

Minnesota Gerontological Society
Center on Aging
MAGEC

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Risks of Hearing Loss
in our Aging Populations
May 21, 2014
By: Marty Barnum, CSC, MA

RISKS OF HEARING LOSS IN OUR AGING POPULATIONS

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PRESENTER

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CSC, MA

Hearing Loss

What are the Numbers?

- ✦ Nearly a fifth of all Americans 12 years or older have hearing loss so severe that it may make communication difficult. *

*From a study led by Johns Hopkins researchers in 2011 using data from the NHANES (National Health and Nutritional Examination Surveys) between 2001 and 2008.

According to this study...

- ✦ About 30 million Americans (12.7%) had hearing loss in both ears.
- ✦ The number jumps to 48 million (20.3%) for people who have hearing loss in at least one ear.
- ✦ Hearing loss prevalence nearly doubled with every age decade.

People over age 75...

FACT

- ✦ Over 50 % have a significant hearing loss.
- ✦ Hearing loss is a risk factor for falls.
- ✦ Hearing loss is correlated to the development of dementia.
- ✦ Hearing loss is correlated to an increased rate of decline in persons with dementia.

BELIEFS

- ✦ Hearing loss is inevitable
- ✦ It's an inconsequential part of the aging process
- ✦ There's nothing one can do about it.

Hearing Loss and its Consequences

Balance & Falls

- ✦ 25 dB Hearing Loss = 3X risk of falling
- ✦ Every additional 10 dB = additional 1.4X risk

Johns Hopkins Research

Hearing as a Predictor of Falls and Postural Balance in Older Female Twins. Viljanen, A., Kaprio, Jaakko, et.al.

- ✦ Conclusion: People with poor hearing acuity have a higher risk for falls, which is partially explained by their poorer postural control. Auditory information about environment may be important for safe mobility.
- ✦ ...higher fall risk was partially explained by their poorer postural control.

WHY???

- ✦ People who can't hear well might not have good awareness of their overall environment
- ✦ Cognitive load – the brain is overwhelmed with demands on its limited resources
 - Gait and balance are actually very cognitively demanding.
- ✦ In twin study – genetic influences in common did not explain the association; the poorer hearing sister had a significantly higher risk for falls.

Hearing Loss and its Consequences

Dementia

Risk of dementia compared to people with normal hearing:

- ⊙ Mild HL = 2X risk
- ⊙ Moderate HL = 3X risk
- ⊙ Severe HL = 5X risk

WHY???

- + May be a common pathology underlying both
- + The strain of decoding sounds over the years may overwhelm the brains of people with hearing loss, leaving them more vulnerable to dementia
- + Hearing loss could lead to dementia by making individuals more socially isolated (a known risk for dementia and other cognitive disorders)

Brain Shrinkage

- + All people's brains shrink with age, but the rate of shrinkage is quicker in deaf people – they lose an extra cubic centimeter of brain a year.
- + 10 yr study as part of the Baltimore Longitudinal Study of Aging
 - + MRIs over 10 years found that participants whose hearing was already impaired at the start of the study had accelerated rates of brain deterioration compared to those with normal hearing.

Brain, cont.

- ✦ People with impaired hearing lost more than an additional cubic centimeter of brain tissue each year.
- ✦ This occurred in particular regions – the superior, middle and inferior temporal gyri – brain structures responsible for processing sound and speech.
- ✦ The middle & inferior temporal gyri also play roles in memory and have been shown to be involved in the early stages of Alzheimer's disease.
- ✦ If hearing loss is potentially contributing to these differences being seen on MRI, want to treat it before these brain structural changes take place.

Are Hearing Aids the Solution?

- ✦ Not always!
- ✦ Depends on "kind" of hearing loss
- ✦ Only about one in seven people over age 50 with hearing loss uses a hearing aid(s). Why?
 - ✦ Cost
 - ✦ Don't receive necessary rehabilitative training
 - ✦ Consider hearing loss part of life!

My Thoughts...

- ✦ Research shows a correlation between hearing loss and falls and dementia – not a cause.
- ✦ BUT...if we are more cognizant of hearing loss, and if we are more proactive in relation to hearing loss, can we impact its potential involvement with increased falls and dementia???

What can we do?

- ✦ Related to hearing aids
 - ✦ Encourage those who could benefit from wearing aids to consider getting them – and help them to identify ways to manage the cost.
 - ✦ For people who have hearing aids – be sure they are appropriately worn and cared for.

What can we do?

- ✦ Related to communication and socialization:
 - ✦ Get person's attention before speaking to them
 - ✦ Make eye contact before speaking
 - ✦ Do not turn away or cover mouth while speaking
 - ✦ Rephrase if person is not understanding
 - ✦ Allow more time

What should we not do?

- ✦ Shout or over-enunciate
- ✦ Play the "guess who" game
- ✦ Be hurried and impatient
- ✦ Assume that someone understands because they smile and nod

Spelling test

Number your paper from 1 to 8

1.

2.

3.

4.

5.

6.

7.

8.

Spelling Words through Simulated Hearing Loss above 1000 Hz

Sound	Frequency (Hz)	Hearing Level (dB HL)
z	125	15
v	250	15
j	250	45
m	250	45
ch	500	45
sh	500	45
o	500	55
t	500	55
o	1000	55
t	1000	55
ch	1000	55
sh	1000	55
o	1000	85
t	1000	85
ch	1000	85
sh	1000	85
o	1000	115
t	1000	115
ch	1000	115
sh	1000	115

AUDIOGRAM OF FAMILIAR SOUNDS
FREQUENCY IN CYCLES PER SECOND (HZ)

1.

2.

3.

4.

5.

6.

7.

8.

1.

2.

3.

4.

5.

6.

7.

8.

Spelling Words through Simulated Hearing Loss above 1000 Hz

Sound	Frequency (Hz)	Hearing Level (dB HL)
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o	1000	55
t	1000	55
ch	1000	55
sh	1000	55
o	1000	85
t	1000	85
ch	1000	85
sh	1000	85
o	1000	115
t	1000	115
ch	1000	115
sh	1000	115

AUDIOGRAM OF FAMILIAR SOUNDS
FREQUENCY IN CYCLES PER SECOND (HZ)

Click on Speaker to Present Spelling word.

1.

2.

3.

4.

5.

6.

7.

8.

1.

2.

3.

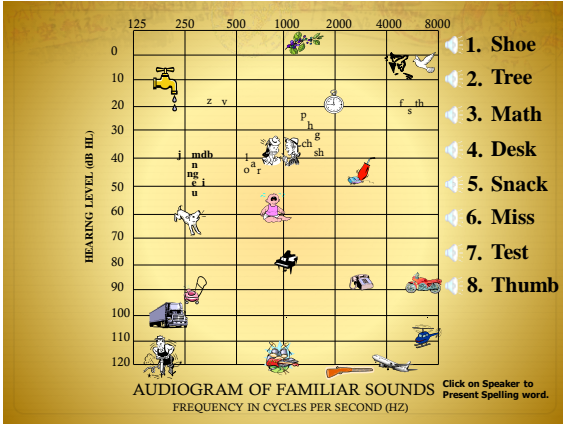
4.

5.

6.

7.

8.



Assistive technology

- + Flashing doorbell knockers
- + Listening devices such as pocket talkers.
- + Captel Phone
- + FM system
- + Infrared system
- + Flashing light alarm clock (or vibrating alarm)
- + Closed captioning on television

Deaf and Hard of Hearing Service Division Websites:

www.dhhsd.org
www.tedprogram.org
www.interpreterreferral.org
www.deafblindinfo.org



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