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Teenagers With Tinnitus

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- Brian Fligor, PhD, PASC, is a board certified pediatric audiologist and president of Tobias & Battite Hearing Wellness, a private audiology practice in Boston, MA. His professional interests include tinnitus evaluation and management in all ages, with a specific interest in sound sensitivity disorders in children.

Disclosures

- Presenter Disclosure: Financial: Brian Fligor is a clinical advisory board member for Neuromod Devices, LTD, the manufacturer of the Lenire tinnitus therapy device. He has received an honorarium for presenting this course. Non-financial: Brian Fligor has no relevant non-financial relationships to disclose.
- Content Disclosure: This learning event does not focus exclusively on any specific product or service.
- Sponsor Disclosure: There is no external sponsor for this course.

Learning Outcomes

After this course, participants will be able to:

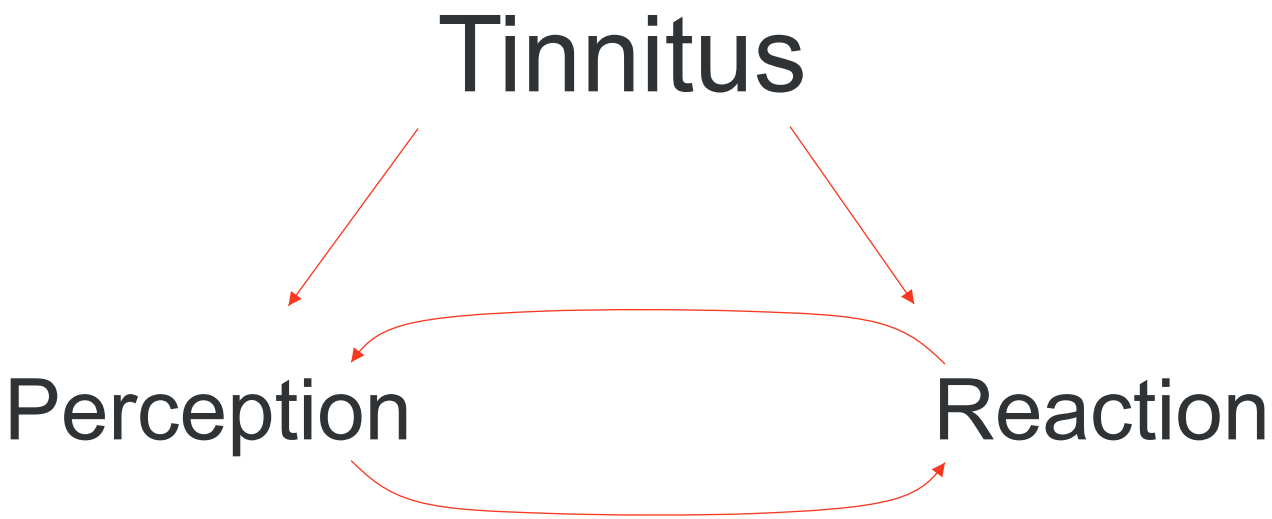
- Identify the three most common complaints of bothersome tinnitus.
- Explain how to identify and refer to behavioral health specialists teenagers with catastrophic tinnitus symptoms.
- Discuss how to screen for medically/audiologically significant tinnitus and refer on for tinnitus therapy.

Agenda

- Introduction: scope of the problem in teenagers
- An experience of tinnitus
- Screening for bothersome tinnitus
- Tinnitus issues specific to teenagers
- Tinnitus treatments
- Pharmacological interventions for tinnitus
- Summary

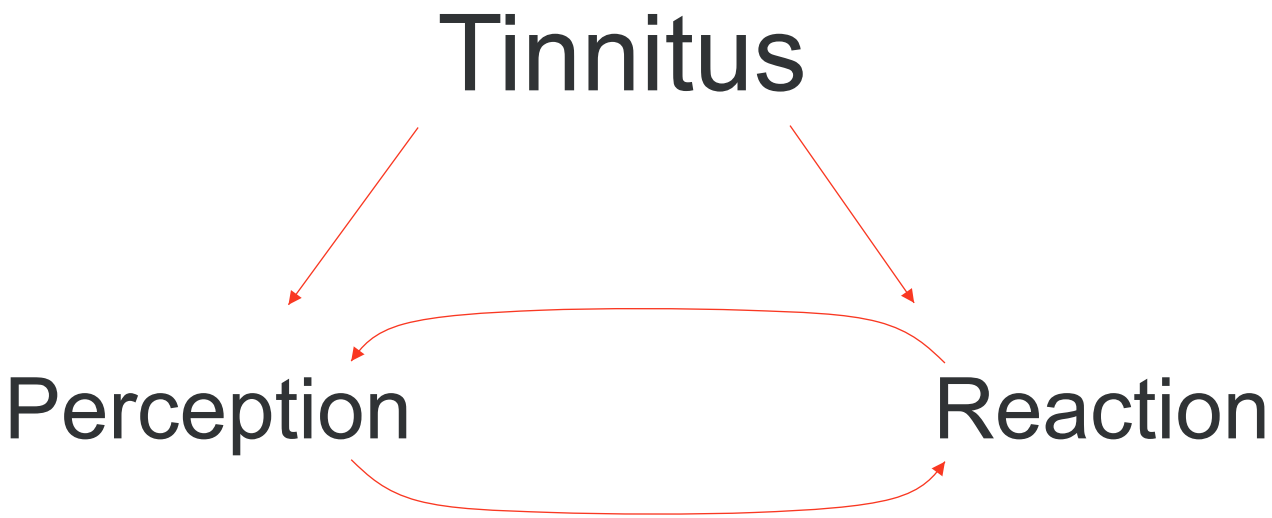
The Irony of Tinnitus

- Tinnitus: “Phantom ringing, buzzing, hissing noise in the ears or head in the absence of an external sound source.”



The Irony of Tinnitus

- Tinnitus: A sensation… an otherwise benign sensation, except a network of neurons accidentally assigns “threat”



Scope of the Problem

According to the American Tinnitus Association:

- 10-15% of the US population (~50M) have tinnitus
- 6% of the US population (~20M) have bothersome tinnitus
- 0.6% of the US population (~2M) have debilitating tinnitus
- Very similar numbers reported by British Tinnitus Association

Scope of the Problem

Rosing, et al., (2016), meta-analysis (25 articles):

- 6 – 41.9% of teens experience tinnitus
  - 26.2M teens in US: 1.5M – 11M teens have tinnitus
- “Troublesome” or “Bothersome” = 0.6 – 49.2%
  - 9,000 – 5.4M teens have bothersome tinnitus (wide range!)

Gilles, et al., (2013), 4000 high school students

- 74.9% Noise-induced temporary tinnitus
- 18.3% chronic/permanent noise-induced tinnitus

Symptoms of Tinnitus

“My Tinnitus”

Bothersome Tinnitus?

- Sleep disruption (getting to/maintaining sleep)
- Loss of Control/Persistence of tinnitus (“can’t escape”)
- Anxiety, depression
- Annoyance, irritation, inability to relax
- Difficulty with concentration, or confusion

Screening for Bothersome Tinnitus

"Do you often have ringing, buzzing, hissing noise in your ears or head?"

- If yes, on a scale of 0-10, how loud is it?
- Greater than "4" refer for further evaluation
  - Undiagnosed hearing loss
  - Medications
  - Concussion
  - Overexposure to recreational sound

Screening for Bothersome Tinnitus

Validated questionnaires administered by trained clinician:

- Tinnitus Functional Index
  - 0 – 100, assesses 7 subdomains
  - 0-25, low-priority
  - 54 – 72, big problem
  - 73 -100, catastrophic
- Tinnitus Handicap Inventory
  - Similar categories, any score over 38 requires intervention

The Teenage Brain

"Personal Fable of Adolescence" Elkind (1967)

- Imaginary Audience
  - He/she is "always on display" and center of attention, both negative and positive
- Unique and Special
  - "No one has ever felt or experienced the things I do."
- Invincibility
  - "Consequences of known risks do not apply to me."

The Teenage Brain

- Cognitive Development
  - Executive function (prefrontal cortex) slower than emotion, memory, and appetite (limbic center)
- Puberty
  - Hormonal shifts
  - Changing sleep patterns
- Extremely high rate of anxiety and depression

Tinnitus Interventions

- “You’ll just have to learn how to live with it.”

Tinnitus Interventions

NO!!!!

- "You'll just have to learn how to live with it."

Tinnitus Interventions

- Management, not a cure
- Habituation of Reaction vs. Habituation of Perception
- 20% reduction in symptoms (per questionnaire) correlates with “clinically significant improvement”

Tinnitus Interventions

- Licensed Mental Health Counselor
  - Cognitive Therapy
  - Cognitive Behavioral Therapy
  - Mindfulness
  - Coping Strategies
- Sound Enhancement
  - Environmental masking noise
  - Ear level worn maskers/hearing aids
- Tinnitus Retraining Therapy
  - Combination of sound enhancement and adjustment counseling and coping strategies to facilitate neuroplasticity

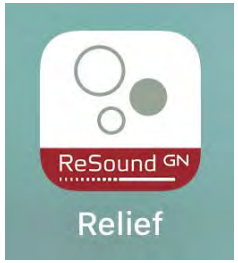
Tinnitus Interventions

- Sound Enhancement & TRT

My tinnitus

Sound Enhancement App

Mixed



Tinnitus Interventions

- Lenire tinnitus treatment device
  - Bimodal neuromodulation (masking plus tongue stim)
  - FDA clearance March 2023, adults only
    - Safe and Efficacious
    - Risk profile very good: zero serious adverse events in 3 trials
  - Use under age 18 is off-label
- No Rx or non-Rx medication, dietary supplement, vitamins/minerals, essential oils, or other alternative medicine has been evaluated by the US Food and Drug Administration as being safe and efficacious

Tinnitus Interventions: Pharmacological

- No medications treat tinnitus, only reaction
- Comorbidities of tinnitus:
  - Anxiety, depression, negative repetitive thoughts
  - Insomnia, attention deficit

- Zoloft (sertraline) and Lexapro (escitalopram); other SSRIs (Prozac)
- Benzodiazepines (Ativan, Klonopin, Valium, Xanax)
- Neurontin (gabapentin, for nerve pain)
- Trazedone, melatonin (sleep)

Summary

- Irony of Tinnitus: it's the reaction to it, not the perception of it
- High prevalence, challenging combination of physiological and psychological "pain"
- Warrants 100% screening
- Diagnosis: hearing test, counseling for hearing conservation, validated tinnitus questionnaires
- Management: Behavioral Health, TRT, Sound Enhancment, psychopharmacology for comorbid psychological conditions
- Teamwork: SLP, AuD, PCP, LMHC

Thank you

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