Connecting with Nature to Find Relief & Rejuvenation

Insights on Rethinking Tinnitus from a Cognitive Behavioral Therapist

Knowing When to Refer Tinnitus Patients to a Specialist

ATA’s 2017 Research Grant Recipients

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Jack Vernon 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?

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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
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Reconnecting with the World

Tinnitus, hyperacusis and related disorders, such as misophonia, often are unique in that they include a very strong psychoemotional aspect. While not completely unique in this respect, most health conditions do not affect us in the profound and personal way these conditions do.

The auditory system is connected to the limbic system, which supports emotions, behavior, and long-term memory, among others. Some would say this strong relationship between hearing and emotions exists as a protective response — the fight or flight response. If ancient man heard rustling in the bushes, for example, he became afraid it might be a lion and ran away (and those who didn’t run weren’t around to become our ancestors).

It should not be surprising that bothersome tinnitus has the potential to severely disrupt enjoyment of the world. People with tinnitus often miss the quality of life they had prior to its onset. When you have tinnitus that is bothersome, you can still throw a ball, take a walk in the forest, and run through the park; but, your ability to enjoy those activities and connect with other people while doing them may be diminished.

In this issue, we focus on connecting with the world around us and finding ways to regain some of the enjoyment that may have been lost. I hope the strategies, experiences, and research we share in this issue will help you to venture back out into your world and enjoy some of the experiences you may have left behind.

John A. Coverstone, AuD
Editor, Tinnitus Today

Unexpected Tinnitus Relief Often Found in Nature

We can thank serendipity and the melodic flow of a water fountain for the first tinnitus treatment. It was 1971 when Charles Unice, a doctor suffering from tinnitus, came to Portland, Oregon, to see Jack Vernon and learn about his tinnitus research. As he and Jack walked to lunch, they passed the Lovejoy Fountain. Noting that Charles had lagged behind, Jack approached him at the fountain. There was a look of shock on Charles’ face, as he conveyed that his tinnitus had ceased with the sound of babbling water. It was an “ah-ha” moment that gave us our first masking device, as well as the formation of a bond between two men who went on to found the ATA.

Such chance encounters — putting us in touch with the sounds of nature and nature itself — often bring unexpected surprises. I was raised in Montana, and my love for the great outdoors runs deep. But, it’s the warm ocean of the Florida Keys that draws my spirit, providing comfort and a sense of tranquility. To find studies confirming that the sound and view of ocean waves brings a multitude of health benefits is hardly surprising. It makes me wonder what it is about human nature that we require proof for something that we intuitively know to be true.

As we come to the end of summer, I hope you find moments of calm and relief in the magic of nature, be it from a water fountain in an urban jungle, alongside the ocean, or in the thick of the woods.

Torryn P. Brazell, MS, CAE
Executive Director & Chief Operating Officer
Publisher, Tinnitus Today

Old Bahia Honda Bridge, Bahia Honda State Park, Florida Keys, Florida

John A. Coverstone, AuD
Editor, Tinnitus Today
Passing the Torch

Every organization needs change in leadership, if it expects to grow. The bylaws and other operating policies of the American Tinnitus Association recognize this by requiring elections of new officers and a turnover of directors on a regular basis.

When my term ended on June 30, I never felt more optimistic and excited about the future of ATA.

A big reason for that is the newly elected Chair of the Board: LaGuinn Sherlock, AuD.

LaGuinn has been a clinical and research audiologist for more than 25 years. She trained at the University of Maryland, Johns Hopkins Hospital, University of Florida, and spent 19 years at the University of Maryland Medical Center. In the latter part of her time there, she focused on tinnitus and hyperacusis in collaboration with some of the top researchers and clinicians in the field, eventually serving as Clinical Director of Audiology.

She currently works for the U.S. Army Public Health Center / Army Hearing Division in the Scientific and Clinical Studies Section at Walter Reed National Military Medical Center. She is conducting research on hearing protection devices and extended-wear hearing aids, as well as tinnitus evaluation and management for the military and — eventually — others.

With her training and clinical experience, LaGuinn understands tinnitus and related hearing disorders and has committed her career to treating patients and researching treatments. She has served the ATA in leadership roles and will bring that experience to her work as Chair of the Board. We are very fortunate to have her in this position, so it gives me great pleasure, with a (quiet) roll of drums, to pass the torch to ... LaGuinn Sherlock!

Thank you, Scott! What a wonderful opportunity this is for me to help the many individuals who are struggling with the effects of tinnitus.

For the past 46 years, the ATA Board has done great work to help people with tinnitus. From providing valuable information, education, compassionate support, research funding, and even help finding a local provider, ATA has long been an organization that advocates. Through the ATA’s arduous work, improved treatments are available TODAY and more will be available in the future! I am looking forward to being a part of this history of helping.

One of the goals of the ATA is to find a cure for tinnitus. While many assume that a “cure” means complete absence, “cure” also is defined as providing relief. Considering this definition, a cure already exists in the form of behavioral and sound-therapy-based treatments that help reduce the impact of tinnitus on sleep, concentration, emotional well-being, and hearing. Over the past 10 years specializing in the evaluation and management of tinnitus and hyperacusis, I have witnessed relief achieved by hundreds of patients who feel “cured” of tinnitus.

I look forward to working with the ATA Board, Staff, and Executive Director to help those with tinnitus improve the quality of their lives by increasing awareness and raising funds for research in the evaluation and treatment of tinnitus.
Letter 1
Under Fact or Fiction (Fall, 2016), item three indicates that there are possible cures for pulsatile tinnitus with a cochlear implant. I would appreciate more information on who and where this is being done.

— T. Cavalieri, Bedminster, NJ

The Fact or Fiction segment you referenced was referring to two different things. Pulsatile tinnitus is often caused by a condition affecting blood flow. This can be treated medically in many cases. When someone has pulsatile tinnitus, we almost always make a medical referral for further diagnostic examination to see whether medical treatment is appropriate.

When someone has severe hearing loss and is a candidate for a cochlear implant, we have found that the cochlear implant may result in cessation of tinnitus. The answer to the Fact or Fiction question was referring to this result specifically and was not intended to indicate that cochlear implants may cure pulsatile tinnitus. My apologies for the confusion on this, but thank you for contacting us to clarify.

Letter 2
I have been dealing with tinnitus and hyperacusis (roaring sound) for the past 5 years. It was sudden onset and very traumatic. In the Spring 2017 issue you have a chart of the “noise dose exposure level” (p. 15). I see that ‘jet plane’ is almost the very worst. I used to take wonderful trips with my husband, flying overseas a lot. Now, the thought of that noise terrifies me, and I no longer do so. Please write an article about flying.

— D. Hendrix, Dallas, TX

I sympathize with your sudden onset of tinnitus and hyperacusis and am glad you found help in your area. The airplane noise described in Tinnitus Today in the Spring 2017 issue is a rating of airplane engines as measured from the outside of the airplane. It represents an average jet engine at full throttle as someone would measure it standing next to the airplane.

There may be options that could allow you to enjoy air travel again — or certainly to tolerate it well enough to enjoy the rest of the travelling experience. For example, if changes in air pressure are troublesome for you, there are products to help with that.

You may want to speak with your audiologist about custom earplugs or noise-cancelling headphones to wear during a flight. An audiologist may be able to duplicate airplane noise to help you decide what solutions work best. Choosing seats away from the engines may also help. Also, consider starting with a short trip. If the anxiety of the trip is too much, you may want to speak with your audiologist about a referral to a psychologist, many of whom have wonderful strategies for dealing with anxiety.
While technology will never be a replacement for time spent in nature, it enables us to surround ourselves with the calming sounds of nature while indoors.

Our readers have shared their favorite apps — including Rain Rain, and websites, such as www.rainymood.com — that they use to help them cancel out the cacophony that comes with tinnitus. If you search “nature sounds” on Apple’s iTunes App Store, you will find almost 500 free options intended to help listeners relax, sleep, meditate, focus, or learn more effectively.

The ATA doesn’t endorse or recommend specific apps or sound therapies, but it is widely recognized that masking devices can help relieve the negative effects of tinnitus or at least provide a palatable pause. However, as with “one man’s junk is another man’s treasure,” what one person enjoys, another may find annoying.

Finding the right sounds that bring relief and lower stress is an individual endeavor of trial and error. Set aside an hour to experiment with apps and websites, and give yourself time to find your preferred sound. For instance, White Noise provides an array of rain storms, ocean waves crashing, and crickets chirping. With Relax Oriental, you can become a conductor of nature, creating your own orchestra of forest birds, frogs, whale cries, and tropical rain — something that in the end could sound highly unnatural. Such experimentation can allow you to better gauge the impact of sound on your mood and awareness of tinnitus.

Some contend that simulated sound is less effective in reducing stress than recordings of real nature. The Macaulay Library, which is part of the Cornell Lab of Ornithology and found at https://www.macaulaylibrary.org/, provides upwards of 200,000 bird calls and millions of bird photos. With such resources, we truly have nature at our fingertips, and it is inspiring.

By Joy Onozuka
Sometimes change happens as quickly as flipping a light switch. One moment it’s dark. A second later, brightness fills the room. Other changes creep up so subtly that it’s hard to notice them at all.

That’s what happened to my hearing acuity. It probably started years ago, when machine gun noise assaulted my ears during Army training. But running chainsaws, lawnmowers, and other machines didn’t help. Gradually, slowly, and pretty much unnoticed, I lost the ability to hear many of nature’s delightful sounds.

By age 60, my left ear buzzed constantly, with my right ear sometimes adding its own chorus of distracting noise. For several years, I could mentally disregard the tinnitus and pursue life normally. However, as the constant ringing increased in volume, it diminished my ability to hear. This impacted my relationships with others, as I could not accurately hear what was being said and would often respond incorrectly in a conversation or not at all.

I am a professional naturalist with 39 years’ experience as the executive director of nonprofit nature centers. Being able to hear nature’s gentle delicious sounds was professionally and personally important to me.

Early last May, a tiny bird and my wife, Marion, convinced

“"I can hear better with the aids, ear ringing is less intense, and I am more engaged with conversations.”"
me it was time to get my hearing checked. I was sitting on my back deck when a warbler landed on an oak branch about 20 feet in front of me. My wife commented on how sweet the song was. I could clearly see the bird singing, but I couldn’t hear it! A few days later, I was at Heartland Hearing Center in Cedar Rapids. Audiologist Jennifer Reekers, AuD, positioned me in a small booth and tested my ability to hear sounds of varied intensity and wavelength. The test proved what I already knew: I could not hear many sounds well, especially high pitches.

“Hearing aids will help improve your ability to hear many sounds,” she promised. She fitted me with a few trial pairs until I found one that did the trick. Some long-forgotten sounds, like hearing my own footsteps and my pant legs swooshing together as I walked, were odd.

A year has passed since Reekers fitted me with hearing aids. She had predicted that they might lessen the impact of tinnitus by amplifying sounds. My tinnitus remains, but her prediction proved true. I can hear better with the aids, ear ringing is less intense, and I am more engaged with conversations.

An event happened on the one-year anniversary of my purchase of hearing aids. We were sitting in our living room reading with the windows open when my wife, Marion, remarked, “Rich, listen!” Wafting into our home from a nearby tree was one of nature’s most delightful sounds — the call of a wood thrush. For the first time in years, I could hear its melody clearly.

Following my long nature-center career, Marion and I founded a business designed to encourage and help homeowners create wondrous yards that provide beauty, solitude, education, and inspiration. We have transformed our yard from a sterile mowed lawn to a haven of blooming plants that attract a stream of wildlife. Where a lawnmower once roared, birdsong now greets our mornings.

My experience with the hearing aids has been positive, and, although they were expensive, it was money well spent. Through our website and in our speaking engagements, we now encourage people to protect their hearing from loud noises and to seek the help of a professional audiologist to improve their ability to enjoy sounds.
Better Health with Nature Soundscapes

By Joy Onozuka

Tinnitus is aberrant sound that can taint the process of hearing, as well as the ability to enjoy silence or be alone with one’s thoughts. For many, nature provides a temporary reprieve from the buzzing, ringing, whooshing, hissing, or any other sound one might experience with tinnitus. And study after study confirms what we know intuitively: Nature is good for the mind, body, and soul.

In fact, studies in the Netherlands, Scotland, and Canada have shown that proximity to green space, even when people don’t use it, translates into better health. Researchers are still trying to pinpoint what exactly it is about time outdoors — air, smell, color, sound — that improves health. It is clear, however, that living near a tree-lined street in the center of a city, visiting a park — be it a tiny one or a famed national one — or sitting by the ocean benefits the mind and body.

“At the end of the day, we get out into nature not because the science says it does something to us, but because of how it makes us feel,” said David Strayer, a cognitive psychologist specializing in attention at the University of Utah. Strayer is among a group of scientists around the world drawing on psychology and neuroscience to try to quantify how nature mitigates common health problems, such as obesity, heart disease, anxiety, and depression.

Since being in nature would not be complete without the sound of wind rustling leaves, birds singing, or waves breaking onto shore, efforts are being made to protect the great outdoors from noise pollution that negatively effects both people and wildlife.

“Today, the din of modern life extends into protected areas,” said acoustic biologist Megan McKenna, a scientist with the Natural Sounds and Night Skies Division of the U.S. National Park Service in Ft. Collins, CO, who participated in research, analyzing noise levels at 492 federal, state, and local parks. The quietest parks have a background noise level below 20 decibels. City sound levels often exceed 65 decibels, which is the equivalent of listening to an air conditioner running.

The Noise Control Act of 1972 gave the Environmental Protection Agency (EPA) the ability to impose limits on noise from motor vehicles and machinery. However, noise levels in parks, wilderness, and protected areas have largely been ignored. Another research team with the U.S. National Park Service in Ft. Collins, CO, has been measuring sound with hidden microphones in parks around the country for the last decade. The study is measuring how man-made noise drowns out the sounds of birds, insects, and rain.

Kurt Fristrup, a senior scientist with the research project said, “I’d like to think that we can reach out through this effort — not just to park visitors or backpackers — to help everyone realize that their lives could be better and their communities could be more vibrant places, if we take some time to make them quieter.”

Fristrup envisions new technology being applied to make pavement quieter, electric airplanes prevalent, and to encourage the use of roadside noise gauges to raise awareness of man-made noise. In parks with designated quiet zones, noise levels drop, suggesting people are willing to reduce noise when asked.

That is good for everyone who wants to enjoy the sight, sound, and smell of nature and the health benefits they offer.

2 Williams.
Dear Secretary Price,

We are most anxious to have funding for tinnitus, or ringing in the ears. Our service men and women are exposed to explosive sounds while on duty. When they return home, they are having to cope with loud and varying sounds constantly.

Please make sure:
• All audiologists are made aware of this condition and have the necessary equipment to diagnose it.
• All Ear, Nose, Throat (ENT) doctors have the same access for treatment and knowledge of tinnitus.
• ENT+T (tinnitus) should become a household name.

Of course, our service men and woman are not the only people with tinnitus. No cure is yet available, but there are many disciplines that can be helpful.

The American Tinnitus Association, located in Portland, Oregon, can be most helpful for information. Their telephone number is (800) 634-8978, and their website is www.ata.org. They can be reached via email at editor@ata.org. The American Tinnitus Association also publishes Tinnitus Today magazine.

I am living with tinnitus myself and so is my son-in-law.

Sincerely,

Anne B. Medbery
Foley, AL

May 31, 2017
Cognitive Behavioral Therapy: A Proven Tool for Managing Tinnitus

By Joy Onozuka

Cognitive Behavioral Therapy (CBT) is a treatment, backed by evidence-based research, that has been shown to alleviate the negative psychological effects of bothersome tinnitus. While it is not a cure for the condition, it can help one develop stress tolerance and tools to reclaim a sense of control over one’s life.

To learn more about CBT and its application with tinnitus and hyperacusis patients, I interviewed Dr. Lynne Gots, a clinical psychologist with 35 years of experience in cognitive-behavioral therapy and behavioral medicine. Dr. Gots has a private practice in the Washington, DC area, and is an assistant clinical professor in the Department of Psychiatry and Behavioral Sciences at The George Washington University School of Medicine. She is also an ADAA (Anxiety and Depression Association of America) Clinical Fellow.

Joy Onozuka (JO): How and why does CBT work?

Dr. Lynne Gots (LG): CBT is a structured, relatively short-term therapy (typically 8-24 sessions, but that can vary) designed to modify unrealistic thoughts and beliefs (cognitions) and maladaptive behaviors (e.g., avoidance of environmental triggers and social withdrawal). Patients with tinnitus and hyperacusis who seek treatment typically experience anxiety and depression, along with insomnia, which have significantly impaired their ability to function at work and home.

Unlike traditional “talk therapy,” CBT is a treatment requiring active participation on the part of the patient and considerable practice at home between sessions. To be successful, a patient must be motivated and able to carry out assignments. For people who are severely depressed, the depression often needs to be treated with pharmacotherapy before CBT for tinnitus can be initiated.

JO: Why is CBT an effective tool for helping those with tinnitus and/or hyperacusis?

LG: CBT and related, so-called “third-wave” cognitive therapies, such as mindfulness and Acceptance and Commitment Therapy (ACT), are evidence-based treatments for the distress that can result from experiencing tinnitus, not for the condition itself.

Research has shown these approaches to be effective in modifying negative emotional and behavioral responses to tinnitus and helping patients return to more fulfilling lives. The auditory perception of sound (loudness and persistence) may or may not change.

JO: When did you begin working with tinnitus and hyperacusis patients?

LG: I began working with tinnitus and hyperacusis patients about 10 years ago. Though I’d previously seen people with hyperacusis, that wasn’t the primary focus of treatment. My specialty is anxiety and, specifically, Obsessive Compulsive Disorder (OCD), which frequently co-occurs with hyperacusis. I also used to work in a rehab hospital with patients who suffer from chronic pain. The CBT approach to treating tinnitus distress developed from the model used to treat chronic pain, so it was very familiar to me.
JO: Are there therapies you would suggest in combination with CBT?

LG: There is greater research evidence for CBT than any other non-psychological interventions, such as maskers, hearing aids, electrical stimulations, or surgical approaches, in reducing the psychological impact of tinnitus. However, a combination approach that uses CBT with maskers may be more effective than CBT alone.

JO: Do you have a distinct protocol when working with tinnitus patients?

LG: I use roughly the same protocol for all tinnitus patients, but adapt it to fit individual needs. The standard components are:

- mindfulness meditation (to improve stress tolerance);
- identification of thought patterns contributing to negative emotional reactions; and
- behavior modification (refraining from obsessive or negative repetitive behaviors and returning to previously enjoyed activities.)

JO: What obstacles to progress are typical of tinnitus patients?

LG: The primary obstacle to treatment is an overinvestment in eliminating the tinnitus entirely. Many people are reluctant to engage in CBT when they learn it isn’t going to eliminate their tinnitus.

JO: How do you approach treatment?

LG: I set goals collaboratively with patients at the beginning of treatment to help them develop realistic expectations for treatment outcome. We talk about the importance of focusing on values rather than symptom reduction. My role is to help them identify what’s meaningful to them, what they’ve lost, and how they can get back to living their fullest lives. Tinnitus reduction is not the goal of CBT, rather, the focus is on living the best life possible. This will help the patient in every circumstance that may affect quality of life. If patients are using tinnitus reduction to measure their progress, either I haven’t explained the agenda adequately or they’re not willing to accept it.

JO: What length of time do you typically work with tinnitus and hyperacusis patients?

LG: The length of treatment is highly variable. I’ve seen successful outcomes in as few as five sessions, but a more typical course of treatment would be from 8-20 sessions.

JO: Have you successfully treated patients with hyperacusis?

LG: There is no evidence-based protocol for hyperacusis, but I’ve had some success with using the same type of gradual exposure-based approach that is the treatment for OCD. Reducing social isolation is very important, because social withdrawal is both a risk factor for and a symptom of depression.

JO: What advice would you offer to someone who is in the first stages of bothersome tinnitus?

LG: I would discourage any tinnitus patient I’m working with from pursuing scientifically unproven remedies. There are a lot of snake oil sales people out there, so it is important to consult a health professional with experience in treating tinnitus.
Summary by John A. Coverstone, AuD

Cognitive behavioral therapy (CBT) is a leading psychological tool used for treating tinnitus by addressing the way in which people react to and perceive tinnitus. The Clinical Practice Guidelines for Tinnitus published in 2014 by the American Academy of Otolaryngology — Head and Neck Surgery Foundation, describe CBT as the only tinnitus treatment with solid evidence to support its effectiveness. Even though CBT is established as a treatment method for people with troublesome tinnitus, there are numerous studies continuing to look for more effective uses for CBT or new ways to use CBT in tinnitus treatment. Here is a summary of some of the emerging research in this area.

1 CBT Effectiveness in Misophonia

A group of researchers in Amsterdam sought to determine whether CBT would be an effective method for treating people with misophonia, a condition that makes specific sounds intolerable to an individual. It is distinct from hyperacusis, which is a lowered tolerance for all (usually loud) sounds. The authors recruited 90 patients with misophonia and provided eight biweekly group CBT sessions, using the Clinical Global Impression — Improvement Scale and Amsterdam Misophonia Scale to determine improvement in each patient’s condition. The latter scale is noted as not validated, but was used as a relative scale to determine severity of misophonia. After counseling with CBT, the authors found that 48 percent of patients demonstrated a significant reduction of misophonia. This suggests that CBT may have usefulness in treating misophonia. However, because half the patients were not helped by CBT, it also indicates that more research is needed to determine when it is appropriate to use and to compare against other methods for a measure of relative effectiveness.

2 Managing Chronic Tinnitus and Insomnia with rTMS and CBT

A case study published in Frontiers in Psychology by clinicians in Germany and Switzerland presented a 53-year-old patient who had tinnitus since age 49 and more recently had developed insomnia. The authors developed a treatment approach that included 10 sessions of repetitive transcranial magnetic stimulation (rTMS) followed by 10 sessions of CBT. The authors used the Tinnitus-Fregebogen instrument to assess tinnitus severity, the Beck Depression Inventory to indicate symptoms of depression, and the World Health Organization Well-Being Index for a subjective measure of overall well-being. Following the prescribed treatment, the patient improved from a tinnitus severity of severe to clinically negligible. He also improved from a depression score of minimal to a score of no depressive symptoms and from a borderline critical well-being score (52nd percentile) to above average (84th percentile). The conclusions from this paper are limited, because there was only one patient and no control subjects. However, it does suggest that combination treatment approaches may have promise for managing tinnitus.

3 Is CBT Being Discussed with Patients?

Following publication in 2014 of the American Academy of Otolaryngology — Head and Neck Surgery Foundation (AAO-HNSF) Clinical Guidelines for Tinnitus, a group from Harvard Medical School and University of California, Irvine sought to assess tinnitus management patterns in the United States, compared to AAO-HNSF recommendations. They gathered data from the 2007 National Health Interview Survey, a large-scale questionnaire that contained a significant number of questions.
regarding tinnitus (see Tinnitus by the Numbers, pp. 8-9, Spring 2017 issue of Tinnitus Today). The authors analyzed patient reports for the type of therapy that was discussed as treatment options for their tinnitus. The authors found that CBT was discussed 0.2 percent of the time with patients, which was the lowest of all described treatment options and less often than options that were not even included in the guidelines document. In fact, surgical transection (severing) of the auditory nerve was discussed six times more frequently than CBT. Medication, which AAO-HNSF recommended against in the guidelines, was discussed most at 45.4 percent. That equates to discussion of a non-recommended procedure 227 times more frequently than the most recommended procedure. The next most frequently discussed options were:

- hearing aids (9.2 percent),
- nutritional supplements (7.8 percent),
- stress reduction methods (6.7 percent), and
- music treatment (4.0 percent).

It should be noted that these data represent discussed options as reported by patients. This may be biased due to the impact on the patient, who might more readily recall a discussion about nerve transection than one about counseling sessions. It also represents all discussions, including those by physicians who were faced with a patient’s complaint of tinnitus but had no experience treating it or were uneducated about the latest developments in tinnitus management. It also may include many people who have less bothersome or even non-bothersome tinnitus and would not necessarily be good candidates for CBT. Nonetheless, the very low percentage of discussions that included CBT indicates that more education likely needs to be provided to the medical community.

CBT has proven to be one of the most effective treatment approaches for people with troublesome tinnitus. Therefore, it is not surprising that research continues into new uses for CBT, ways to make CBT more effective, and how — or how often — CBT is used to treat tinnitus. As tinnitus research continues to expand and we learn more about what tinnitus is and how we might treat it, we should expect CBT to be an important part of those discussions.

2 Managing Chronic Tinnitus and Insomnia with rTMS and CBT: https://www.ncbi.nlm.nih.gov/pubmed/28484405
3 Epidemiology study of treatment discussions with physicians: http://jamanetwork.com/journals/jamaotolaryngology/fullarticle/2533660
According to 2016 statistics from the Department of Veterans Affairs, tinnitus remains the #1 service-connected disability for veterans from all periods of service, accounting for 1,610,911 Veterans. (www.benefits.va.gov)

Enjoy the Sounds of Nature

Fall is a great time to spend in the outdoors whether viewing the changing of leaves or listening to the sounds in nature.

If you have tonal tinnitus, these activities may not be as pleasurable for you.

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http://appstore.com/tinnitusoundfinder
Creating a Multidimensional Tinnitus Personality Profile

Summary by John A. Coverstone, AuD

Clinicians and scientists working with tinnitus have known for years that psychological factors may have significant bearing on its effects on any individual person. Tinnitus research has documented the influence of social and emotional traits, as well as personality type, locus of control, anxiety sensitivity, feeling of self-control, and other factors. Some tinnitus questionnaires, such as the Tinnitus Functional Index and Tinnitus Handicap Questionnaire seek to identify some of those traits so a clinician may quantify the level of disturbance tinnitus is causing in a person’s life.

A group of researchers is expanding on that research and is attempting to create a multidimensional personality profile for tinnitus sufferers. The researchers, from the Department of Audiology at the University of Auckland (New Zealand) and led by Dr. Grant Searchfield, recruited 154 participants with tinnitus (81 male, 73 female), along with 61 control participants. Participants took a web-based personality survey consisting of questions about self-control, stress reaction, alienation, and social closeness. The questions were particularly relevant, as they were taken from subtests of the Multidimensional Personality Questionnaire, Hearing Handicap Inventory-Screening Version, Tinnitus Functional Index, and Tinnitus Case History Questionnaire. Participants were adults of all ages, although only three respondents were in the 21 to 30-year-age range (1 with tinnitus, 2 without), well over half were over 60 years old. Participants had hearing loss of varying severity — slight to profound. Those indicating they did not have hearing loss were excluded.

Analysis of scores showed that tinnitus sufferers reported greater reaction to stress, higher degrees of alienation, significantly lower levels of self-control, and lower social closeness than the control group of participants without tinnitus. Many interactions between parameters also were examined. For instance, participants with slight hearing loss showed lower reaction to stress in the 41 to 50-year-old age group, compared to those from 51 to 60-year-old age group. In addition, the control group showed significantly higher social closeness for females than the group with tinnitus. No differences in personality traits were found for those participants whose tinnitus changed in the presence of environmental noise, versus those whose tinnitus did not.

Findings also indicated that individuals who had sought several treatments for tinnitus were more likely to react strongly to stress than those who had not sought treatment. This may reflect the greater need for treatment of those people whose tinnitus is interfering with daily activities. The authors also found that a greater stress reaction and alienation from others correlated strongly with a tendency to experience hyperacusis.

These results correlate well with studies investigating individual traits and tendencies in people with tinnitus. However, the authors of this study sought to compare multiple personality traits, demographic data, and perceptual characteristics to uncover the combinations of factors that may lead to a decreased ability to adapt to tinnitus. For instance, many individuals have been observed to live with “benign” tinnitus until a significant life event or environmental influence causes it to worsen and become bothersome.

We do not yet have the science to determine whether tinnitus truly changes in the brain, but we now may have information that describes the risk factors leading to troublesome tinnitus — e.g., tinnitus that requires treatment. Clinicians also may be able to develop more specific treatment regimens based on the personality traits of the individual patient, so that habituation is enhanced and appropriate therapeutic methods are chosen earlier in the treatment process.

Patients and providers alike know that one of the most important encounters for someone experiencing tinnitus is the first time he or she mentions it to a health care provider. The intake professional could be a primary care physician, ENT, audiologist, psychologist, or other provider. Regardless of the type, it is the way a provider receives and acknowledges a patient’s first report of tinnitus that is crucial to the process of directing treatment and addressing the other conditions that often are associated with it.

Far too many patients hear, “There is nothing that can be done,” at this initial intake, even though there are numerous options available to help people with tinnitus and associated conditions. As one would surmise, this response — rather than providing help — may actually contribute to a patient reacting to tinnitus with depression, anxiety, or even despair.

Providers can change that scenario and turn it into a positive experience simply by asking a few basic questions. In addition to making a better experience for the patient, these questions allow the provider to determine the most appropriate referrals and ensure that all individuals with tinnitus receive the help they need in an efficient, effective, and empathetic manner.

One excellent source for basic tinnitus education is the British Tinnitus Association’s Guidance for General Practitioners, which was reprinted in the Spring 2017 issue of Tininnitus Today. This guidance serves as a starting point to quickly educate primary care physicians about the nature of tinnitus and helps them understand that there are many things that can help tinnitus patients.

In this article, we outline ways to assess a patient’s condition quickly and determine the most appropriate referrals based on those findings. These tools may be used by any physician, audiologist, psychologist, or other provider who encounters patients with acute tinnitus.
Pulsatile Tinnitus

Many patients report that they hear a pulsing tinnitus, which may be described as rhythmic, pulsing, thumping, whooshing, or following their heartbeat. This is referred to as pulsatile tinnitus, and its rhythm frequently is timed to the patient’s heartbeat. This condition results from abnormalities with blood flow resulting from atherosclerosis, hypothyroidism, increased localized blood flow resulting from tumors of the head or neck, or even conductive hearing loss. Pulsatile tinnitus also may result from idiopathic intracranial hypertension, which additionally includes visual disturbances and headaches. Providers whose patients report pulsatile tinnitus should refer the patient to a primary care physician or otologist for evaluation of blood flow.

Unilateral Tinnitus or Tinnitus Ipsilateral to Head/Neck Mass

Many otologic and neuro-otologic conditions have the potential to cause tinnitus. Many of these result in unilateral tinnitus, rather than bilateral tinnitus that often is associated with hearing loss, noise exposure, ototoxicity, head trauma, and other causes. Unilateral tinnitus may be caused by a more benign condition, such as unilateral hearing loss. On the other hand, it also could result from a more serious and acute condition, such as vestibular schwannoma, a labyrinthine condition, such as Meniere’s disease, or a condition of the middle ear, such as otosclerosis or otitis media. When a patient presents with unilateral tinnitus, providers should make a referral for examination by an ENT.

Tinnitus Onset Following Flying/Diving

Patients reporting tinnitus onset closely following an episode of flying, diving, or other activity with rapid changes in air pressure may be experiencing the effects of middle ear pathology.
sinus problems, or ear barotrauma. In all cases, referral to an otologist and audiologist is recommended for complete evaluation of these symptoms.

### Tinnitus Related Hearing Loss

The most common etiology for tinnitus is believed to be hearing loss. Therefore, patients reporting tinnitus should be screened for hearing loss. This screening may be as simple as asking whether patients have difficulty understanding conversations with background noise present, whether they turn up the television (spouses are more than happy to report this), notice that they are struggling to hear what is being said, or do not understand everything being said in a conversation. Pure tone hearing screenings or screening questionnaires, such as the Hearing Handicap Inventory for Adults (HHIA), also can be employed. Any tinnitus patient identified as having possible hearing loss should be referred for a comprehensive audiological evaluation performed by an audiologist.

### Sleep Disorders/Lack of Sleep from Tinnitus

Most providers who serve patients with tinnitus agree that sleep is a fundamental component of overcoming its effects. If a patient with tinnitus is not getting sufficient sleep, tinnitus may worsen, and its effects may be perceived as more severe. If a patient is having mild difficulty sleeping due only to the tinnitus, an audiologist typically can provide help through sound therapy. If sleep problems involve non-tinnitus causes or the patient is suffering from severe sleep deprivation and sound therapy is insufficient to allow normal sleep, it may be appropriate to prescribe medication (on a short-term basis) for sleep, refer the patient for a sleep study, or refer him or her to a mental health specialist for cognitive behavioral therapy. If these referrals do not help the patient manage sleep issues, a combination of treatments may be in order.

### Tinnitus with Sound Tolerance Problems

Some people with tinnitus and a larger number with bothersome tinnitus also may have sound tolerance problems. This occurs when someone has an adverse reaction (sometimes severe) to sounds at levels typically considered very tolerable. It is important to identify this condition and avoid probes that create loud sounds (for audiologists, in particular). Materials such as the Tinnitus Reaction Questionnaire help determine whether a patient has sound tolerance problems. Referral to an audiologist who specializes in tinnitus and related disorders is indicated in these instances. Referral to a psychologist also may be necessary and may be done in consultation with the audiologist. It is critical that those working with patients who have sound sensitivity issues, sometimes referred to as hyperacusis, have knowledge and experience with this population.

### Tinnitus Without Evident Etiology or Comorbidity

Some people experience tinnitus without other conditions present, so the need to refer often is based on the patient’s perceived need for help. However, it is recommended that any patient who experiences tinnitus and is seeking help be referred to an audiologist specializing in tinnitus so that examination and consultation may be performed. Hearing loss may be present, but not mentioned or perceived. Another potential cause may be uncovered by the audiologist. If other intervention is not indicated, the audiologist will advise the patient about effective methods for treating tinnitus in everyday life.

Given the fact that more than 50 million Americans experience tinnitus at some point in their lifetimes, it is likely that nearly every primary care physician, ENT, audiologist, psychologist, psychiatrist, physician assistant, and nurse practitioner will encounter one or more patients with tinnitus. Knowing the information provided — along with the accompanying flowchart and a questionnaire, such as the Tinnitus Reaction Questionnaire (TRQ) or the Tinnitus Handicap Inventory (THI) — will be invaluable in helping respond appropriately and effectively to those patients who are seeking help with tinnitus. Keep these tools close by for quick reference.

With a basic understanding of tinnitus, as well as these simple guidelines and tools, any primary care provider can help patients with tinnitus. Instead of “Nothing can be done,” your answer can and should be “Something can be done — let me help you.”

John A. Coverstone, AuD, is a clinical audiologist, Audiology Ear Care, New Brighton, MN

Gail M. Whitelaw, PhD, is an audiologist and clinic director, The Ohio State University Speech-Language-Hearing Clinic, Columbus, OH


Tinnitus may be associated with one or more of the following conditions. It is recommended that all providers check all conditions in this chart, even if a positive answer leads to a specific referral. Redirection to subsequent decisions is provided for those conditions that have common comorbidities. This process chart may require updates as new information becomes available.

**PATIENT PRESENTS WITH TINNITUS**

- **Is tinnitus pulsatile?**
  - **YES**
    - Medical referral for evaluation of blood flow abnormalities in the head and neck.
  - **NO**
    - Recent dental work or jaw pain?
      - **YES**
        - Refer to dentist/orthodontist for further evaluation and treatment of possible TMJ disorder.
      - **NO**
        - History of head injury/TBI diagnosis?
          - **YES**
            - Refer to specialist for head injury. Refer for psychological/psychiatric management as indicated.
          - **NO or YES**
            - Signs of PTSD, depression, anxiety, or other MHD?
              - **YES**
                - Refer to neuro-otology for evaluation of central lesion, labyrinthine disease, or other otologic condition.
              - **NO**
                - Is tinnitus unilateral?
                  - **YES**
                    - Refer to otology, audiology for assessment of middle ear, sinus, ear barotrauma.
                  - **NO**
                    - Recent flying or diving?
                      - **YES**
                        - Refer to audiologist specializing in tinnitus.
                      - **NO**
                        - No evident etiology or comorbidity?
                          - **YES**
                            - Sleep disorder noted?
                              - **YES**
                                - Sound tolerance problems?
                                  - **YES**
                                    - Refer to audiologist for assessment and treatment, if indicated.
                                  - **NO**
                                    - Consider medication for sleep, a sleep study, or referral to psychology for CBT as indicated.
                          - **NO or YES**
                            - Is sleep disorder due to non-tinnitus factors, severe in nature, or sound therapy ineffective?
                              - **YES**
                                - Refer to audiologist for sound therapy consultation.
                              - **NO**
                                - Intake Process

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An Advancement in Replacing Damaged Hair Cells

Summary by John A. Coverstone, AuD

Most of the heavy lifting in the human ear is done by structures in the cochlea called hair cells. These tiny cells and the filaments (called “cilia”) that protrude from the top of the cells are responsible for sensing specific wavelengths of sound entering the cochlea and stimulating the auditory nerve. The cochlea is organized by frequency, which is called tonotopic organization. Higher frequency sounds are sensed in the earlier portion, called the basal end of the cochlea. Lower frequency sounds are sensed at the end, or apical portion, of the cochlea.

If those hair cells lose their function, whether from drugs toxic to the ear, repeated loud sounds, or certain infectious diseases, their ability to respond to sound is gone forever. When people lose hair cells in the high-frequency region of the cochlea, for example, they can no longer hear high-frequency sounds (high-frequency hearing loss).

Hair cells cannot regenerate — at least not in mammals. Other animals have long been known to regenerate hair cells in their ears. Birds, for example, were identified first as having this capability, and some amphibians and fish also have been found to regenerate damaged hair cells. This capability has long been considered the “holy grail” for hearing loss research, as it may render hearing aids and cochlear implants unnecessary for many people with hearing loss.

Luckily, there is headway being made in this area. Along the membrane that contains hair cells in the cochlea, there are many supporting cells that fit under and around them. In recent years, researchers have identified cells in the cochlea containing Lgr5, an epithelial cell protein that was previously known to be a marker for intestinal stem cells. It has more recently been found to be critical to the function of renewing cells in the intestinal lining, which have a high turnover rate.

Cells expressing Lgr5 have been found to proliferate when stimulated by Wnt, which is a protein that regulates the proliferation of cells in many contexts, including playing a critical role in the early growth and development of tissues in newborns. In the cochlea, it has been found that cells expressing Lgr5 may divide in response to Wnt signaling and may differentiate into hair cells. Cells not expressing Lgr5 do not create new hair cells. An increase of Lgr5 within a cell, called upregulation, has been shown to cause greater differentiation of hair cells as well — particularly when combined with inhibition of another signaling protein called Notch.
These and other studies have led scientists to believe that cells containing Lgr5 are progenitor cells for the epithelium in the cochlea — meaning that Lgr5 cells are able to replicate and replace other cells within the cochlea. Research has shown that cells containing Lgr5 spontaneously regenerate in newborns when the cells are damaged. However, this regenerative process only occurs in the first week of life. After that time, spontaneous regeneration is lost in the cochlea.

The authors sought to use techniques developed to grow intestinal stem cells for the purposes of growing neonatal cochlear hair cells. After testing several growth factors in isolation and in varying combinations, they identified the treatment that led to the greatest amount of cell growth. They next treated the cells with different compounds that were intended to encourage differentiation into hair cells. They studied the results to identify which compound yielded the greatest number of viable hair cells. By combining the most successful techniques, the researchers were able to produce many times more viable hair cells than had resulted from previous methods.

To this point, though, the authors had successfully refined methods for expansion (growth) and differentiation of progenitor cells only in neonates. They next sought to study expansion and differentiation of adult progenitor cells into hair cells. First attempts used cochlear epithelial cells from adult rhesus macaques. This failed due to repeated contamination from non-sterile conditions during isolation of tissues. The authors then obtained access to healthy human ear tissue from a patient undergoing a labyrinthectomy (removal of the end organs in the ear) to access a tumor. Applying the same procedures found to be most successful for neonatal cells, the authors encouraged expansion of the adult human cells, resulting in differentiation into hair cells.

The authors also tested their ability to grow hair cells in explanted cochleae of mice. They used both healthy cochleae and those treated with gentamycin to damage the hair cells. In this case, cell expansion was encouraged through use of the same conditions. However, the authors hoped for spontaneous differentiation in the intact cochlea.

After treatment, they reported regeneration of hair cells close to normal numbers and seven times the number counted in control cochleae. Using these techniques, the authors demonstrated a potentially viable method for regeneration of damaged hair cells in human ears.

ATA Funds Innovative Research

By Jennifer Born

The ATA Board of Directors announced funding of new grants for four research projects aimed at increasing scientific understanding of tinnitus and accelerating progress toward effective treatments and a cure.

This is the third decade in which the ATA has funded innovative research based on recommendations from its Scientific Advisory Committee (SAC), which represents an international panel of researchers engaged in cutting-edge tinnitus research. This year, for the first time ever, patients were included in the review process to add an important perspective.

“What makes our grant process so compelling is that funding dollars are almost entirely from individuals who have experienced tinnitus and want to help find a cure for it,” according to Torryn P. Brazell, executive director of the American Tinnitus Association. “Since 1980, ATA has given more than $6 million in seed grants for over 100 projects, and we have done so without large grant resources or government funding. It’s all from individual support.”

The two categories of research funded by ATA include regular grants that are awarded to academic researchers, who are eligible to receive up to $50,000 per year, and student grants, which have a maximum award of $10,000. These grants are typically seed grants that enable researchers to obtain data that then becomes the basis for applying for larger funding from such entities as the National Institutes for Health and the U.S. Department of Defense.

Jennifer Born is ATA’s Scientific Research Coordinator and Programmatic Advisor.

Keeping the Focus on Patient Interests

For the first time, patients participated as reviewers in the ATA Scientific Advisory Committee’s evaluation of grant requests for 2017. Among the patient reviewers was Bryan Pollard, ATA Board of Directors member, who has hyperacusis. Here is what he had to say about the experience:

Tinnitus Today (TT): What’s the value of having the patient perspective in the grant review process?

Bryan Pollard (BP): Including patients is a great step toward ensuring that researchers comprehend the actual lives of patients — their symptoms and experiences. For example, if a new clinical test is proposed, a patient can provide feedback on how the test may be perceived by that important constituency. If additional animal model tests are proposed, patient participants can offer input on how well those tests reflect key aspects of the patient’s condition (e.g., pain from new sounds with hyperacusis).

TT: What did you take away from being a part of the process?

BP: There were many great proposals to choose from (I wish we could fund them all!). The rigorous ranking model that we used helped to assess the strength of a wide variety of proposals, from clinical-focused to basic neuroscience. The broad experience of the SAC team helped provide a balanced perspective with the collective wisdom of more than a dozen researchers. This rigorous methodology takes some time, but the outcome drives the best of the best to the top and helps to ensure ATA funds the most promising research on the path to a cure.
2017 ATA Research Grant Recipients

The Role of Cochlear Synaptopathy in Tinnitus

**Principal Investigator:**
Gabriel Corfas, PhD
The Regents of the University of Michigan

Noise-induced hidden hearing loss (HHL) can result from loss of inner hair cell synapses — known as synaptopathy — and some speculate that reversing synaptopathy could serve as a tinnitus therapy. To date, all studies linking HHL and synaptopathy to tinnitus are based on noise exposure, making the connection between synapse loss and tinnitus indirect. Dr. Corfas and his team have generated mouse models in which they induce and repair synaptopathy independent of noise. They propose to use these mice and well-established behavioral assays to determine if loss of synapses cause tinnitus; if increased synaptic connectivity alters the tinnitus percept; and if restoring synapses after noise exposure prevents or reduces noise-induced tinnitus.

A New Approach to Diagnosing Hyperacusis in Tinnitus Patients

**Principal Investigator:**
Sarah Theodoroff, PhD
National Center for Rehabilitative Auditory Research (NCRAR), Veterans Affairs Portland Health Care System

To help people with tinnitus who also have hyperacusis, a sound tolerance disorder that commonly co-occurs with tinnitus, it is crucial to correctly diagnose the condition. However, no such metric exists. The long-term research goal is to develop an effective paradigm to diagnose and assess hyperacusis in tinnitus patients and distinguish it from other sound tolerance disorders. This area of research is necessary to aid in directing the clinical management of those who suffer from tinnitus and hyperacusis.

Informational Masking and Tinnitus Adaptation

**Principal Investigator:**
Grant Searchfield, PhD
University of Auckland

Dr. Searchfield and his team will explore the effects of Informational Masking (IM) on tinnitus. IM is a form of sound masking that is thought to be a result of central auditory processes. It occurs due to stimulus similarity (e.g., spatial location, timing, and meaning), attention, and demand on cognitive resources. They propose that tinnitus masking occurs through an IM mechanism. Through analysis of the IM mechanism and how it relates to tinnitus perception, it is expected that improved and customized sound therapies can be developed.

"This grant makes such a huge difference to our ability to do research."
—Grant Searchfield, PhD

Cross-Validation of Two Tinnitus Screening Approaches in Mice

**Principal Investigator:**
Inga Kristaponyte (student grant)
Mentor: Alex Galazyuk, PhD
Northeast Ohio Medical University

The research objective is to screen mice for tinnitus-like behavior using both operant conditioning and gap-induced inhibition of the acoustic startle reflex. To induce tinnitus, mice are exposed to loud sound. It is hypothesized that two conceptually different tinnitus paradigms will identify the mice as tinnitus positive. This will help prove the efficacy of existing diagnostics for tinnitus.
The Search for the Elusive Cure for Both Lyme and Tinnitus

By Joy Onozuka

Long before Lyme disease became a household word and increasingly important public health problem, Kathy Olson knew its ravages first hand. “I’ve had chronic pain since I was 16 years old, but nothing ever pointed to a reason in test results,” she explained. That changed in 1995, when a blood test came back positive for Borrelia burgdorferi, the bacteria that causes the infection known as Lyme disease.
With a name attached to her illness, Olson expected to be cured. That was not to be, as other infections unleashed from that initial tick bite proved to be stronger than the drugs prescribed to beat them.

“The pain is ongoing and nothing explains it,” she said. Despite that, she remained upbeat. Today, more than 20 years since her diagnosis, Olson is part of a small clinical trial using stem-cell infusion to boost her immune system’s ability to combat infections. As part of the treatment protocol, she stopped taking all medications, most of which were holistic. Right before starting treatment, tinnitus entered her life.

“It was February (2017). I was in the car with my husband, when I asked him, ‘Do you hear that high-pitched noise?’ I thought it must be the air-conditioning. He turned it off, but the noise never stopped,” she said. Her family doctor thought it was water in her ears, so she was referred to an ear, nose and throat (ENT) specialist. Deciding inflammation was behind the high-pitched buzz, the ENT scribbled a three-week prescription for prednisone and assured her it would go away.

When the prescription ran out and the buzzing continued, Olson made an appointment with a well-regarded ENT, who specialized in tinnitus treatment, in Bethesda, MD. “He was the least sympathetic;” she said, recalling how stunned she was by his comment that she “learn to live with it.” “There was no compassion,” she said.

Within weeks, she was overcome with anxiety. “I thought the tinnitus would go away. Now I’m afraid it won’t,” Olson said, explaining that she had never experienced anxiety or depression prior to the onset of tinnitus.

With the support of her husband, Mark, she began searching for more comprehensive help and is participating in the Tinnitus Retraining Therapy (TRT) program at the University of Maryland Tinnitus & Hyperacusis Center in Baltimore, MD, as a complement to the stem-cell infusion trial, which is being conducted separately at a private practice. The center runs a three-stage program that starts with an overview session with an audiologist who outlines the nature of tinnitus and hyperacusis.

“We were instructed to bring support people. Out of five (people attending), I was the only one who had a support person with them,” she said.

The second stage is a comprehensive hearing exam, which measures such things as the severity of tinnitus, which then determines the direction of the third stage of TRT. When that exam is complete, Olson will receive a treatment plan.

The TRT model is based on the premise that various parts of the brain are involved in the tinnitus signal, with the cochlea and auditory systems playing a secondary role. The treatment aims to facilitate habituation through counseling and sound therapy.

In addition, Olson is working with her audiologist, who also is new to TRT, in a one-year clinical trial that involves using hearing aids with masking to measure the effect of white noise at two different levels. “So far, it hasn’t helped,” she said, noting that every therapy requires time, which has aggravated her fears.

To quell the anxiety, she is seeing a cognitive behavioral therapist and psychiatrist. Cognitive behavioral therapy (CBT) has been shown to help mitigate tinnitus, so Olson is determined to make that work. “You can’t interrupt training once you begin, so I’m starting when I return from vacation,” she said, explaining that the trip was planned prior to the onset of tinnitus.

To help her enjoy the holiday, her therapist suggested that she use the Headspace app, which features guided meditations for all levels and can be found at www.headspace.com. “It’s a British guy talking you through meditation. It’s a good place to start,” she said. Stop, Breathe & Think, which can be found at www.stopbreathethink.com, is the other app recommended to help her feel at peace. “The CBT is eight-to-10 weeks,” Olson explained, adding that she hopes the therapy will enable her to stop taking antidepressants. “Right now, that’s a safety net.”

Though Olson is at the beginning stages of learning to cope with tinnitus, she has done everything doctors suggest to habituate, from being seen by qualified medical specialists and exploring a variety of therapies to attending tinnitus support groups. She credits her husband for helping her stay focused on finding answers and getting better. And, once the tinnitus is less bothersome, she hopes to finally rid herself of the vestiges of Lyme.
Tinnitus often is thought to occur exclusively from environmental factors. Among common causes are noise exposure, head trauma, medications toxic to the ear, tumors of the head and neck, and hearing loss. However, recent research is investigating the possibility that there may be a genetic component to tinnitus.

Scientists at the Karolinska Institutet in Sweden recently studied heritability of tinnitus by sifting through data from the Swedish Twin Registry. Twins are compelling for studies, because researchers can compare differences in large populations between monozygotic (maternal or identical) twins and dizygotic (fraternal) twins. Monozygotic twins are derived from a single ova (egg) and share all their alleles, an “alternate” form of a gene — i.e., a mutation — that is found at a specific location in a person’s DNA. Dizygotic twins, on average, only share half their alleles. Therefore, if a greater correlation of tinnitus is found in monozygotic twins, this implies that genetic factors are influencing tinnitus. By studying twins of opposite gender, researchers also can study whether there is a difference based on gender and whether the difference is the result of environment or genetics.

The researchers from Karolinska Institutet looked at data from adults born between 1900 and 1985 who participated in either the Screening Across the Lifespan Twin (SALT) study or the Study of Twin Adults: Genes and Environment (STAGE). SALT was a computer-assisted telephone interview of twins born before 1959, and STAGE was a web-based survey of twins born in Sweden between 1959 and 1985.

In total, 70,186 individuals were asked the question, “Do you have buzzing in the ears?” They were asked to answer Yes/No/Don’t know (or refuse to answer). Of those, 10,464 people were one of a pair of twins reporting tinnitus, while twins not
Following analysis of responses, a greater correlation was found for bilateral tinnitus in monozygotic twins, compared to dizygotic twins. No correlation was noted for unilateral tinnitus. This suggests that a genetic factor is present for bilateral tinnitus, while unilateral tinnitus may result from environmental exposure.

Furthermore, men displayed a greater effect of inheritance for bilateral tinnitus over unilateral tinnitus, while women did not show this effect. While data showed that men are more prone to developing tinnitus (either unilateral or bilateral), heritability scores of men and women were similar overall. The authors noted that tinnitus prevalence overall increases with age and some effects of heritability are greater for younger individuals. This is consistent with greater environmental effects for older adults. It also was noted that tinnitus incidence peaks in the seventh decade of life for men and the eighth decade for women. Incidence of tinnitus in the studied population (14.9 percent) also was similar to other published tinnitus incidence data.

Finally, the authors noted that heritability of tinnitus (0.43 heritability score overall) compares well to heritability of other conditions, such as major depression (0.37), Parkinson’s disease (0.34), and Alzheimer’s disease (0.48). They also noted that heritability of bilateral tinnitus in men (score of 0.68) was similar to other brain disorders, including attention deficit hyperactivity disorders (0.76), autism (0.71), and schizophrenia (0.81). (This is a comparison of incidence between various disorders and does not indicate any relationship between tinnitus and these other disorders.)

This information sets the stage for a new view of tinnitus as an inherited condition. As has been found with many other conditions, it may be that we simply inherit susceptibility for tinnitus with the final determining factor linked to environmental factors, such as lifestyle choices and work environment. More research is needed to confirm this data and more fully explore the effects of gender and environment — possibly even to locate genetic markers for tinnitus susceptibility. Until then, the best solution is to minimize noise exposure and educate those around us on how to prevent or limit environmental noise hazards that may lead to tinnitus.

“It also was noted that tinnitus incidence peaks in the seventh decade of life for men and the eighth decade for women.”

Q I have had tinnitus for two months. I was evaluated by an ENT specialist, who said there is no cure. Does tinnitus ever go away on its own? I keep hoping mine will. I don’t see how I can conduct my life otherwise.

A Yes, sometimes tinnitus does go away on its own. There is no hard data, but it happens more frequently than you might imagine. It is more likely to occur within the first year or two, but even after a decade, tinnitus can spontaneously resolve for no apparent reason. In terms of how to conduct your life, there is really no “one size fits all” answer.

As I have come to see it, now that you have had tinnitus for several weeks and have been evaluated by an ENT, you have two choices from a purely practical standpoint: you can hope each and every day that you will be one of the “lucky ones” and that at some point your tinnitus will vanish, or you can assume that you could hear your tinnitus for the rest of your life. With the first approach, each morning when you wake, you may well discover that you still have tinnitus, and you could, therefore, start out your day disappointed. With the second approach, your day starts out exactly as expected, and if one day you notice that your tinnitus is gone, then you can be absolutely thrilled to have been wrong in your initial assumption.

Early on in my own tinnitus odyssey, I decided that it made no sense at all for me to start out each day disappointed if I didn’t absolutely have to because I knew it would not affect my tinnitus itself in the least. So, I personally chose the second approach. In my opinion, this is not a decision to be taken lightly. You are not reading this column because you have tinnitus. You are reading this column because you have tinnitus, and it makes you feel bad. If your tinnitus did not in some way or other make you feel bad, then — while you would still have tinnitus — you really wouldn’t have a problem. Moreover, if your tinnitus made you feel less bad, then — while you would still have tinnitus — you would have less of a problem. With daily disappointment, adopting the second approach can be very powerful indeed. Any strategies that serve to lessen the impact of tinnitus on your life — and there are many such strategies — are worthy of serious consideration. It’s just that I honestly do not think that spending any appreciable amount of time hoping it will go away is one of them. Far better to assume it could never go away and be overjoyed if you discover one day that you have been wrong all along.
Q: What is the difference between habituation and learning to live with tinnitus?

A: When I think of learning to live with tinnitus, I think of developing effective strategies for coping with it or dealing with it. I think in particular of figuring out how to get through those “bad ear days.” Habituation is something entirely different. Habituation is a process whereby you react to your tinnitus less and less over time — and, consequently, become less and less aware of it. With habituation, as with learning to live with it, your tinnitus is still present every time you purposely seek it. But with habituation you just don’t care. And if, as a result, you go from being aware of your tinnitus 90 percent of the time to being aware of your tinnitus 10 percent of the time, in my opinion, that’s not learning to live with your tinnitus. Rather, that’s learning to live without your tinnitus.

Q: I have heard that the shingles vaccine contains neomycin, which is ototoxic. Is it safe for a person with tinnitus to take the vaccine?

A: Neomycin ototoxicity is dose-related. The amount of neomycin in a shingles vaccine is on the order of 25 μg (or 0.025 mg), which is not even remotely enough to cause auditory damage. From a tinnitus standpoint, I consider the shingles vaccine to be completely safe. If it is at all reassuring to you, I myself took the vaccine without giving it a second thought.

Stephen Nagler, MD, is a licensed physician whose practice is devoted to the evaluation and treatment of individuals with severe intrusive tinnitus and hyperacusis. He is a former chairman of the Board of Directors of the American Tinnitus Association. He lives in Atlanta, Georgia, and runs a Q & A tinnitus site at: www.tinn.com
“Fundraising is a part of me,” said Sal Gentile, ATA’s new National Support Group Liaison, after his most recent fundraiser for the American Tinnitus Association. “I like the challenge, (and) want to give back and help others,” said Gentile, who held the fundraiser in the spring at The Villages in Florida.

Gentile devotes significant time and energy to fundraising and helping people with tinnitus, because he believes greater support and awareness are crucial for everyone — from those with the condition to researchers trying to find a cure.

He supports the ATA, because it was the organization’s patient provider network that brought him to a tinnitus-savvy doctor who helped him regain control over his life. Gentile was struck with the sudden onset of tinnitus in the summer of 2011, and before he found the provider through the ATA, he had spent a frustrating year visiting more than a dozen doctors, none of whom had provided meaningful care.

“I needed help and hope;” said Gentile, recalling his first encounter with Dr. Christopher Spankovich, who was a tinnitus professor at the University of Florida. (Spankovich is currently an associate professor at the University of Mississippi Medical Center.) “Spankovich gave me my life back.”

Through Spankovich’s approach to treatment, including sound therapy, meditation, and cognitive behavioral therapy, Gentile learned how to disengage from the incessant noise. His tinnitus has four different sounds at 83 decibels, which is as loud as the human voice in normal conversation. The noise continues, so he draws on Spankovich’s techniques daily to manage it. “I feel so good about my life,” he said. “My job is to educate and promote (tinnitus awareness).”

Gentile also wants to have fun while raising awareness, which is the impetus behind his ATA fundraisers. The most recent was billed as “The Villages Meets Hollywood” and included the premiere of the indie film, The Expeditor. Directed and co-written by Michael Domino, the red-carpet buzz of the evening drew a crowd of 125 viewers. Domino even attended the premier with co-writer Robert Mladinich, both of whom are from New York City, and participated in a Q&A session. For Gentile, it took weeks of preparation and one night of fun to raise $700, which included cash contributions and money from an auction. The money will go toward ATAs Research Program.

“I run on compassion,” he said. He also knows from the many people he encounters that he provides an example of what is possible when effective treatments and broad-based support converge.

“When people see what I do, knowing I hear four different sounds, they want to be like me,” he said. If you are interested in learning more about fundraising for the ATA, or locating a tinnitus support group, email: tinnitus@ata.org

“I run on compassion,” Gentile said. He also knows from the many people he encounters that he provides an example of what is possible when effective treatments and broad-based support converge.
Quiet Understanding, Depth of Knowledge, and Empathy Can Equal Great Leadership

By Joy Onozuka

When one hears the word “leader,” there’s an assumption of strength and responsibility. Leaders are thought of as larger than life and bold. Sai Gentile would argue otherwise. He might posit that quiet understanding, depth of knowledge, and empathy can make a great leader too.

That is why he has partnered with the American Tinnitus Association to serve as a liaison to support group leaders and those interested in becoming more proactive in tinnitus support and awareness around the country.

Gentile is himself a tinnitus support group leader, who enjoys pulling together large groups. As such, he knows firsthand that many of those who have tinnitus can be pathfinders, a term he prefers over leader.

“Sometimes we think because we have so many personal or medical challenges that we are just followers who let others lead, because we are not strong enough to help ourselves. Not true,” said Gentile. “If we use the condition as a positive tool to help others, we learn that leading mends the heart and soul. It makes us feel stronger, creates a happier lifestyle, and gives us personal insight into our own problems.

“Many people don’t have support groups, so they call for help,” Gentile said. “It is those calls for help and the resulting conversations that keep him going, no matter what the challenge. He remembers all too well how hard it was living with tinnitus on his own. His goal now is to help others find, and in some cases launch, support groups, because the demand for face-to-face discussion is urgent.

Because tinnitus is different for each person, no one person can understand all the challenges that an individual is experiencing. However, in a group setting, there is the power of compassion, sharing, and real connection, all of which can alleviate the stress and isolation that tinnitus often triggers.

“A leader has to get things started and step back. I’ve learned so much from my audience,” Gentile said. “You can use your weaknesses as an advantage to overcome things.”

The real challenge in Gentile’s view is that tinnitus is invisible. A support group, therefore, provides a vital connection and opportunity to find strength through shared experience.

To learn more about starting a support group, contact Gentile at: tvtininnitus@gmail.com

Email ATA: tininnitus@ata.org

The ATA Support Group Leader Guide is available on our website: www.ata.org
ATA Support Network Calendar

Patients can support one another by sharing personal experiences and providing a sympathetic ear. Attend a local support group and discover how fellow patients manage their tinnitus. To view all ATA support group locations, visit: www.ata.org/managing-your-tinnitus/support-network/support-group-listing

**California**

**North San Diego County Tinnitus Support Group**
Rancho Bernardo Library
17110 Bernardo Center Dr.
San Diego, CA 92128
Contact: Eli Tyler
T: 951-505-9200
E: sedonaverdev@aol.com
August 15—6:30 pm
September 19—6:30 pm
October 17—6:30 pm
November 21—6:30 pm
December 19—6:30 pm

**San Francisco Tinnitus Support/Education Group**
Hearing and Speech Center of Northern CA
Conference Room
1234 Divisadero St.
San Francisco, CA
Contact: Malvina Levy, AuD, or Tracy Peck, AuD
T: 415-921-7658
E: mlevy@hearingspeech.org
August 22—5:30 pm
September 19—5:30 pm
October 24—5:30 pm
December 5—5:30 pm

**Orange County Tinnitus Self Help Group**
Mariposa Women and Family Center
812 Town and Country Road
Orange, CA 92868
BUILDING C
Contact Mari Quigley-Miller
T: 714-317-9420
E: mariq849@hotmail.com
August 5—12:30 pm
October 7—12:30 pm
November 4—12:30 pm

**San Diego Tinnitus Support Group**
San Diego City Library
North University City Branch
8820 Judicial Dr.
San Diego, CA 92122
Contact: Jack Innis, Loretta Marsh
T: 858-484-9267
E: Jinnis1@san.rr.com, loretta.marsh@hotmail.com
August 2—6:00 pm
September 6—6:00 pm
October 4—6:00 pm
November 1—6:00 pm
December 6—6:00 pm

**Colorado**

**Denver Tinnitus Support Group**
Lutheran Medical Center
Second Floor Learning Center
8300 West 38th
Arvada, CO 80033
Contact: Rich Marr
T: 303-875-5762
E: r.marr@comcast.net
August 14—7:00 pm
September 11—7:00 pm
October 9—7:00 pm
November 13—7:00 pm
December 11—7:00 pm

**Florida**

**Sarasota Tinnitus Support Group**
Silverstein Institute
1901 Floyd St.
Sarasota, FL
Contact: Carmen Trotta
T: 941-993-7616
E: cartro7@aol.com
August 20, Time TBD
November 17, Time TBD
December 15, Time TBD

**The Villages Tinnitus Support Group**
Churchill Street Recreation Center
2375 Churchill Downs
The Villages, FL
Contact: Sal Gentile
T: 813-503-1421
E: tvtinnitus@gmail.com
August 24—3:30 pm
Sept 28—3:30 pm
October 26—3:30 pm
November Date and Time TBD
Dec 28—3:30 pm

**Michigan**

**Holland Tinnitus Support Group**
Holland Doctors of Audiology
399 E 32nd St.
Holland, MI 49423
Contact: Stelios Dokianakis, AuD
T: 616-392-2222
E: info@holaud.com
August 1—6:00 pm
Sept 11—6:00 pm
Oct 30—6:00 pm
Nov 27—6:00 pm
Dec 18—6:00 pm
Missouri
St. Louis Tinnitus Support Group
St. Louis County Library Headquarters
East Room
1640 S. Lindbergh Blvd.
St. Louis, MO 63131-3598
Contact: Tim Busche
T: 636-734-4936
E: tennisfancincy@gmail.com
August 09—7:00 pm
October 04—7:00 pm
December 06—7:00 pm

New Jersey
Jersey Shore Tinnitus Support Group
302 Hawthorne Ave
Point Pleasant Beach, NJ 08742
Contact: James Malone
T: 732-714-7040
E: james@njhypnotist.com
September 09—11:00 am
November 11—11:00 am

Tinnitus Self-Help Group, Ewing
100 Scotch Road
Ewing, NJ
Contact: Dhyan Cassie, AuD
T: 215-984-8380
E: Dhyan1@verizon.net
September 16—10:00 am

South Jersey Tinnitus Support Group
1020 North Kings Highway Suite 201
Cherry Hill, NJ 08034
Contact: Linda Beach, MaryAnn Halladay, Barbara Kennedy
E: linda.beach@gmail.com, mhalladay@verizon.net, harleyonholly@comcast.net
September 7—7:00 pm
October 5—7:00 pm
November 2—7:00 pm
December 7—7:00 pm

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
T: 503-220-8262 x55568
E: bryan.shaw2@va.gov
Meeting dates and times TBD.

Texas
Dallas/Ft. Worth Tinnitus Support Group
Texas Health Presbyterian Hospital Plano
6200 W Parker Rd.
Plano, TX 75093
or
Callier Center for Communication Disorders
1966 Inwood Road
Dallas, TX 75235
Contact: John Ogriovich
E: dfwtsg@yahoo.com
Meeting dates and times TBD.

Washington
Seattle Tinnitus Support Group
Greenwood Public Library
8016 Greenwood Ave. N
Seattle, WA 98103
Contact: Keith Field
T: 206-783-7105
E: keith_r_field@outlook.com
Meetings typically held on the 3rd Thursday of each month.

Washington, D.C.
DC Tinnitus Group
Georgetown University Medical Center
Medical and Dental Building Room SW107
3900 Reservoir Rd. NW
Washington, DC 20007
Contact: Ted Turesky, PhD
T: 207-807-0962
E: tturesky@gmail.com
Meeting dates and times TBD.

Some groups do not schedule their meetings far in advance due to leader availability and/or to allow for flexibility when scheduling speakers or for other reasons. These meetings were provided to ATA staff at the time of publishing. It is important to double-check the ATA Events calendar at ATA.org for the most up-to-date information on Support Group/Self-Help meetings.

This is only a partial listing of support groups and scheduled meetings. A full listing can be found at ATA.org/managing-your-tinnitus/support-network/support-group-listing. Also, new groups form all the time, so be sure to check back frequently if you don’t see one in your area.

Interested in starting a support group in your area? Please contact Sal Gentile, National Support Group Liaison, at: supportgroups@ata.org.

If you don’t see a group in your area, but want to connect with a support system, ATA also has Help Network volunteers who provide one-on-one email and phone support and education. You can view that listing at: ATA.org/managing-your-tinnitus/support-network/help-network-listing.

iT’s ALL ABOUT SUPPORT
Not everyone with tinnitus experiences hearing loss, but many do. Unfortunately, many with mild tinnitus don’t get a hearing exam, which might uncover undetected hearing loss. In fact, skipping hearing exams is common across the general population, which reflects a lack of understanding of how even mild hearing loss can impact quality of life and overall general well-being. However, with the unprecedented shift in demographics, as the population of older Americans increases, hearing healthcare and increased access to hearing aids have become topics of national concern.

Recent studies show that hearing loss can contribute to a host of debilitating health issues, including dementia, depression, and balance problems. However, only one in five of those with hearing loss uses hearing aids. Moreover, as many as 67 to 86 percent of those age 50 years and older who would benefit from using hearing aids opt not to use them. Reasons cited for not wearing hearing aids include cost, denial of hearing-loss severity, vanity, and the perceived social stigma of wearing them.

With a greater understanding of the ramifications of leaving hearing loss untreated, changes in the dynamics of hearing healthcare for adults are underway and aim to increase hearing-aid options, reduce cost, increase market transparency, spur innovation, and increase market competition.

The most prominent example of this was the unveiling of the Over-the-Counter Hearing Act of 2017 in the spring, which was greeted with much fanfare. Senator Elizabeth Warren (D-Mass) said, “Allowing hearing aids to be sold over the counter will help bring down costs and expand consumer choices so that millions more Americans can find affordable hearing aids.”

This legislation reflects, among other things, recommendations made in a 2016 report by the National Academies of Sciences, Engineering, and Medicine to create a new Food and Drug Administration (FDA) device category for over-the-counter (OTC) wearable hearing devices for individuals with mild to moderate hearing loss.

Not everyone agrees that cost is a driving factor behind low usage of hearing aids. In countries where hearing aids are covered by insurance, adoption remains well below 50 percent, with the highest usage found in Norway at 42.5 percent, followed by the United Kingdom at 41.1 percent, and Switzerland at 38.8 percent.

The creation of an FDA-approved category for over-the-counter wearable hearing aids is expected to attract makers of what are now known as personal sound amplification products (PSAPs) into the hearing-aid market. PSAPs have been on the market for years, with cutting-edge devices operating much the same way as hearing aids. However, because they aren’t FDA approved, such devices are marketed as consumer electronic devices to non-hearing-impaired consumers to amplify such things as music, conversations, and animals rustling in the woods.

Advanced PSAPs are sophisticated earbuds equipped with a computer device that can control environmental sound. Accompanying smartphone apps for some devices can be programmed so that the earbuds automatically adjust volume in identifiable settings, like an office or bustling café. Current drawbacks for such devices, as noted in a recent Business Insider review include the low life of batteries, which make them impractical and unreliable for lengthy events. Quick improvements and reduced glitches...
are expected as consumer demand increases. Moreover, one company is designing products that aim to be fashionable and fun to help destigmatize hearing loss.

While amplification technology has been around for decades, the required circuitry only recently has become inexpensive enough to manufacture products en masse, according to Mead Killion, who invented analog hi-fi amplification technology in 1988 and co-founded Etymotic Research, Inc., maker of The Bean Quiet Sound Amplifier. Companies like Etymotic produce products to measure, enhance, and protect hearing and, hence, would likely benefit from changes in legislation.

The legislation, if passed, could shake up the lucrative U.S. hearing-aid industry, which is dominated by six companies — GN Resound, Siemens, Sonova, Starkey Hearing Technologies, Oticon, and Widex. Together, these companies produce 98 percent of all devices sold in the United States.

The hearing-aid industry is sending mixed messages about the bill. Opponents argue that hearing loss is complex and, therefore, difficult for consumers to self-evaluate. By bypassing audiologists and medical exams, they argue that people risk missing underlying medical conditions, as well as injury from inserting buds in their ears, as can happen with earwax buildup. While the OTC devices would not be intended for those with more severe hearing loss, a lobbying effort is underway to change the legislation to limit the functionality of OTC hearing products so they only address mild hearing loss.

Until this year, there have been no studies in the United States examining the effect of price and delivery model (consulting an audiologist using best practices versus self-selection of an OTC hearing aid) to determine if either or both factors would result in more people with mild to moderate hearing loss using hearing aids. The study, which was conducted using the same hearing aids for a placebo group (with no amplification), an OTC group that used instructional videos and written materials for understanding their devices, and a group that worked with audiologists, found that price didn’t influence the decision to buy the hearing aids.

According to Consumer Reports, prescription hearing aids start at about $1,650, which includes fees for working with an audiologist or hearing-aid specialist who fits and adjusts devices to meet the specific hearing needs of an individual. Less expensive and sometimes less sophisticated hearing aids can be purchased online and through retailers like Costco and Sam’s Club. However, since Medicare and private insurance companies don’t normally cover the cost of the hearing aids or the visits, many opt not to be fitted for them.

To find out if PSAPs can help people diagnosed with mild to moderate hearing loss, Consumer Reports conducted a very limited study on devices priced from $20 to $350 and had the devices assessed by a hearing-aid researcher to check such things as amplification, battery life, and sound distortion. Participants wore the devices several days in their offices, at home, in restaurants, and in an audio lab to determine how well the devices helped their hearing in noisy environments. They concluded that, like hearing aids, the effectiveness varies between products. Some of the PSAPs, when properly fitted and adjusted, did help people with mild to moderate hearing impairment.

While the study was limited, it illustrated the value of consulting an audiologist or other hearing specialist to determine which PSAP would be most suitable for one’s hearing needs.

The debate over hearing healthcare and the proposed legislation will continue as the bills work their way through Congress. Whatever the outcome, options for PSAPs and other assisted hearing devices will continue to grow, because interest in controlling environmental sound remains high among a broad spectrum of consumers and the number of older Americans with hearing loss continues to grow.

With a greater understanding of the ramifications of leaving hearing loss untreated, changes in the dynamics of hearing healthcare for adults are underway, and aim to increase hearing-aid options, reduce cost, increase market transparency, spur innovation, and increase market competition.
By Joy Onozuka

For 25 years, Janet Rosen compensated for hearing loss through hearing aids. That all changed one morning in June 2013, when she woke up completely deaf and trapped by raging tinnitus in her home in West Bloomfield, MI.

“It was horrific,” said Rosen, who sought immediate medical advice from her audiologist and an ear, nose and throat (ENT) specialist, both of whom couldn’t provide a conclusive reason for the sudden onset of deafness. She was put on a 28-day course of prednisone to see if the steroid would restore her hearing. The stress of inexplicable deafness and high-pitched tinnitus was heightened by what Rosen described as insensitive medical care at the ENT office, ranging from nonsensical advice to listen to an iPod to block out the tinnitus to the refusal of an audiologist to write down answers to her questions about her deafness and treatment options.

She was put on a 28-day course of prednisone to see if the steroid would restore her hearing. The stress of inexplicable deafness and high-pitched tinnitus was heightened by what Rosen described as insensitive medical care at the ENT office, ranging from nonsensical advice to listen to an iPod to block out the tinnitus to the refusal of an audiologist to write down answers to her questions about her deafness and treatment options. “I (was) totally deaf,” said Rosen, still baffled by the senseless suggestion to listen to an iPod.

When the steroid treatment did not work, Rosen’s next step was evaluation for a cochlear implant. “After many tests, including an MRI, a brain scan, and evaluation by a neurologist, it was determined that I qualified for and needed a cochlear implant,” she said.

So, almost five months after going deaf, Rosen had out-patient cochlear implant surgery and hoped for the best. She anticipated being unable to hear clear sound when the device was activated three weeks later. “I had read a lot of research and … knew that when you are first given your processor you do not hear well.” She did, however, hear her audiologist clearly from the start. This represented a highly successful outcome.

“From that point on, it was a process of rehabbing and programming the processor with frequent mapping,” Rosen said. With her hearing restored and the tinnitus gone, Rosen was ecstatic!

For her right ear, Rosen was fitted with a leading-edge hearing aid, which in combination with her cochlear implant, enabled her to hear more than 90 percent of sound. “High- and soft-pitch voices are hard to hear,” she said, and shared that sound directionality remains a problem since the hearing aid and processor are different modes of hearing.

To ensure optimal hearing and operation of the cochlear implant, Rosen is examined biannually by her audiologist, who adjusts the processor’s electrodes. It’s a 90-minute mapping process, which demonstrates the complexity of the technology, the need for regular care, and ongoing changes in the auditory processing system.

Those who use hearing aids and/or cochlear implants know that it is recommended that they be removed and placed in a drying kit at night to eliminate moisture absorbed while being worn during the day. This helps avoid damaging or compromising the longevity of the devices.

About a year ago, when Rosen took off the cochlear processor as she prepared for bed, the tinnitus resumed. “The moment I take off my processor, the tinnitus begins raging again,” Rosen said. When she puts the processor back in, the tinnitus stops immediately. That continues today, so, as a result, Rosen struggles to find balance between allowing the processor to dry at night and getting adequate sleep.

Given the choice between taking antidepressants, Benadryl, or prescription sleep medication to induce sleep, Rosen opted for Benadryl, which enables her to sleep about five hours without the processor. She would prefer to take nothing, but has found the fatigue is too grueling.

Despite the various challenges, Rosen feels blessed by the gift of restored hearing through her cochlear implant, the ability to switch tinnitus off by reconnecting her processor, and the proximity of her cochlear support group. 🌟
Have You Considered Making a Charitable Gift to the ATA in your Estate Planning?

If the ATA has helped you or a loved one in the past, you can join us in helping others in the future with a gracious act of generosity through an estate gift.

Charitable gifts enable the ATA to fulfill its mission to find a cure for tinnitus, as well as help those who currently struggle with it. The easiest planned gift to implement is an estate gift. All you have to do is name the ATA as a beneficiary of your estate, according to the laws of the state in which you live. You can even name the bequest in honor or memory of anyone you choose.

Most donors leave their gifts to the ATA without restriction. However, the ATA will honor every donor’s stated request for how the gift is to be used, whether made during their life or through their estate. All one has to do is ensure that specific bequest provisions are included in the estate documents, such as your will.

Whether you choose a gift for a certain activity or for the ATA to use as it sees fit, there are several types of estate gifts you can make. These include an unrestricted gift of a specific amount that can be used by the ATA where the need is greatest. Another option is a residuary bequest, which would be the amount left in your estate after all specific gifts are made, and all debts, taxes, administrative fees, probate costs, and court costs are paid. Another option would be to give a percentage of your estate, rather than leaving a specific sum, or give property to the ATA that could then be sold to generate funds.

As you consult your attorney on the selection of appropriate wording and your goals regarding the ATA, be sure the organization’s legal name appears in all final documents as the “American Tinnitus Association.” It also is helpful to provide a copy of the paperwork to the ATA once a bequest has been completed.

The ATA is honored to receive gifts from those who feel that a cure for tinnitus is an important goal. If you would like to include the ATA in your estate planning, we would be glad to discuss your ideas. Please feel free to email ATA’s Executive Director Torryn P. Brazell at: torryn.brazell@ata.org

JACK VERNON
LEGACY SOCIETY
Spotlight on Patient Providers

**GOLD LEVEL**

Professional Members

Listing current as of June 30, 2017

When making an appointment, please say you learned about patient providers through the ATA website or Tinnitus Today magazine. With this information, providers understand the value of being a part of the ATA network of patient support.

Eugene Antonell, BC-HIS
Hear Better Now, LLC
N. Dartmouth, MA

Jennifer Auer, AuD
Audiology by the Sound Ridge, NY

Carol Bass, MS
All Ears Audiology
Ithaca, NY

Lisa Blackman, MS
A Hearing Healthcare Center
Philadelphia, PA

Granville Brady Jr., AuD
Dr. Granville Brady, Jr.
East Brunswick, NJ

Gail B. Brenner, AuD
Tinnitus & Sound Sensitivity Treatment Center of Philadelphia
Bala Cynwyd, PA

Mindy Brudereck, AuD
Berks Hearing Professionals
Reading, PA

Bonita Chow, MSc, RAuD
Calgary, AB, CANADA

Carol Clifford, AuD
Albuquerque Hearing & Balance
Albuquerque, NM

Lois N. Cohen, LCSW, ACSW, BCD
Northport, NY

Lindsay Collins, AuD
Sound Relief Hearing Center
Centennial, CO

John Coverstone, AuD
Sentient Healthcare, Inc.
New Brighton, MN

David Cuthbertson, AuD
Acadia Hearing Center
Ellsworth, ME

Ali Danesh, PhD
Labyrinth Audiology
Boca Raton, FL

Nikki DeGeorge, AuD
Fayette Hearing Clinic
Newnan, GA

Patrick DeWarle, AuD
Winnipeg Hearing Centres
Winnipeg, MB, CANADA

Stelios Dokianakis, AuD
Holland Doctors of Audiology
Holland, MI

Sara Downs AuD
HearingWellness Center
Duluth, MN

Kaela Fasman, AuD
Sound Relief Hearing Center
Golden, CO

Michael Flores, AuD
University of New Mexico Speech and Hearing Sciences
Albuquerque, NM

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

Amanda Frazier, HIS
ASI Audiology & Hearing Council Bluffs, IA

Belinda Gonzales, HIS
NuSound Hearing Center
Topeka, KS

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

James Henry, PhD
VA Portland Health Care System
Portland, OR

Melanie Herzfeld, AuD
Hearing and Tinnitus Center
Woodbury, NY

Bruce Hubbard, PhD
Cognitive Health Group
New York, NY

David Illich, AuD
Professional Hearing Associates, Inc.
Escondido, CA

Marsha Johnson, AuD
Oregon Tinnitus & Hyperacusis Treatment Center
Portland, OR

Jeannie Karlovitz, AuD
Advanced Hearing Solutions
Exton, PA

Jason Kaufman, DC
Scottsdale Neurology
Scottsdale, AZ

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

Beki Kellogg, AuD
Sound Relief Hearing Center
Golden, CO

Jennifer Klimczak, AuD
Avalon Hearing Aid Centers
Sacramento, CA

Deborah Lain, MSc, RPsych
Hope for Tinnitus
Calgary, AB, CANADA

Joanne LaPorta, MA
Accent on Hearing
Denver, CO

Malvina Levy, AuD
Hearing and Speech Center of Northern California
San Francisco, CA

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

Matthew Lyon, MA
El Paso Hearing Aid & Audiology Center
El Paso, TX

Suzanne MacLaren, MA, RPsych
Calgary Ear Centre
Calgary, AB, CANADA

Robert Mario, BC-HIS, PhD
Mario Hearing & Tinnitus Clinics
Canton, MA

Michael Messina, HIS
Clarity Hearing Aid Solutions
Summerfield, FL

Leah Mitchell, AuD
Sound Relief Hearing Center
Westminster, CO

Elizabeth Patterson, AuD
REM Audiology Associates
Voorhees, NJ

Jeanne Perkins, AuD
Audiologic Services
Glen Ellyn, IL

Julie Prutsman, AuD
Sound Relief Hearing Center
Highlands Ranch, CO

Stephen Reinshuttle, BC-HIS
Florida Best Hearing LLC
Sebring, FL

Jennifer Reynolds, AuD
Reynolds Audiology & Tinnitus Center
Woodbury, MN

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

Christine Russell, AuD
Sound Relief Hearing Center
Fort Collins, CO

Miliza T. Salamat, PhD
Dr. Mimi’s Audiology Clinic
Walnut Creek, CA

Tiffany Sexton, AuD
Lifestyle Hearing
Rochester Hills, MI
Silver level

Professional Members

Listing current as of June 30, 2017

When making an appointment, please say you learned about patient providers through the ATA website or Tinnitus Today magazine. With this information, providers understand the value of being a part of the ATA network of patient support.

Debbie Abel, AuD
Audigy Group
Vancouver, WA

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

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

Melissa Alexander, AuD
Alexander Audiology, Inc.
Santa Monica, CA

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

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

Simon Barriga, PhD
VisionQuest Biomedical, LLC
Albuquerque, NM

Carol Bass, AuD
All Ears Audiology
Ithaca, NY

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

Pamela Best
Best Hearing San Diego
Vista, CA

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40 TINNITUS TODAY SUMMER 2017
Tinnitus Treatment with Repetitive Transcranial Magnetic Stimulation

Summary by John A. Coverstone, AuD

As tinnitus is redefined as a problem of the brain and not just the ear, new technologies are being considered for its treatment. Repetitive transcranial magnetic stimulation (rTMS) is one such technology. rTMS uses magnetic pulses directed at the brain to stimulate target cortical areas in the hope of correcting maladapted (malfunctioning) neural pathways. rTMS has been used as treatment for depression with varying results, and it is currently being studied for use with anxiety disorders, auditory hallucinations, and tinnitus.

In studies using rTMS for treatment of patients with chronic tinnitus, procedures have largely been the same for each subject and results have varied widely from one individual to the next. However, a group from the University of Regensburg in Germany has begun study of a more personalized approach that may improve outcomes.

Previous studies revealed positive outcomes from rTMS stimulation of the prefrontal and temporal areas of the brain. Some research has suggested that areas of the prefrontal cortex, which modulate sensory information, may act as a gating system for tinnitus. Basically, it has been theorized that the gate may be broken, and, therefore, it cannot stop tinnitus signals from reaching the auditory cortex where sound is perceived. The temporal lobe of the brain contains the auditory cortex itself, which has shown promising results when stimulated with rTMS.

The researchers at University of Regensburg applied stimulation to each of these areas — the dorsolateral prefrontal cortex and temporoparietal junction, to be specific — on each side of the brain. In addition, at each of these four stimulation sites, patients received stimulation at five different frequencies, providing a total of 20 different treatment protocols. After initial stimulation, researchers asked patients to rate changes in their tinnitus according to percentage of loudness. The most effective protocol for each patient was then repeated to ensure retest validity. The protocol also was repeated in a sham stimulation to provide a control.

Patients who reported changes in tinnitus were treated with stimulation to the most effective prefrontal site (right or left) and the most effective temporoparietal site for nine consecutive (working) days. Patients who did not experience immediate tinnitus changes on the first day were treated with nine days of a more standard protocol of rTMS stimulation. Subjects were then brought back for follow-up visits two weeks and 10 weeks after treatment was concluded.

Fifty percent of the subjects reported immediate changes — or modulation — of tinnitus after the initial treatment. There were no noted differences in clinical or demographic characteristics of the group assigned to individualized treatment and those assigned to standard treatment protocols. Over the measurement period, from baseline (before initial stimulation) to 10 weeks post-stimulation, scores on a tinnitus questionnaire showed a larger decline in tinnitus severity for those receiving individualized treatment than for those receiving the standard treatment protocols.

This study included a small number of subjects and is viewed as a pilot study. It also lacked some of the controls of a larger study, such as randomly assigning patients to individualized and standard protocol groups and including a control group that receives only sham stimulation. However, the researchers demonstrated potential for an individualized protocol with rTMS, which may lead to more targeted treatment and better predictions of outcomes.

Sound Therapy
(to Snoqualmie Falls, WA)

By Ann Ramsey

Worn and tired I was that day,
A worker bee gone lost.
With GPS to make my way
A shady park I crossed.

I felt you before I heard you
Like a freight-train on the line.
I heard you before I saw you,
Unexpected anodyne.

There your waters hurtled out,
Your surface foam flowed down.
Rivulets threw themselves about
As I stood in Sensaround.

I heard your deep and rumbling roar,
A fulsome, luscious din
That through my own tinnitus tore
To let some respite in.

Something happened in that place;
My ringing seemed to cease.
No one saw my teary face
As splendor lent me peace.

Did you see me by your side
Worshipping your waves?
Distressed that I could not abide,
Or take home the gift you gave.

Even now recalling you,
I wish I could return,
To see your sparkling spray anew,
And hear your healing churn.

Ann Ramsey lives with her husband and Maine Coon cat in Washington, D.C. An avid photographer and occasional poet, she joined ATA in 2008. In December 2007, she developed severe tinnitus and hyperacusis from unknown causes. By 2010, she became habituated. She attributes her improvement to a combination of medications, mindfulness based stress reduction (MBSR), cognitive behavior therapy (CBT), tinnitus retraining therapy (TRT), and hearing aids.

To experience the sound and beauty of Snoqualmie Falls from the comfort of your home, please view the 2-hour relaxation video of the falls at: https://youtu.be/89opmzpKHIs
Neuromodulation as a Tool for Changing Neural Pathways

Summary by John A. Coverstone, AuD

ATA had the pleasure of talking with Dr. Jinsheng Zhang about neuromodulation for tinnitus in our June Conversations in Tinnitus podcast. Zhang is immediate past chair of the ATA Scientific Advisory Committee, a member of the ATA Board of Directors, and a researcher at Wayne State University.

In a nutshell, neuromodulation is any stimulation of nerve pathways in the brain intended to change the behavior or function of those nerves. According to Zhang, some forms of tinnitus occur due to changes in the brain following acoustic trauma. This is a negative form of brain plasticity called maladaptive plasticity. Neuromodulation also relies on plasticity of the brain and is intended to disrupt the pathways creating the phantom sound in the hopes that they will recover normally — meaning without tinnitus.

Currently, neuromodulation may be accomplished in a number of ways, including electrical, magnetic, or acoustic stimulation. Zhang also described pharmaceutical treatment as neuromodulation for tinnitus. In the future, as a result, clinicians may have multiple neuromodulation strategies from which to choose. An important question that researchers will need to answer is how your doctor will be able to determine which method of treatment will be appropriate for your tinnitus.

Does your tinnitus require transcranial magnetic stimulation, or will electrical stimulation or auditory stimulation be most appropriate? Perhaps a combination of one stimulation type with a specific regimen of medications? Zhang said that research combining treatment methods with pharmaceuticals may be the next step in the evolution of neuromodulation research. However, once the neuromodulation treatments are refined and widely available for use, further research will be needed to determine how and when and how much they should be used.

Listening to Zhang speak about research in neuromodulation, it becomes evident that there is still much to be done in this important area of tinnitus treatment. However, we can also be excited about the advances being made in this field and the promise neuromodulation holds for everyone with tinnitus.

Everyone has a Story!

ATA Wants to Hear from You

The ATA invites readers to submit their stories — short or long — about living with tinnitus for possible publication. We’d like to hear from patients, healthcare providers, and loved ones. Topics include recapping how it was triggered; how you cope; what challenges you face; how it changed your life; or how you were able to habituate. Suggested word length is between 500 and 800 words. Please include contact information, so staff can reach you for permission to publish, as well as for additional details, if needed. ATA reserves the right to edit for brevity, clarity and grammar. Stories can be sent by email to editor@ata.org or by mail to ATA, 522 S.W. Fifth Avenue, Ste. 825, Portland, OR 97204.
Hearing loss is the third most common chronic health problem in the United States, with almost twice as many people reporting it than those reporting diabetes or cancer, according to a 2017 report by the Centers for Disease Control and Prevention. Of the estimated 40 million adults, aged 20-69 years old, who have noise-induced hearing loss, about 1 in 4 who report “excellent to good” hearing already have hearing damage. (www.cdc.gov)
Editorial Calendar 2017

*Tinnitus Today* magazine is a print and electronic media magazine published in April, August, and December, and circulated to 10,000+ ATA members, 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 and hyperacusis issues, questions and answers, self-help suggestions, and letters to the editor from others with tinnitus and/or hyperacusis. 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.

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Editorial Calendar is subject to change.

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**MISSION**

The American Tinnitus Association improves the lives of people with tinnitus and related conditions by providing education, support, advocacy, and funding research for a cure.

**CORE PURPOSE**

To promote relief, prevent, and eventually cure tinnitus.

**CORE VALUES & 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
Podcast 1: Clinical Aspects of Tinnitus
RELEASED: February 2017
SUBJECT MATTER EXPERT: David Baguley, PhD, MBA
TOPIC: Dr. Baguley discusses the journey of a person with tinnitus, from the moment a problem is registered to the point he/she recognizes there may be no quick fix. The conversation touches on the patient and healthcare provider relationship, current research, the importance of support groups, and hope for future advancements in treatments and a cure.

Podcast 2: Sound Therapy
RELEASED: April 2017
SUBJECT MATTER EXPERT: Richard Tyler, PhD
TOPIC: Listeners learn about research and treatment through Sound Therapy, which can reduce stress and enable tinnitus and hyperacusis sufferers to engage more effectively in dynamic environments. Thoughts on obstacles toward cures and treatment are also shared. Dr. Tyler also spoke about the University of Iowa’s “Management of the Tinnitus & Hyperacusis Patient” practitioner conference, which ran June 15-16. Having founded the annual conference 25 years ago, Dr. Tyler discussed how it has evolved to serve the needs and interests of patients, researchers, clinicians, audiologists, and other healthcare providers.

Podcast 3: Neuromodulation to Suppress Tinnitus
RELEASED: June 2017
SUBJECT MATTER EXPERT: Jinsheng Zhang, PhD
TOPIC: Dr. Zhang discusses his research in neuromodulation, which involves stimulation of a variety of peripheral and brain structures, through direct and indirect approaches. This groundbreaking research, involving animal and human subjects, shows promising results toward providing potential relief for tinnitus sufferers. Listeners hear Dr. Zhang discuss the research, its underlying mechanisms, and how it might translate into treatments for suppressing tinnitus.

Podcast 4: Ringing Ears and the Neuroscience of Tinnitus
RELEASED: August 2017
SUBJECT MATTER EXPERT: Larry E. Roberts, PhD
TOPIC: Listeners learn from Dr. Roberts how specific features of sounds and their corresponding significance differ from person to person. Due to that uniqueness, sounds — and the way the brain responds to them — are not something that can be deciphered through genetic coding. Dr. Roberts will address this challenge of uniqueness and how the brain contains mechanisms for neural plasticity that tune auditory neurons to represent the sounds that are meaningful to us.

Podcast 5: The Latest Research on Tinnitus Management
RELEASED: October 2017
SUBJECT MATTER EXPERT: James Henry, PhD
TOPIC: Dr. Henry’s goal is to develop and validate clinical methodology for effectively helping individuals who are afflicted with bothersome tinnitus. In this podcast, listeners will learn about the latest research and studies related to tinnitus clinical management. Listeners also will hear about the Veterans Administration’s tinnitus management program.

Podcast 6: How the ATA Helps Improve the Lives of People with Tinnitus
RELEASE: December 2017
SUBJECT MATTER EXPERT: Torryn P. Brazell, MS, CAE
TOPIC: ATA is the nation’s foremost trusted organization committed to finding treatments and a cure for tinnitus and associated disorders. ATAs commitment demands focus, determination, strategy, and resources. Brazell, marking her first anniversary as ATAs Executive Director, will discuss how ATA fulfills its mission by funding targeted research projects; providing education, hope, and support for the tinnitus community; advocating for effective public policies focused on advancing science toward cures for tinnitus and related conditions; and collaborating with others to promote awareness, encourage prevention, and ultimately silence tinnitus.

To ensure that podcast content is available to the broadest audience possible, particularly those with impaired hearing or noise sensitivity, transcripts are available on our website: www.ata.org

To listen to ATA podcasts, visit www.ata.org/podcasts