

Ask Dr. Brad – 9 Things You Need Every Day

© 2016 Brad Ingrao, AuD

Getting Connected

- If you have a T-Coil on your hearing aid or cochlear implant, turn it on now
- If you prefer to use your own remote mic, I'm happy to wear it.

audiology.net

http://e-audiology.net

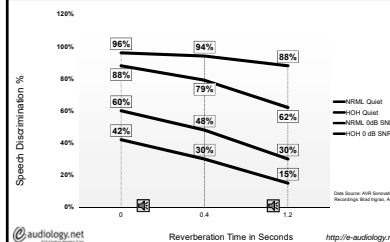
Our Time Together

- Hearing Hazards
- All the toys
- Q & A

audiology.net

http://e-audiology.net

Reverberation Time



audiology.net

http://e-audiology.net

9 Things You Need Everyday

(besides your primary hearing system)

HLAA Mission Viejo
April 10, 2017

Brad Ingrao, AuD
Department of Audiology
VA Long Beach Medical Center

audiology.net

http://e-audiology.net

Identifying Hearing Hazards

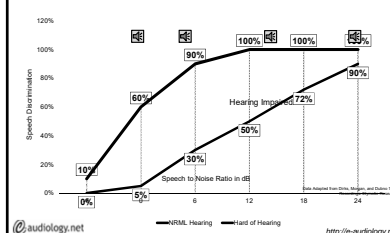
- Distance
- Reverberation
- Background Noise

These factors reduce speech understanding for **ALL** people, regardless of how well they hear. Those with hearing loss are affected to a MUCH greater degree.

audiology.net

http://e-audiology.net

Hearing in Noise



audiology.net

http://e-audiology.net

DISCLAIMER

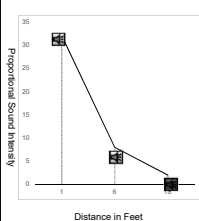
The information presented in this presentation does not express official policy or clinical practice parameters of the Department of Veterans Affairs, the Veterans Health Administration or the United States Government.

Additionally, the presence of Dr. Ingrao does not guarantee the availability of specific services or products from the Department of Veterans Affairs and the Veterans Health Administration.

audiology.net

http://e-audiology.net

Distance



audiology.net

http://e-audiology.net

- Inverse square law applies
- 2x the distance = ¼ the intensity
 - Conversely, halving the distance, increases intensity 4x
 - This works to both improve and worsen hearing...

Combating Hearing Hazards

Capture

Collect signal with the best Signal to Noise ratio
Microphone technique is key (GIGO)

Carry

Deliver signal over distance without losing quality

Couple

Connect to HA or CI without losing quality

audiology.net

http://e-audiology.net

Ask Dr. Brad – 9 Things You Need Every Day

© 2016 Brad Ingrao, AuD

Remote microphones (Capture)

Remote mics capture sound close to the source to reduce background noise and reverberation


- Hard wired
- Bluetooth
- FM



©audiology.net http://e-audiology.net

Infrared

- Converts audio signals to invisible light beam
- Typical uses:
 - Movie theatres
 - TV
 - Court Rooms (privacy)



©audiology.net http://e-audiology.net

Non-Bluetooth RF

Some hearing aids and cochlear implants use a radio frequency to:

- Control the devices (volume, programs, etc.)
- Connect to Remote Mics
- Connect to Media Streamers and Bluetooth phones

©audiology.net http://e-audiology.net


Carry Options

- Magnetic Induction
- Infrared
- FM
- Bluetooth
- Non-Bluetooth Wireless

©audiology.net http://e-audiology.net

Bluetooth

- Short range (10 to 30 meters) radio signal
- Devices are securely "Paired" together
- Relevant Protocols
 - Headset
 - Hands free
 - A2DP (Stereo Audio)



©audiology.net http://e-audiology.net

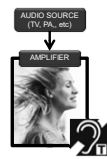
Coupling Options

- Direct Audio Input (DAI)
- Telecoil (T-Coil)
- NFMI and other "Ear to Ear Wireless"

©audiology.net http://e-audiology.net

Magnetic Induction


- Converts audio signals to magnetic energy
- Transmits audio information to hearing device telecoil
- Inexpensive
- Simple to use



©audiology.net http://e-audiology.net

FM


- Similar to Remote Mic, but with longer range
- Frequency Range protected by FCC
- Available in several configurations



©audiology.net http://e-audiology.net

Direct Audio Input

- Connects HA or CI to an audio source by a wire
 - Excellent sound quality
 - Inexpensive
 - Ties you to the audio source
 - Not all hearing aids have DAI but all CI's do




©audiology.net http://e-audiology.net

Ask Dr. Brad – 9 Things You Need Every Day

© 2016 Brad Ingrao, AuD

Telecoil

- Converts magnetic signals into electronic signals
- Available in BTE and some ITE hearing aids as well as most Cochlear Implant processors



© 2013 Brad Ingrao, AuD

audiology.net http://e-audiology.net

Alerting Devices

- Make us aware of significant event in our life:
 - Waking up
 - Informational notifications
 - The Arrival of visitors
 - Hazardous conditions

audiology.net http://e-audiology.net

Ding, Dong, Avon Calling!

Doorbells and knocks are almost always inaudible unless you make them:

- Visual
- Tactile
- Louder



audiology.net http://e-audiology.net

Why Do I Need a Telecoil?

- “Universal” Assistive Device Receiver
 - Telephone, Neck Loop, Silhouette Inductors, Loop Pad, Room Loop
- Growing movement to loop more public venues
 - Theatres, houses of worship, public transit, grocery stores

audiology.net http://e-audiology.net

Rise and Shine

Since we don't usually wear our HAs and CIs to bed, our alarm clocks need to be..

- Louder
- Brighter
- Tactile



audiology.net http://e-audiology.net

Emergency Alerts


Typical smoke, fire and carbon monoxide alarms are inaudible if you have hearing loss.

- Visual
- Tactile
- Alternate pitch



audiology.net http://e-audiology.net

Types of Loops



Home Room Loop Loop Pad Portable Loop

audiology.net http://e-audiology.net

You've Got Mail (IM, Text...)

Hearing ring tones and other alerts on mobile devices is challenging unless they:

- Are Visible
- Are Tactile
- Cover distance



audiology.net http://e-audiology.net

Can You Hear Me Now?

Traditional telephones are difficult for several reasons:

- Limited bandwidth (300 – 3000 Hz)
- Insufficient volume
- Monaural hearing
- No visual information

audiology.net http://e-audiology.net

Ask Dr. Brad – 9 Things You Need Every Day

© 2016 Brad Ingrao, AuD

Pump Up the Volume



©audiology.net http://e-audiology.net

I'll Be Seeing You....

For some, hearing alone isn't enough. These additional technologies can help

- Captioned Phones and Smartphone Apps
- Video Relay
- Video Conferencing



©audiology.net http://e-audiology.net


Wrapping Up

- While current HAs and CIs are awesome, they ARE NOT ENOUGH!
- Understanding and compensating for their limitation gives YOU power over your hearing loss
- Tools are available to help. USE THEM!

©audiology.net http://e-audiology.net

Two Ears Are Better Than One

For those with usable hearing in both ears, routing the phone signal to both ears (binaurally) improves understanding and reduces listening effort.



©audiology.net http://e-audiology.net

Hearing Television Better

- Magnetic Induction
 - Loop Pad or Room Loop
- Bluetooth to Telecoil
- Infrared



©audiology.net http://e-audiology.net

Following Up

Questions?
bingrao@e-audiology.net
<http://www.youtube.com/user/AskDrBrad>

©audiology.net http://e-audiology.net

Mobile Phone Hearing

Several tools are available to make your mobile phone experience easier and more fulfilling

- Connectivity with HAs and CIs
- Notification help



©audiology.net http://e-audiology.net

On The Road Again...

You can have the "home field advantage" even on vacation.

- Travel Alarms
- Door Knock Light
- Weather Alerts
- ADA Kits



©audiology.net http://e-audiology.net
