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Innovations in Tinnitus Care, Case Challenge – Truth or Lie? in partnership with the American Academy of Audiology

Natalie Phillips, AuD
Emily E. McMahan, AuD
Jason Leyendecker, AuD

Natalie Phillips, AuD

Dr. Natalie Phillips is a wife, mom, speaker, author, philanthropist, business owner, and connector.

She is passionate about building deep relationships and authentic connections to help make a difference in the world together. She is committed to assisting individuals and businesses to become more of who they are and to live out their brand. She believes in creating environments in which people can connect on different levels to help their businesses succeed. She created a company dedicated to guide individuals, entrepreneurs, and businesses to connect to their own mission and culture, to connect to others at organized events, to connect to their own voice with a bigger audience on social media, and to connect to be able to give back and create social impact.

As Co-Founder of ACT Now Consulting, LLC and Co-Author of ACT Now! A Simple Guide to Take Action on Your Greatest Goals and Dreams, she believes that many of us have great ideas and were created to bring something unique to the world. Dr. Phillips believes that no matter where you are in your journey, we all need accountability and environments to motivate and learn together so that we can all take ACTion!

Dr. Phillips is owner of Audiology Center of Northern Colorado in Fort Collins, Colorado. In addition to seeing patients and diagnosing and treating hearing loss, tinnitus, and balance disorders of the ear, being involved in research and on clinical advisory boards, she has volunteered her time to travel overseas to India, Peru, Guyana, and Mexico as well as served in the United States as a Global Hearing Ambassador to deliver the gift of hearing by fitting hearing aids on people who are unable to afford the technology.

Emily McMahan, AuD

Dr. Emily E. McMahan, is the owner of Alaska Hearing & Tinnitus Center and an internationally recognized expert in tinnitus care. She provides advanced clinical services to high-needs tinnitus patients through both her Anchorage-based clinic, Telehealth appointments, and in-person field clinics across the U.S.

Dr. McMahan holds multi-state licensure to expand access to evidence-based care and is dedicated to improving clinical outcomes for individuals living with tinnitus and hearing loss. She is an adjunct faculty member at the University of Alaska and the University of South Dakota, and she regularly mentors audiologists on best practices in tinnitus management and clinic development.

Dr. McMahan is a frequent speaker at national and international conferences, sharing her expertise on tinnitus, Telehealth, and innovative care models. A graduate of Salus University, Dr. McMahan is also a published author in Nature Communications Medicine for her work on real-world tinnitus treatment outcomes.

Jason Leyendecker, AuD

Dr. Jason Leyendecker is an audiologist and business owner. He earned his BS in Speech and Hearing Sciences from Minnesota State University Moorhead and his Doctor of Audiology from A.T. Still University in 2010. After beginning as an extern at Audiology Concepts, he took over the practice in 2017 and expanded it from two to six locations with 25 employees.

He specializes in tinnitus management, running a clinic that serves patients worldwide, and has taught tinnitus courses at A.T. Still University while mentoring audiology students.

Dr. Leyendecker is the past president of the Academy of Doctors of Audiology and the Minnesota Academy of Audiology. He frequently speaks and writes on private practice, tinnitus care, and team building, and serves as a subject matter expert for APSO and the ABA tinnitus certificate. He enjoys spending time with his wife and two daughters outside of his busy audiology career.

Disclosures

- **Presenter Disclosure**: Financial: Natalie Phillips is the co-founder of ACT Now Consulting, LLC and the owner of Audiology Center of Northern Colorado. She received an honorarium for presenting this course. Non-financial: Natalie Phillips has no relevant non-financial relationships to disclose. Financial: Emily E. McMahan is the owner of Alaska Hearing & Tinnitus Center. She is an adjunct faculty member at the University of Alaska and the University of South Dakota, and she received an honorarium for presenting this course. Non-financial: Emily E. McMahan has no relevant non-financial relationships to disclose. Financial: Jason Leyendecker is the owner of Audiology Concepts. He received an honorarium for presenting this course. Non-financial: Jason Leyendecker has no relevant non-financial relationships to disclose.
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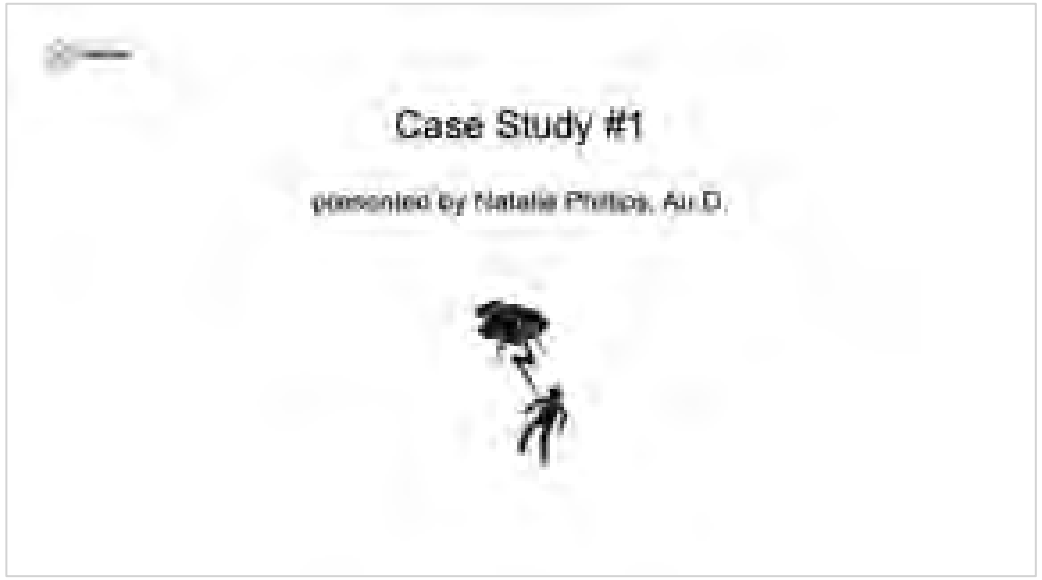
- The course may not cover all possible risk factors, diagnostic methods, or treatment options, and complex cases may require additional considerations.
- Healthcare providers should apply cultural competence and sensitivity to ensure effective and respectful care based on their patients' diverse needs.
- Providers should always evaluate the limitations of diagnostic and screening tools, considering their potential for false results as well as any ethical implications.
- It is the responsibility of course participants to critically evaluate the evidence from multiple sources to guide professional practice.

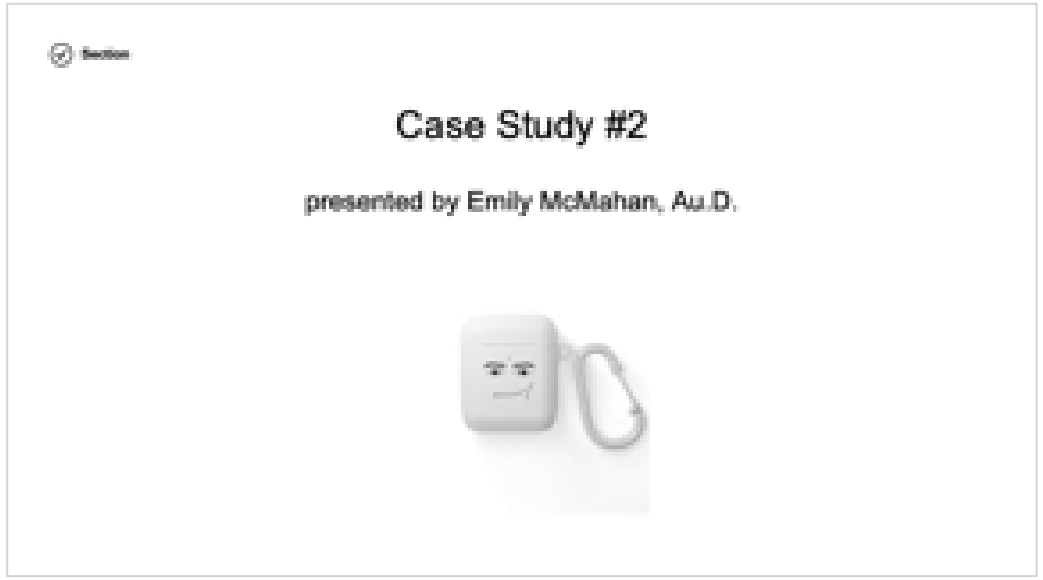
Learning Outcomes

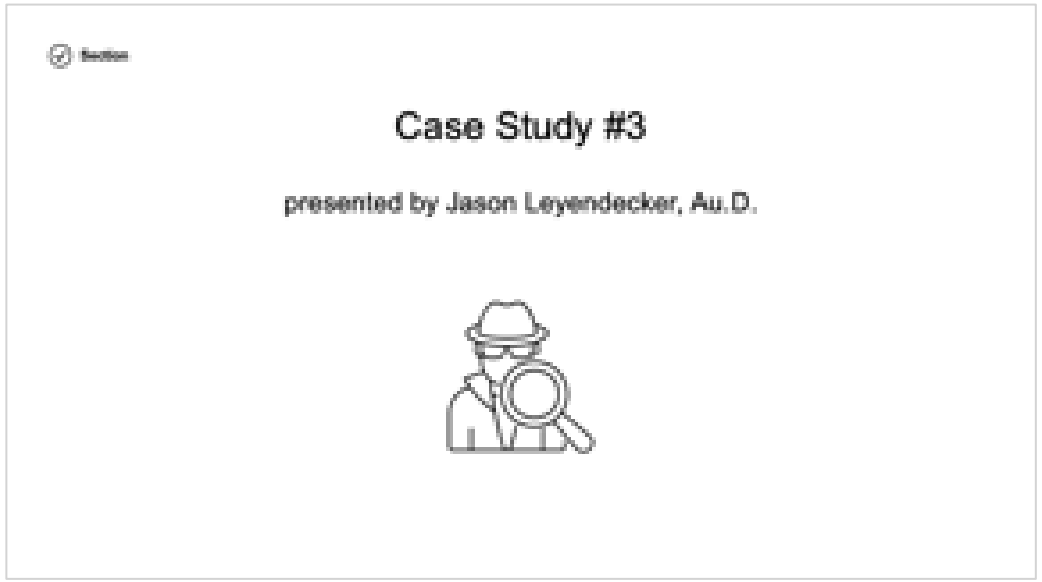
After this course, participants will be able to:

- Identify diagnostic evaluations and methods of management and treatment necessary to work with tinnitus patients with head injuries and brain concussions.
- Identify tinnitus patients who are not yet ready to accept their tinnitus.
- Discuss the why and how of creating realistic expectations with tinnitus patients.

Course Information







Case Study #1

Natalie Phillips, AuD

Case Study #1 - Two Truths and a Lie

50-year-old woman experienced 9 traumatic brain injuries as she was struck by lightning and kicked in the head by a horse multiple times. She has severe anxiety and PTSD. She experienced a sudden onset of tinnitus and sound sensitivity after a few days of massive headaches.

She had such severe anxiety and PTSD that she can only work outdoors with nature sounds around her and uses noise-cancelling headphones in any other environment to protect her from man-made sounds.

She is not able to sleep, go shopping, or watch television. Previous Audiologists she saw recommended for her to wear filtered earplugs and listen to the radio in 5-minute increments, slowly increasing her time.

Case History – Brain Injury

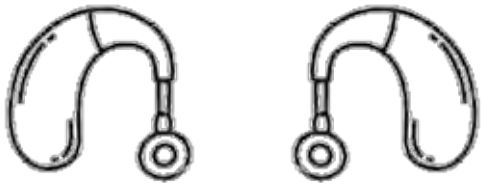
- Lives at home alone with her 12 pets (horses, goats, cats, dogs) on 2 acres
- Employed as a farrier, or a horse shoer, noise exposure to orthopedic surgery equipment and saws
- Tried filtered earplugs but it did not help
- Wears noise-cancelling headphones and helps her be indoors

- Bothersome sounds:
  - Vacuum
  - Lawnmower/Weedeater (can only use 5 min at a time)
  - Being in public areas
  - Closing doors
  - Cabinets closing
  - Walking on gravel

Evaluation Results

- Hearing Loss: little to no hearing loss – mild drop at 8000 Hz for the left ear only
- VNG and VEMP normal
- LDLs: 72-82 dB HL RE; 76-86 dB HL LE
- Tinnitus:
  - Tinnitus Reaction Questionnaire = 66, 100% Aware and 75% Disturbed
  - Tinnitus Handicap Inventory (THI) = 68
  - Tinnitus Functional Index (TFI) = 63.6 (Tinnitus is a big problem)
- Ranking of problems in order: Sound Sensivity, Tinnitus, Hearing Loss
- What would you do???

Treatment – Two Truths and a Lie



Fit patient with bilateral hearing devices with mild gain and low MPO

Fit with devices for hyperacusis FIRST and NO amplification, instruction to use ear level sound generator and tabletop sound generator; if need to wear headphones - wear OVER devices

Gave information to help with decreased sound tolerance and instructions for misophonia music exercises

Treatment

- At 1 month check (pt lives about 5 hours away): pt feels “brain is quieter” and “head is different” and she is more relaxed, reports that Tinnitus (T), headaches have diminished (even w/o working on T yet), pt using ear-level sound generator (ELSG) for 10-12 hours, but has not been doing tabletop sound generator (TTSG) at night OR misophonia exercises
- At 2-month check – pt notices “head is calmer” and “buzzing in head” is not as bothersome; she notices she is “not crying” anymore with certain sounds, carries her Bose noise-cancelling headphones to use, but usually has the noise-cancelling off if she needs to use it; not doing TTSG at night, but started music therapy

Treatment

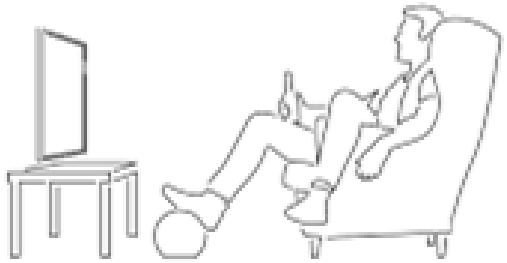
- At 1-year check – sustained another head injury being kicked by horse, and she is very tired and disoriented
- At 2.5 years check – 1st check at NEW office – lost contact with patient; recheck audio. Sound sensitivity is good, so restarted sound therapy for T
- At 3-year check – Check of LDLs – Normal at 95-NR for both ears; pt very happy and states she is singing again and listening to hymns and worship music – can hear different tones of voices

Case Study #2

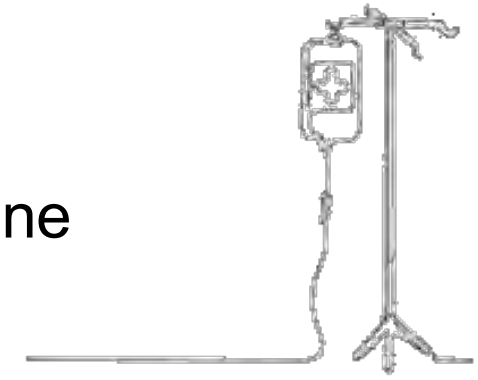
Emily McMahan, AuD

Case Study #2: Two Truths and a Lie

69-year-old male, experienced bilateral sudden sensorineural hearing loss (SSNHL), refuses Rx amplification, spends 24/7 in AirPods to stream sounds for his hyperacusis and tinnitus, refuses mental health counseling.



He is a recluse, who thrives in solitude. However, his hyperacusis and tinnitus have left him not only alone but unable to re-engage with society.



On a medical wellness retreat he was prescribed IV Ketamine & Psychedelics and was unable to complete the treatment.

Case History – Sudden SNHL

- 69 year old, lives alone in remote Alaska
- Experienced a diagnosed bilateral SSNHL
- His R ear regained some measurable hearing but he had minimal recovery in his L ear
  - 2 rounds of oral steroids
  - 1 course of treatment in the hyperbaric chamber
  - 3 rounds of transtympanic steroids
- He experiences bilateral tinnitus that was significantly worsened following the SSNHL
- He has had multiple failed hearing aid trials from an outside office
- He uses AirPod Pros to stream various sounds, constantly

Evaluation Results

- Hearing Loss:
  - RE: WNL to mild SNHL
  - LE: WNL sloping-severe
- LDLs:
  - RE: 74-80 dB HL
  - LE: 70-76 dB HL
- Tinnitus Testing:
  - Pitch: 6070 Hz
  - Loudness: 16 SL
  - Minimum Masking Level: 69 HL - Complete
- THI: 80
- TFI: 80.8
  - Intrusive: 90.0
  - Sense of Control: 86.7
  - Cognitive: 76.7
  - Sleep: 86.7
- Auditory: 50.0
- Relaxation: 96.7
  - Quality of Life: 67.5
  - Emotional: 96.7

Treatment:

- Patient refused to discuss HA trial due to previous attempts
- Counseled on adjusted use of AirPods for addressing his hyperacusis concerns and listening ability
- Created a sound generator program phone/AirPods
- He agreed to a Cognitive Behavioral Therapy (CBT) referral
- After he established with the CBT therapist he reported his sound sensitivity was SIGNIFICANTLY improved
- We proceeded with a Lenire fitting
  - 2, 30 min listening sessions per day
  - Instructed to continue CBT and appropriate AirPod sound integration/listening support

Treatment Part 2

- 2 week follow up: Compliant with 2, 30 min listening sessions daily. Slight increase in his tinnitus awareness
- Additional Support: Navigating fluctuations, continued counseling, “graduated from CBT”, enjoys his Lenire listening sessions
- 6 week follow up: THI- 62, he reports a “modest improvement” to his tinnitus and a significant mindset change in how he views his tinnitus
- Additional Support: Frustrated with the “stall” he is experiencing, continued counseling, reminded him to bring back CBT methods he had been successfully utilizing
- 12-week follow-up: THI- 40, he reports he feels he is in an active mindset/perception shift and is not ready to discontinue the Lenire
- 18 week follow up: THI- 32, he reports he does not feel burdened by his tinnitus. He “no longer feels lost or consumed with his tinnitus.” He is now ready to discuss amplification!
- Additional Support: Bilateral HAF
- Additional Support: He attended a medical retreat center utilizing IV Ketamine & Natural Psychedelics and reported a mental health boost following a 7-day in-patient stay.
- 12-month follow-up: THI- 38; he reports his tinnitus is stable; he has an occasional day when he is bothered by his tinnitus, but that “9/10 days I am not actively aware of it.” He is successfully wearing both HAs and, after 3 months of wear time, was able to be at full Rx gain, AU.

Case Study #3

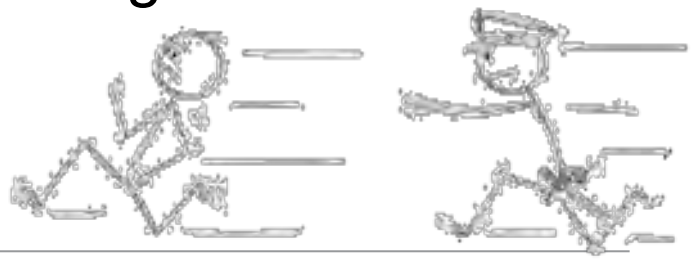
Jason Leyendecker, AuD

Case Study #3: Two Truths and a Lie

A 74-year-old male experiencing tinnitus about 10 years ago, but over the last couple years increased in volume. He is a private detective spending long nights in stake-outs and drives a loud Dodge Charger with a Hemi. He has a strong history of noise exposure due to his loud car and extensive shooting history.

His primary concern with his tinnitus is that it is too loud. “If only my tinnitus was half as loud, I wouldn’t care that it is there.” He is annoyed with louder sounds such as motorcycles, TV, and the furnace running.

Pt said his tinnitus started following an incident where he was shot following a high-speed pursuit.



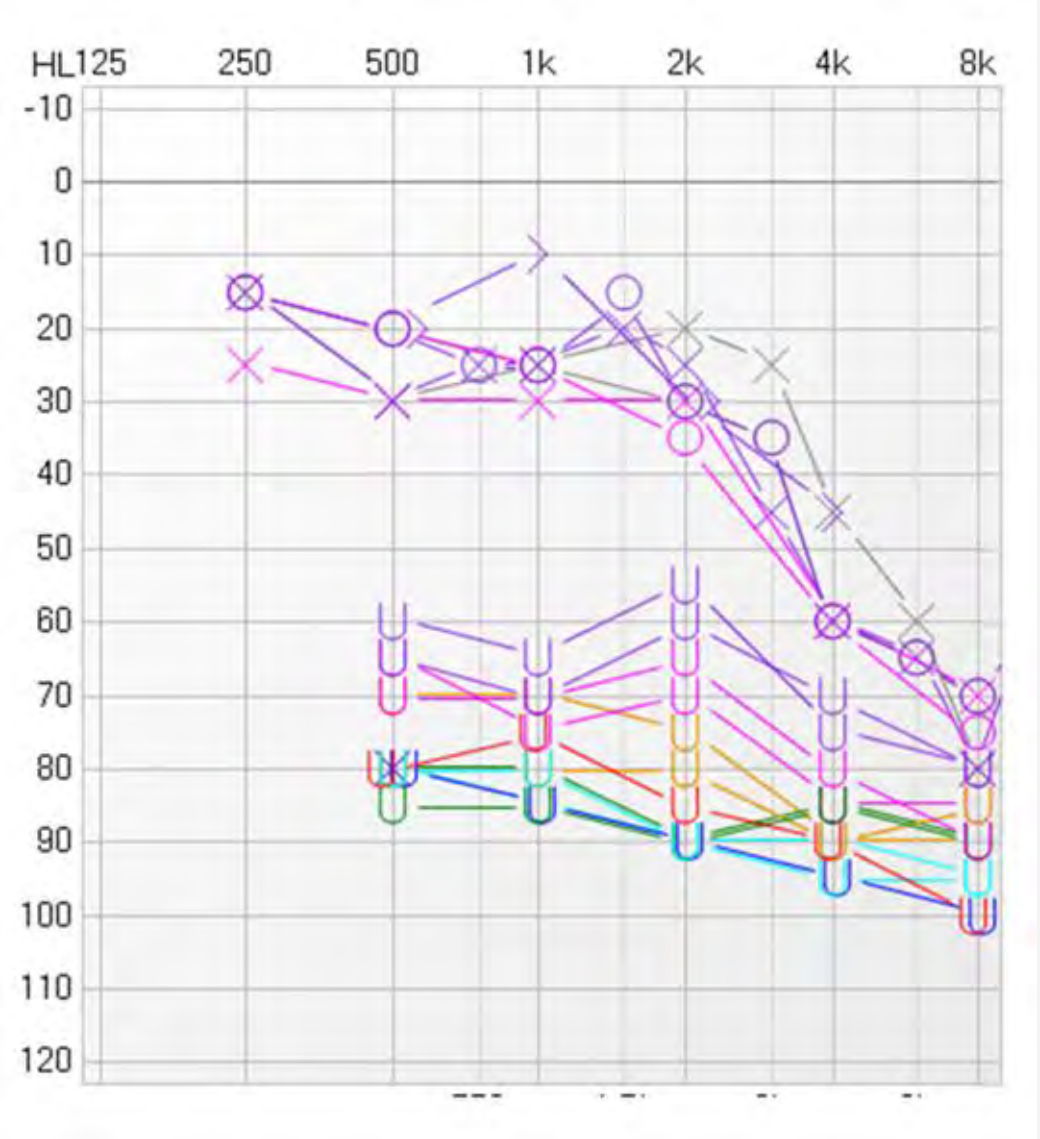
Evaluation Results

- Hearing Loss: bilateral mild-moderate high frequency SNHL
- UCLs: significantly reduced from normal limits across frequencies indicating bilateral hyperacusis; averaging 67 dB HL in left ear and 69 dB HL for the right (500-8000 Hz)
- Tinnitus:
  - TRQ = 48 (moderate), 90% Aware and 80% Disturbed
  - TFI = 66 (T is a big problem)
- Ranking of problems in order: Tinnitus 1, Sensitivity 1, Hearing 3

Case Study #3

Treatment Plan for GK

- Primary concern for us is hyperacusis; tinnitus is secondary
  - He started combination hearing aids with low gain and pink noise at the mixing point
  - Fit with Oticon hearing aids 6/25/2020
  - Serial UCL testing from 2020 to 2022



Treatment Plan for GK

- I took over treatment in January 2022 so my first interactions with him were then
  - TFI = 78
  - TRQ = 66
  - MAQ = 53
- Hearing aids are working, however, not at full prescription, and he doesn’t feel like he hears any better with them in or out. Asked about Lenire, but it wasn’t available yet.
- Gave Misophonia music protocol.

Treatment Plan for GK

- 4/13/2022 – MAQ down to 36 from 53
- TFI 75 from 78
- TRQ 45 from 66
- He reports feeling anxious about being in quiet but is also fearful of talking with someone about it for fear of losing his carry permit if he is on meds or seeing a therapist.
- Results are consistent for a year following this appointment. No major improvements or changes, and all along he has been keeping his pulse on what could help him, including the research around Lenire.
- He was fit 5/23/2023. He has high expectations his tinnitus will get softer.

Treatment Plan for GK

- 6 week follow up for Lenire Treatment
  - TFI = 69
  - TRQ = 56
  - MAQ = 44
- Abandoned hearing aids prior to Lenire fitting
- 12-week follow-up for Lenire Treatment
  - TFI = 11
  - TRQ = 7
  - No MAQ this appointment – he was not concerned about sound at all

Treatment Plan for GK

- 12-week follow-up for Lenire Treatment
  - TFI = 71
  - TRQ = 45
  - No MAQ this appointment – Strongly encourage using the misophonia listening protocol again, as his sensitivity was up
- Frustrated, feels like his tinnitus is getting worse
- Annoyed he has paid thousands of dollars and hasn’t felt any better than when he started
- Encouraged seeing a therapist again but doesn’t want to so we decided one-month calls to discuss latest treatments and encourage communication about what is going on

Treatment Plan for GK

- 5 months post Lenire fitting
  - TFI = 64
  - TRQ = 48
  - MAQ = 35
- His major concern is his tinnitus has not dropped in volume
- No sound machine at night for fear of not hearing his surroundings
- Deciding to take a break from Lenire treatment at this point
- PCP prescribed anxiety meds but he hasn’t taken them due to concerns of side effects

Treatment Plan for GK

- Phone call visits every 3 months in 2024
  - Encouraged counseling
  - Tried acupuncture
  - Encouraged counseling
  - Taking magnesium even though his blood work is fine
  - Taking B12 and Lipoflavinoids and no change
  - Encouraged counseling
- 12/20/2024 – Finally scheduled with a counselor and going to meet monthly
- I connected with counselor to release to discuss treatment – they are going to start ACT

Thank You

Natalie Phillips, AuD
Emily E. McMahan, AuD
Jason Leyendecker, AuD

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