoo.com
Meeting dates and times TBD.

If you’re interested in forming a group, please contact Kevin Willman at tinnitus@ata.org.

If there isn’t a group in your area, the ATA has an extensive network of volunteers who provide email and telephone support and educational information. To connect with a volunteer, visit https://www.ata.org/managing-your-tinnitus/support-network/telephoneemail-support-listing.
Houston Tinnitus Support Group  
Business Center, Village at West University Apartments  
5151 Edloe St.  
Houston, TX 77005  
Contact: Vinaya Manchaiah  
T: 409-466-0427  
E: houstontinnitus@gmail.com  
Meeting dates and times TBD.

San Antonio Tinnitus & Hyperacusis Support Group  
Contact: Matthew Randal  
E: atasg.satx@gmail.com.  
Meeting location, dates and times TBD.

Washington  
Seattle Tinnitus Support Group  
Broadview Public Library  
12755 Greenwood Ave N.  
Seattle, WA 98133  
Library Font Desk: 206-684-7519  
Contact: Keith Field  
T: 206-783-7105  
E: keith_r_field@outlook.com  
Meeting dates and times TBD.

Wisconsin  
Madison Tinnitus Support Group  
Madison Masonic Center  
85 S Stoughton Rd.  
Madison, WI 53714  
Contact: Deb Holmen  
T: 608-219-0277  
E: dholmen@hearu@gmail.com  
Fourth Wednesday of the month from 6:30–7:30 pm.

Each support group referenced here is independently operated and led by volunteers who wish to provide education and support to the tinnitus community. The American Tinnitus Association (ATA) does not sponsor or endorse these activities and expressly disclaims any responsibility for the conduct of any independent support group or the information they may provide. The ATA is not a healthcare provider so you should consult with your primary care physician or hearing healthcare professional for qualified medical advice on tinnitus and related disorders.

*Some groups do not or cannot schedule meetings far in advance to allow for flexibility in planning. We post support group information on our online events calendar at www.ATA.org when we receive notifications from the organizers. The information above was provided to the ATA staff at the time the magazine went to print; therefore, please confirm meeting details with the contact person prior to a meeting or visit our website at https://www.ata.org/news/events.

This is a partial listing of support groups and scheduled meetings. A complete list can be found at https://www.ata.org/managing-your-tinnitus/support-network/support-group-listing. New groups form throughout the year so please check the website for updates periodically.
<table>
<thead>
<tr>
<th>Healthcare Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shahrzad Cohen, AuD</strong>&lt;br&gt;Hearing Loss Solutions&lt;br&gt;Sherman Oaks, CA</td>
</tr>
<tr>
<td><strong>Arthur Corpus, PA</strong>&lt;br&gt;Sharp Rees-Stealy Medical Group Inc.&lt;br&gt;Chula Vista, CA</td>
</tr>
<tr>
<td><strong>Jean M. Deiss, AuD</strong>&lt;br&gt;VA Northern California Health Care System&lt;br&gt;Martinez, CA</td>
</tr>
<tr>
<td><strong>David DeKriek, AuD</strong>&lt;br&gt;Fidelity Hearing Center&lt;br&gt;Cerritos, CA</td>
</tr>
<tr>
<td><strong>Jean M. Deiss, AuD</strong>&lt;br&gt;VA Northern California Health Care System&lt;br&gt;Martinez, CA</td>
</tr>
<tr>
<td><strong>David DeKriek, AuD</strong>&lt;br&gt;Fidelity Hearing Center&lt;br&gt;Cerritos, CA</td>
</tr>
<tr>
<td><strong>Jerilyn Dutton, AuD</strong>&lt;br&gt;Salient Sounds Audiology&lt;br&gt;La Jolla, CA</td>
</tr>
<tr>
<td><strong>Gregory Frazer, AuD</strong>&lt;br&gt;Pacific Hearing &amp; Balance Center Inc.&lt;br&gt;Los Angeles, CA</td>
</tr>
<tr>
<td><strong>Tracy Peck Holcomb, AuD</strong>&lt;br&gt;Hearing and Speech Center of Northern California&lt;br&gt;San Francisco, CA</td>
</tr>
<tr>
<td><strong>Kent Holtorf, MD</strong>&lt;br&gt;Holtorf Medical Group&lt;br&gt;El Segundo, CA</td>
</tr>
<tr>
<td><strong>Malvina Levy, AuD</strong>&lt;br&gt;Hearing and Speech Center of Northern California&lt;br&gt;San Francisco, CA</td>
</tr>
<tr>
<td><strong>Sara Mattson, AuD</strong>&lt;br&gt;Rancho Santa Fe Audiology&lt;br&gt;Rancho Santa Fe, CA</td>
</tr>
<tr>
<td><strong>Mami Novick, AuD</strong>&lt;br&gt;Silicon Valley Hearing Inc&lt;br&gt;Los Gatos, CA</td>
</tr>
<tr>
<td><strong>Bruce Piner, AuD</strong>&lt;br&gt;Hearing and Balance Center&lt;br&gt;Encino, CA</td>
</tr>
<tr>
<td><strong>Jane Rosner, AuD</strong>&lt;br&gt;West Valley Hearing Center&lt;br&gt;Woodland Hills, CA</td>
</tr>
<tr>
<td><strong>Mimi Salamat, PhD</strong>&lt;br&gt;Dr. Mimi’s Audiology Clinic&lt;br&gt;Wheat Creek, CA</td>
</tr>
<tr>
<td><strong>William Stubbeman, MD</strong>&lt;br&gt;TMS Psychiatry&lt;br&gt;Los Angeles, CA</td>
</tr>
<tr>
<td><strong>Christopher Sumer, NBC-HIS</strong>&lt;br&gt;Coastal Hearing Aid Center&lt;br&gt;Encinitas, CA</td>
</tr>
<tr>
<td><strong>Katarzyna Tarnowska, PhD</strong>&lt;br&gt;San Jose State University&lt;br&gt;San Jose, CA</td>
</tr>
<tr>
<td><strong>Nancy Congdon, AuD</strong>&lt;br&gt;The Hearing Care Clinic&lt;br&gt;Downers Grove, IL</td>
</tr>
<tr>
<td><strong>Brian K. Jones, MEd</strong>&lt;br&gt;Greater Atlanta Hearing Inc.&lt;br&gt;Cumming, GA</td>
</tr>
<tr>
<td><strong>Christin Brooke Means, AuD</strong>&lt;br&gt;North Georgia Audiology&lt;br&gt;Suwanee, GA</td>
</tr>
<tr>
<td><strong>Otis Whitcomb, MA</strong>&lt;br&gt;Cobb Hearing Aid Services&lt;br&gt;Marietta, GA</td>
</tr>
<tr>
<td><strong>Melissa Wikoff, AuD</strong>&lt;br&gt;Peachtree Hearing&lt;br&gt;Marietta, GA</td>
</tr>
<tr>
<td><strong>Florida</strong></td>
</tr>
<tr>
<td><strong>Anne Carter, AuD</strong>&lt;br&gt;Pasadena Hearing Care&lt;br&gt;St Petersburg, FL</td>
</tr>
<tr>
<td><strong>Maura Chippendale, AuD</strong>&lt;br&gt;Chippendale Audiology&lt;br&gt;Cape Coral, FL</td>
</tr>
<tr>
<td><strong>All Danesh, PhD</strong>&lt;br&gt;Labyrinth Audiology&lt;br&gt;Boca Raton, FL</td>
</tr>
<tr>
<td><strong>Brooke Davidson, AuD</strong>&lt;br&gt;Baptist ENT Specialists&lt;br&gt;Jacksonville Beach, FL</td>
</tr>
<tr>
<td><strong>Ericka DeVore, AuD</strong>&lt;br&gt;All About HearingLake Audiology &amp; Hearing Aids&lt;br&gt;Longwood, FL</td>
</tr>
<tr>
<td><strong>Wilson DuMomay, MD</strong>&lt;br&gt;Broward ENT Services&lt;br&gt;Fort Lauderdale, FL</td>
</tr>
<tr>
<td><strong>Kelly J. Dyson, AuD</strong>&lt;br&gt;Suncoast Audiology, LLC&lt;br&gt;Largo, FL</td>
</tr>
<tr>
<td><strong>Melodi B. Fehl, MS</strong>&lt;br&gt;ENT &amp; Allergy Associates of Florida&lt;br&gt;Boca Raton, FL</td>
</tr>
<tr>
<td><strong>Lisa Gascay, AuD</strong>&lt;br&gt;Rainbow River Hearing &amp; Balance Inc.&lt;br&gt;Dunnellon, FL</td>
</tr>
<tr>
<td><strong>Margaret Richards, AuD</strong>&lt;br&gt;The Hearing Center&lt;br&gt;Pensacola, FL</td>
</tr>
<tr>
<td><strong>Sharon Rophie, AuD</strong>&lt;br&gt;Habor Hearing PA&lt;br&gt;Palm Harbor, FL</td>
</tr>
<tr>
<td><strong>Cindy Ann Simon, AuD</strong>&lt;br&gt;South Miami Audiology Consultants&lt;br&gt;South Miami, FL</td>
</tr>
<tr>
<td><strong>Mindy Stejskal, MCD</strong>&lt;br&gt;The Hearing Center&lt;br&gt;Pensacola, FL</td>
</tr>
<tr>
<td><strong>Anne Marie Taylor, AuD</strong>&lt;br&gt;ALPHA Audiology &amp; Hearing Aids&lt;br&gt;Panama City Beach, FL</td>
</tr>
<tr>
<td><strong>Susan E Terry, AuD</strong>&lt;br&gt;Broadwater Hearing Care&lt;br&gt;St. Petersburg, FL</td>
</tr>
<tr>
<td><strong>Liz White, AuD</strong>&lt;br&gt;Habor City Hearing Solutions&lt;br&gt;Melbourne, FL</td>
</tr>
<tr>
<td><strong>Kayla Wilkins, AuD</strong>&lt;br&gt;Aspire Hearing and Balance&lt;br&gt;Lakeland, FL</td>
</tr>
<tr>
<td><strong>Georgia</strong></td>
</tr>
<tr>
<td><strong>Brian K. Jones, MEd</strong>&lt;br&gt;Greater Atlanta Hearing Inc.&lt;br&gt;Cumming, GA</td>
</tr>
<tr>
<td><strong>Christin Brooke Means, AuD</strong>&lt;br&gt;North Georgia Audiology&lt;br&gt;Suwanee, GA</td>
</tr>
<tr>
<td><strong>Otis Whitcomb, MA</strong>&lt;br&gt;Cobb Hearing Aid Services&lt;br&gt;Marietta, GA</td>
</tr>
<tr>
<td><strong>Melissa Wikoff, AuD</strong>&lt;br&gt;Peachtree Hearing&lt;br&gt;Marietta, GA</td>
</tr>
<tr>
<td><strong>Idaho</strong></td>
</tr>
<tr>
<td><strong>Christine Pickup, AuD</strong>&lt;br&gt;Mt. Harrison Audiology &amp; Hearing Aids, LLC&lt;br&gt;Rupert, ID</td>
</tr>
<tr>
<td><strong>Tosha Strickland, AuD</strong>&lt;br&gt;Strickland Ear Clinic&lt;br&gt;Meridian, ID</td>
</tr>
<tr>
<td><strong>Illinois</strong></td>
</tr>
<tr>
<td><strong>Nancy Congdon, AuD</strong>&lt;br&gt;The Hearing Care Clinic&lt;br&gt;Downers Grove, IL</td>
</tr>
<tr>
<td><strong>Phillip Elbaun, LCSW</strong>&lt;br&gt;Deerfield, IL</td>
</tr>
<tr>
<td><strong>Deerfield, IL</strong></td>
</tr>
<tr>
<td><strong>Lori A Halvorson, AuD</strong>&lt;br&gt;Lake Forest Hearing Professionals&lt;br&gt;Lake Forest, IL</td>
</tr>
<tr>
<td><strong>JoAnn Harano, AuD</strong>&lt;br&gt;Loyola University Health System&lt;br&gt;Chicago, IL</td>
</tr>
<tr>
<td><strong>Jill Meltzer, AuD</strong>&lt;br&gt;North Shore Audio-Vestibular Lab&lt;br&gt;Highland Park, IL</td>
</tr>
<tr>
<td><strong>James H Peck, HIS</strong>&lt;br&gt;Life Hearing Health Centers&lt;br&gt;Rockford, IL</td>
</tr>
<tr>
<td><strong>Jeanne Perkins, AuD</strong>&lt;br&gt;Audiologic Services&lt;br&gt;Glen Ellyn, IL</td>
</tr>
<tr>
<td><strong>Alyssa Seeman, AuD</strong>&lt;br&gt;Illinois State University&lt;br&gt;Normal, IL</td>
</tr>
<tr>
<td><strong>Indiana</strong></td>
</tr>
<tr>
<td><strong>Laura L. Fragomeni, AuD</strong>&lt;br&gt;Reid Hearing Center&lt;br&gt;Richmond, IN</td>
</tr>
</tbody>
</table>
**Iowa**

- **Erica Person, AuD**
  - Flex Audiology
  - Lawrenceburg, IN

- **Jason Aird, AuD**
  - Iowa Audiology and Hearing Aid Center
  - Coralville, IA

- **Jill L. Belski, AuD**
  - Professional Hearing Solutions by Dr. Jill
  - Cedar Rapids, IA

- **Diana Kain, AuD**
  - Heartland Hearing Center
  - Hiawatha, IA

- **Beki Kellogg, AuD**
  - Hope Hearing & Tinnitus Center
  - Hiawatha, IA

- **Heather Thatcher, HIS**
  - Hope Hearing & Tinnitus Center
  - Hiawatha, IA

- **Richard Tyler, PhD**
  - University of Iowa, Dept. of Otolaryngology - Head & Neck Surgery
  - Iowa City, IA

- **Shelley Witt, MA**
  - University of Iowa Hospitals & Clinics
  - Iowa City, IA

**Kansas**

- **Bryne Gonzales, AuD**
  - NuSound Hearing & Tinnitus Center
  - Topeka, KS

- **Michael Schneller, HIS**
  - Focus Hearing
  - Overland Park, KS

- **Susan Smittkamp, AuD**
  - Associated Audiologists Inc.
  - Shawnee Mission, KS

**Kentucky**

- **Ann Rhoten, AuD**
  - Kentucky Audiology & Tinnitus Services
  - Lexington, KY

**Louisiana**

- **Mary Miller, PhD**
  - Premier Hearing and Balance
  - Hammond, LA

**Maryland**

- **Chelsea Carter, AuD**
  - University of Maryland Medical Center
  - Baltimore, MD

- **Christina Shields, AuD**
  - University of Maryland College Park
  - College Park, MD

**Massachusetts**

- **Eugene Antonell, BC-HIS**
  - Hear Better Now Tinnitus & Hearing Center
  - N. Dartmouth, MA

- **Judith Bergeron, BC-HIS, CDP**
  - Beaufort Hearing Care
  - Gloucester, MA

- **Taylor Buotte, AuD**
  - Atlantic Hearing Care
  - Salem, MA

- **Theresa Cullen, AuD**
  - Cape Cod Hearing Center
  - Hyannis, MA

- **Peter Harakas, PhD**
  - CBT Associates, LLC
  - Lexington, MA

- **Robert Mario; AuD, BC-HIS**
  - Mario Hearing & Tinnitus Clinics
  - Cambridge, MA

**Michigan**

- **Terese Alsum, AuD**
  - Kaczmarski Hearing Services
  - Wyoming, MI

- **Stelios Dokianakis, AuD**
  - Holland Doctors of Audiology
  - Holland, MI

- **MaryRose Hecksel, AuD**
  - Audiology & Hearing Aid Center
  - Lansing, MI

- **Beckie Kaczmarski, AuD**
  - Kaczmarski Hearing Services
  - Wyoming, MI

- **Angela Lederman, MS**
  - Hear Now Audiology & Tinnitus Center
  - Clinton Township, MI

- **Shannon Radgens, DO**
  - Red Cedar Ear Nose & Throat & Audiology
  - Owosso, MI

- **Michelle Rankin, AuD**
  - Ascent Audiology & Hearing
  - Chelsea, MI

- **Karrie Slominski, AuD**
  - Henry Ford Health System
  - West Bloomfield, MI

- **Benjamin Wightman, AuD**
  - Sound Advice Audiology
  - Livonia, MI

**Minnesota**

- **Sara Downs, AuD**
  - Hearing Wellness Center
  - Duluth, MN

- **John Ehlen**
  - Hear Central
  - Victoria, MN

- **Jason Leyendecker, AuD**
  - Audiology Concepts
  - Edina, MN

- **Laura Morrison, AuD**
  - Stillwater Medical Group-Health Partners
  - Stillwater, MN

- **Thomas Tedeschi, AuD**
  - Amplifon Americas
  - Minneapolis, MN

**Missouri**

- **Laura Flowers, AuD**
  - St. Luke’s Health System
  - Lee’s Summit, MO

- **Linda Guhe, MSW**
  - Mind Body Clinical Hypnosis
  - St. Louis, MO

- **Jay Piccirillo, MD**
  - Washington University School of Medicine
  - Saint Louis, MO

**Nebraska**

- **Robyn Lofton, BC-HIS**
  - Hearing Associates of Las Vegas
  - Las Vegas, NV

**New Jersey**

- **Catherine Ahrens Berke BC-HIS**
  - Ahrens Hearing Center
  - Fair Lawn, NJ

- **Granville Y. Brady Jr., AuD**
  - East Brunswick, NJ

- **Valerie Kriney, AuD**
  - Northern Jersey ENT Associates
  - Glen Rock, NJ

- **Beth Savitch, MA**
  - Advanced ENT/Hear MD
  - Voorhees, NJ

- **Donna Szabo, AuD**
  - Innovative Hearing Solutions
  - Westwood, NJ

**New York**

- **Nicole Ball, AuD**
  - Hearing Evaluation Services of Buffalo, Inc
  - Tonawanda, NY

- **Carol Bass. MS**
  - All Ears Audiology Tinnitus & Hyperacusis Audiological Consulting
  - Ithaca, NY

- **Alyssa Beaton, AuD**
  - Hearing Evaluation Services of Buffalo, Inc.
  - Orchard Park, NY

---

*Please note that the American Tinnitus Association does not verify providers’ certifications and expertise in tinnitus treatment. The list is meant expressly for informational purposes and should not be construed as the ATA’s endorsement of the providers listed. The ATA strongly advises anyone using the list to check practitioners’ websites and tinnitus services before scheduling appointments. Please note that the list includes hearing aid dispensers because hearing aids can be helpful to some people in the management of their tinnitus.*
Diana Callesano, AuD
Hearing and Tinnitus Center
Woodbury, NY

Lois Cohen, LCSW, ACSW, BCD
Tinnitus Counseling
Northport, NY

Collin Campbell, Lac
Campbell Acupuncture
New York, NY

Anthony Durante, MD
Mineola ENT
Mineola, NY

Craig Kasper, AuD
New York Institute for Hearing and Balance
New York, NY

Tracey Lynch, AuD
Island Better Hearing Inc.
Melville, NY

Katherine Maffetone, AuD
ENT & Allergy Associates
Manhasset, NY

Deanna Ross AuD
Albany ENT & Allergy Services PC
Albany, NY

Amy Sapodin, AuD
Advanced Hearing Center
Albertson, NY

Leigh A. Sauerbier, AuD
The Advanced Hearing Center
Brooklyn, NY

Rivka Strom AuD
Advanced Hearing NY Inc.
Brooklyn, NY

Jennifer Sutton, AuD
Hearing Evaluation Services of Buffalo, Inc.
Williamsburg, NY

Lori Trentacoste, AuD
Island Better Hearing Inc.
Melville, NY

Carolyn Yates, AuD
Hearing Evaluation Services of Buffalo, Inc.
Amherst, NY

Alexandra Zweig, AuD
New York Institute for Hearing and Balance
New York, NY

Jennifer Auer, AuD
Audiology Attention & Tinnitus Care PLLC
Concord, NC

Saranne Barker, AuD
Raleigh Hearing & Tinnitus Center
Raleigh, NC

Susan Bergquist, MS
Heritage Audiology
Wake Forest, NC

Lisa Fox-Thomas, PhD
UNCG Speech and Hearing Center
Greensboro, NC

Kelly Knolhoff, AuD
Birkdale Audiology
Huntersville, NC

Nancy McKenna, AuD
University of North Carolina Hearing and Communication Center
Chapel Hill, NC

Melissa Palmer, AuD
High Point Audiology
Clayton, NC

Sandra Royle-Tabak, MA
CarolinaEast Ear, Nose & Throat
Morehead City, NC

Christina Seaborg, AuD
Hearing & Balance Center
Charlotte, NC

Gina Whitenour, FNP
Robeson Family Health
Lumberton, NC

Jennifer Auer, AuD
Audiology Attention & Tinnitus Care PLLC
Concord, NC

Saranne Barker, AuD
Raleigh Hearing & Tinnitus Center
Raleigh, NC

Susan Bergquist, MS
Heritage Audiology
Wake Forest, NC

Lisa Fox-Thomas, PhD
UNCG Speech and Hearing Center
Greensboro, NC

Kelly Knolhoff, AuD
Birkdale Audiology
Huntersville, NC

Kristen Furseth, AuD
Williamette ENT
Salem, OR

James Henry, PhD
National Center for Rehabilitative Auditory Research (NCRAR)
Portland, OR

Ha-Sheng Li-Korotky, AuD
Pacific Northwest Audiology LLC
Bend, OR

Pennsylvania
Lisa A. Blackman, MA
A Hearing Healthcare Center
Philadelphia, PA

Gail Brenner, AuD
Hearing Technology Associates LLC
Bala Cynwyd, PA

Mindy Brudereck, AuD
Berks Hearing Professionals
Birdsboro, PA

Jeannie Karlovitz, AuD
Advanced Hearing Solutions
Exton, PA

Edward Keels, MA
Hear Now Hearing Aid Center
Philadelphia, PA

Melissa Reitnour, MA
Valley Forge ENT
Phoenixville, PA

Rhode Island
Holly Pulio, AuD
Gateway Hearing Solutions
Warwick, RI

South Carolina
Todd Gibson, AuD
Lake Murray Hearing
Lexington, SC

L. Margaret Kalady, AuD
Kalady Audiology
Beaufort, SC

Alexandra Tarvin, AuD
Elevate Audiology Hearing and Tinnitus Center
Easley, SC

Jennifer Waddell, HIS
Sound Hearing Care
Simpsonville, SC

South Dakota
Melissa E. Baker, MA
Baker Audiology and Hearing Aids
Sioux Falls, SD

Stephanie Wubben, AuD
Stanford Hearing Aids
Sioux Falls, SD

Tennessee
Tiffany Ahlberg, AuD
Ahlberg Audiology & Hearing Aid Services
Cleveland, TN
Cynthia Ellison, AuD
Franklin Hearing Center
Franklin, TN

Briana Hester, AuD
Vanderbilt University Medical Center
Nashville, TN

Andrea Plotkowski, AuD
Ear, Nose and Throat Consultants of EastTennessee
Knoxville, TN

Paul Shea, MD
Shea Ear Clinic
Memphis, TN

Texas

S. Diane Allen, PhD
The Grove Counseling & Wellness Center
Dallas, TX

Theodore Benke, MD
Benke Ear Nose & Throat Clinic
Cleburne, TX

Christie Cahill, AuD
Family Hearing & Sensory Neural Center
Huntsville, TX

Mary Sue Harrison, AuD
Today’s Hearing
Katy, TX

Jamie Hawkins, AuD
Clarity Hearing
Conroe, TX

Kristen Keener, AuD
IlluminEar Tinnitus & Audiology Center
Austin, TX

Christina Lobaninas, AuD
UT Southwestern Childrens Health Specialty
Frisco, TX

Cynthia Lockhart, HIS
Carrollton, TX

Pedro Montano, MD
McAllen, TX

Rene Pedroza, AuD
United States Department of Defense
El Paso, TX

Elly Pourasef, AuD
Memorial Hearing Inc.
Houston, TX

Lydia Ramanovich, AuD
Dallas Ear Institute
Frisco, TX

Bradley Stewart, AuD
ClearLife Hearing Care
Allen, TX

Bethany Tsui-Brum, AuD
UT Southwestern Medical Center
Dallas, TX

Crystal D. Wiggins, AuD
Bay Area Audiology
Webster, TX

Utah

Ashley Penrod, PA-C
Intermountain Healthcare
Sandy, UT

Vermont

Elizabeth Adams, AuD
Univ. of Vermont-E.M. Luse Center
Burlington, VT

Stephanie Hollop, AuD
Univ. of Vermont-E.M. Luse Center
Burlington, VT

Virginia

Ana Anzola, AuD
Ascent Hearing
McLean, VA

Theresa Bartlett, AuD
Virginia Hearing Consultants
Virginia Beach, VA

Ann DePaolo AuD
The Audiology Offices LLC
Kilmarnock, VA

Margaret Cooper Evans, AuD
Evolution Hearing
Richmond, VA

Julie Farrar-Hersch, PhD
Augusta Audiology Associates, PC.
Fishersville, VA

Washington

Dustin Spillman, AuD
Audiologists Northwest
Bremerton, WA

Wisconsin

Hugo Guerrero, AuD
Mayo Clinic Health System
Onalaska, WI

Veronica H. Heide, AuD
Audible Difference, LLC
Fitchburg, WI

Dan Malcore
The Hyperacusis Network
Green Bay, WI

Samantha Sikorski, HIS, ACA
Sikorski Hearing Aid Center, Inc.
Spooner, WI

West Virginia

Erin Wells, AuD
Mountain Ears Hearing Clinic, LLC
Parkersburg, WV

Argentina

Susana Dominguez Fonoaudióloga
Hospital Italiano de Bs.As, Argentina
Capital Federal, BA

Australia

Lynne Blackford, BSc
MQ Health Speech and Hearing Clinic
Macquarie University, NS

INTERNATIONAL

Andrew Campbell, MA
Neuaudio
Chermside, QLD

Michael Segal, MA
Pristine Hearing
Nollamara

Belgium

Peter Van Ostaeysen, MPsyC(Clin)
Resilience Psycheopolis
Schooten, AN

Canada

Nashlea Brogan AuD
Bluewater Hearing
Sarnia, ON

Patrick DeWarle, AuD
Winnipeg Hearing Centres
Winnipeg, MB

Kimberly Eskritt, AuD
Lambton Audiology Associates
Sarnia, ON

Deborah Lain, MSc.
Hope For Tinnitus
Calgary, AB

Carol A. Lau, HIS
Soundid Ears Inc.
Vancouver, BC

Malaysia

Wan Syafira Ishak, PhD
Program Audiologi, Fakulti Sains Kesihatan
Kuala Lumpur, KL

Norway

Sandra Michele Ochoa, MA
Oslo

South Korea

Taewoo Kim
St. Mary’s Hearing Aid
Seoul

United Kingdom

Hashir Aazh, PhD
Hashir Tinnitus Clinic
London

Lisa Caldwell, MA
The Hearing Coach
Glossop

Alan Hopkirk
The Invisible Hearing Clinic
Glasgow
Editorial Calendar

*Tinnitus Today* magazine is a print and electronic media magazine published in April, August, and December, and circulated to 25,000+ ATA contributors, donors, patients, supporters, researchers, and healthcare professionals.

The magazine editorial team empowers readers with information, including up-to-date medical and research news, feature articles on urgent tinnitus issues, questions and answers, self-help suggestions, and letters to the editor from others with tinnitus. Strong service journalism, compelling storytelling, first-person narrative, and profiles are presented in a warm, vibrant, and inviting format to encourage readers to reflect, engage, and better understand a medical condition that affects millions.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Theme</th>
<th>Editorial Copy Due</th>
<th>Photos Due</th>
<th>Ad Close</th>
<th>Digital Launch</th>
<th>Issue Mailed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer—Aug 2020</td>
<td>Diet and Dentistry</td>
<td>4/15</td>
<td>5/1</td>
<td>5/1</td>
<td>8/1</td>
<td>August</td>
</tr>
<tr>
<td>Winter—Dec 2020</td>
<td>Annual Research Issue</td>
<td>9/15</td>
<td>10/1</td>
<td>10/1</td>
<td>12/1</td>
<td>December</td>
</tr>
<tr>
<td>Spring—Apr 2021</td>
<td>Causes of Tinnitus</td>
<td>1/15</td>
<td>2/1</td>
<td>2/1</td>
<td>4/1</td>
<td>April</td>
</tr>
</tbody>
</table>

*Editorial Calendar is subject to change.*

To advertise, contact: tinnitus@ata.org

**MISSION AND CORE PURPOSE**

The mission and core purpose of the ATA are to promote relief, help prevent, and find cures for tinnitus evidenced by its core values of compassion, credibility, and responsibility.

**CORE VALUES AND GUIDING PRINCIPLES**

*Compassion:* Evidenced in a spirit of hope reflected in the commitment to finding a cure, preventing the condition, and supporting those affected by the condition.

*Credibility:* Evidenced in accurate information from reliable sources, transparency in decision-making, and an earned reputation for trustworthiness.

*Responsibility:* Evidenced in patient-centered advocacy by a collaborative community of forward thinking leaders accountable to its mission and members.

[www.ATA.org](http://www.ATA.org)
Tune In to *Conversations in Tinnitus* to Stay Abreast of Tinnitus Research and News

The American Tinnitus Association's podcasts are available 24/7 to help you stay abreast of tinnitus research and other tinnitus topics. Just like listening to music on your smartphone or computer, you can tune in to *Conversations in Tinnitus* podcasts, cohosted by John A. Coverstone, AuD, and Dean Flyger, AuD, while you work out, take a walk, relax at home, or commute to work. To access and learn more about this unique and compelling series, visit our website at www.ata.org. To enhance listening comprehension and accommodate those with noise sensitivity, transcripts are available with each podcast.

**ALL PODCASTS ARE FREE AND OPEN ACCESS**

**Podcast 14: Does Tinnitus Retraining Therapy Improve Quality of Life?**
SUBJECT MATTER EXPERTS: Roberta Scherer, PhD, and Craig Formby, PhD
TOPIC: Drs. Scherer and Formby guide us through the decades-long journey to conduct the first and only phase III trial of tinnitus retraining therapy, an influential habituation-based treatment protocol for alleviating the negative reactions to tinnitus. The researchers explore findings that highlight the importance of sound enrichment and working with a caring and qualified healthcare provider.

**Podcast 15: Exploring Noninvasive Neurosensory Tinnitus Treatment**
SUBJECT MATTER EXPERT: Hubert Lim, PhD
TOPIC: Dr. Lim, a leading scientist and thought leader in auditory neuroscience, discusses the research and development of non-invasive bimodal neuromodulation for treatment of tinnitus. He explains the scientific concept and the research being conducted, which is aimed at developing a treatment that decreases the perception of the tinnitus sound and the negative emotional reactions caused by it.

**Podcast 16: Understanding the Problem of Painful Hyperacusis**
SUBJECT MATTER EXPERT: Bryan Pollard, BA
TOPIC: Bryan Pollard, founder of the nonprofit Hyperacusis Research, explains what it is like to live with noise-induced pain and what is known about this often overlooked condition. As someone who lives with painful hyperacusis and tinnitus, Pollard provides unique insight into the struggles, his mission to increase research on the condition, and the importance of developing tools to enable sufferers to return to a more normal life, without fear of setbacks.

**Podcast 17: Talking About Tinnitus With Children**
SUBJECT MATTER EXPERTS: David Baguley, PhD, and Claire Benton, MSc
TOPIC: Dr. Baguley and Claire Benton discuss their efforts to educate parents, teachers, and healthcare providers on talking to children about tinnitus. The widespread misconception that children don’t have tinnitus has meant children suffer alone and miss critical opportunities for early intervention. They also discuss their research findings on the topic and tools to help children manage tinnitus.

To subscribe to the print or digital issue of *Tinnitus Today*, which is published three times a year, visit www.ata.org or email tinnitus@ata.org.