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One Size Does Not Fit All: Selecting and Fitting Devices for Tinnitus Management

Presenter: Jennifer Martin, AuD
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One Size Does Not Fit All
Selecting and Fitting Devices for Tinnitus Management

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Audiology Online July 2016

Learning Outcomes

 Define the role of sound therapy as part of the tinnitus/sound sensitivity management plan.
 Explain when each type of device (hearing aid, sound generator, combination unit) would be used as part of the management plan for patients with tinnitus and sound sensitivity.
 Describe the differences between fitting hearing aids for hearing loss and fitting hearing aids for tinnitus and sound sensitivity management.
Recommended Components of Tinnitus Management

1) Education & Counseling
2) Stress reduction & Relaxation
3) Therapeutic sound

Hoare et al. (2014)

Sound Therapy

“Any use of sound where the intention is to alter the tinnitus perception and/or the reactions to tinnitus in a clinically meaningful way” Hoare et al. (2014)

“using external sounds to provide relief from tinnitus” Folmer & Carroll (2006)

“sound is used to directly or indirectly shift attention away from the tinnitus” Henry et al. (2008)
Sound Therapy

- Very broad area
- Use the general guidelines of sound therapy
- Focus on the use of ear level devices as part of the sound therapy strategy

General Guidelines of Sound Therapy

- Low level sound that is not bothersome
- Should not interfere with communication or concentration
- Reduces the contrast between the tinnitus and the environment
Therapeutic Sound

- Environmental sound
- Music
- Speech

Henry et al. (2008)

Purpose of Therapeutic Sound

- Sense of relief from tinnitus-related stress (soothing sound)
- Passive diversion from tinnitus (background sound)
- Active diversion from tinnitus (interesting sound)

Henry et al. (2008)
Devices for tinnitus management

- Sound Generators
- Hearing aids
- Combination units

Sound Generators
- Ear level devices
- No amplification
- Some have multiple sound options
- Some are programmable
- Various styles
- Less expensive than hearing aids
Devices for tinnitus management

- Hearing aids
  - Amplification only
  - Wireless devices to stream sounds

Benefits of Amplification

- Improved ability to hear soothing sound, background sound and distracting sound to provide relief from tinnitus and tinnitus-related stress
- Reduction in tinnitus loudness
- Less stress associated with straining to hear
- Stimulation of the auditory system
Devices for tinnitus management

- Combination units
  - Amplification only
  - Sound generator only
  - Combination of both
  - Can also use wireless devices to stream sounds

Considerations: Device Type

- Hearing Aid versus Combination Unit
  - Starting Point:
    - HA for normal hearing to mild HL in LF
    - CU for greater than mild LF loss
    - 
    - McNeil et al. (2012)

- Always be open to trying both to allow patient to decide what works best for them
- Current technology: order combination unit and use features as needed
Considerations: Device Style

- Open fit
  - Slim tube BTE
  - Receiver in the ear
- If hearing loss is too great for open fit, then use maximum venting possible

Searchfield (2006)

Considerations: Monaural vs Binaural

- Binaural fitting for binaural hearing loss, even if the tinnitus is only present unilaterally
  - Provides more normal auditory balance

Searchfield (2006)
Considerations: Prosthetic vs Therapeutic

- Most hearing aids are fit prosthetically
  - Fitting to replace the lost hearing
  - Focus on communication
- Tinnitus often requires fitting therapeutically
  - Changes are made to the programming to allow the hearing aid to have more effect on the tinnitus perception

Considerations: HL vs Tinnitus

- Which is the BIGGER problem?
  - HL: Fit for the hearing loss and patient’s communication needs
    - Tinnitus benefit is secondary goal
  - Tinnitus: Fit primarily for tinnitus relief
    - Improved communication ability is secondary goal
- Can set two programs if needed
  - 1 for better hearing ability
  - 1 for better tinnitus relief

Henry et al. (2008)
Considerations: Acoustic Programming

- Use feedback reduction for most open fit
- Disable internal noise reduction (expansion)
- Disable environmental noise reduction
- Low compression knee point
- Omnidirectional microphone setting
- Fitting protocol: DSL I/O v5

Searchfield (2006)
Henry et al. (2010)
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Searchfield (2006)
Henry et al. (2010)
Considerations: Acoustic Programming

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- Omnidirectional microphone setting
- Fitting protocol: DSL v5 versus NAL-NL2

Searchfield (2006)
Henry et al. (2010)
Considerations: Sound Sensitivity

- Sound Generator versus Hearing Aid/Combination Unit
- Occlusion versus Venting

Searchfield (2006)

Considerations: Sound Sensitivity

- Programming modifications
  - Low compression knee point + higher than normal compression ratio
    - Use hearing aid as amplifier and limiter
    - As sound sensitivity improves, compression ratios can gradually be reduced

- Reduce maximum power output (MPO)

Searchfield (2006)
Special Considerations

- Each tinnitus patient is unique and requires individualized care/empathy
- Tune devices to meet the patient’s individual hearing, tinnitus and comfort needs
- Perform probe microphone measurements to verify acoustic fit
- Multi-disciplinary care is best
- Know when to refer to a tinnitus specialist
References

- Searchfield GD, Kaur M, Martin WH. (2010) Hearing aids as an adjunct to counselling: Tinnitus patients who choose amplification do better than those that don’t. Intl J Aud
- Searchfield GD. (2006) Hearing Aids and Tinnitus. In Tyler RS (Editor), Tinnitus Treatment