

HEARING SOLUTIONS SIG

Sun City Texas Computer Club

November 14, 2019

Computer Club Membership entitles you to attend any Club Special Interest Group. Thank you for coming today.

REMEMBER

NEXT MEETING

January 9, 2020 – 9:30 a.m.

Info – Contact Nelda McQuary
mcquary@suddenlink.net

“Healthy Hearing and Healthy Brains”

Presented by:

Kim C Ringer, Au.D.

Oticon Inc. Regional Acct Manager

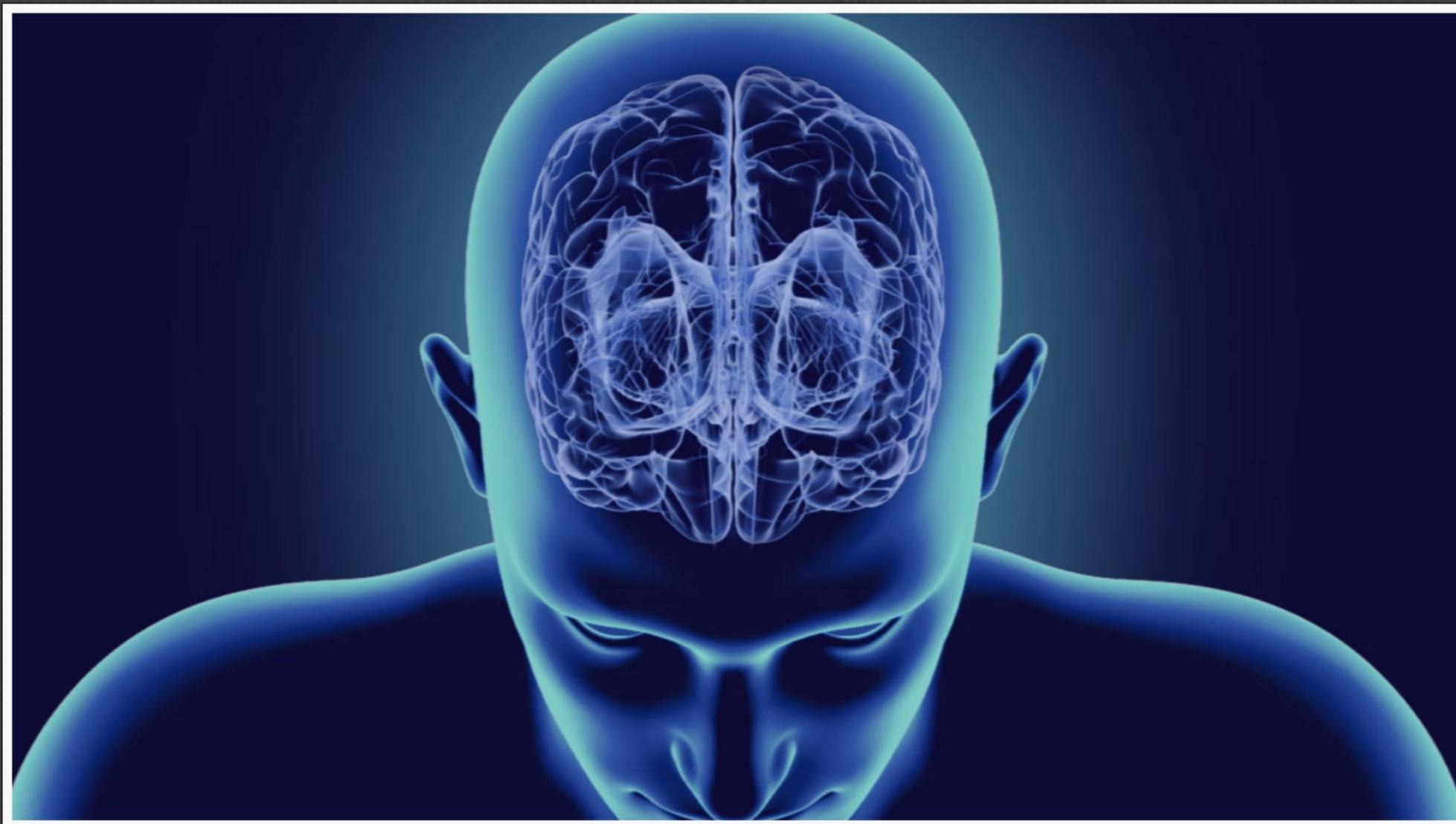
Your hearing is a system



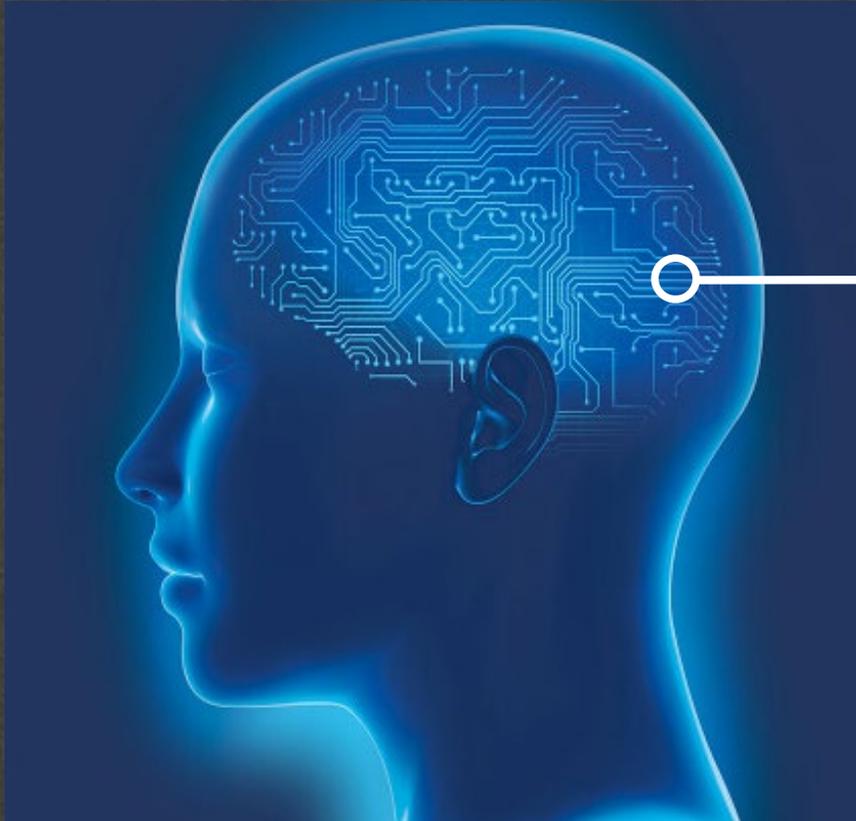
A group of people are dining in a restaurant. In the foreground, a waiter in a white shirt and brown apron is leaning over a table, talking to a man in a blue sweater. The man is looking at the waiter. Other people are seated at tables in the background, some looking at their phones. The restaurant has a warm, rustic atmosphere with wooden tables and chairs. A blue text box is overlaid on the left side of the image.

Your two ears and brain work together to keep you safe, locate where sound is coming from and help you follow conversations.

How we hear



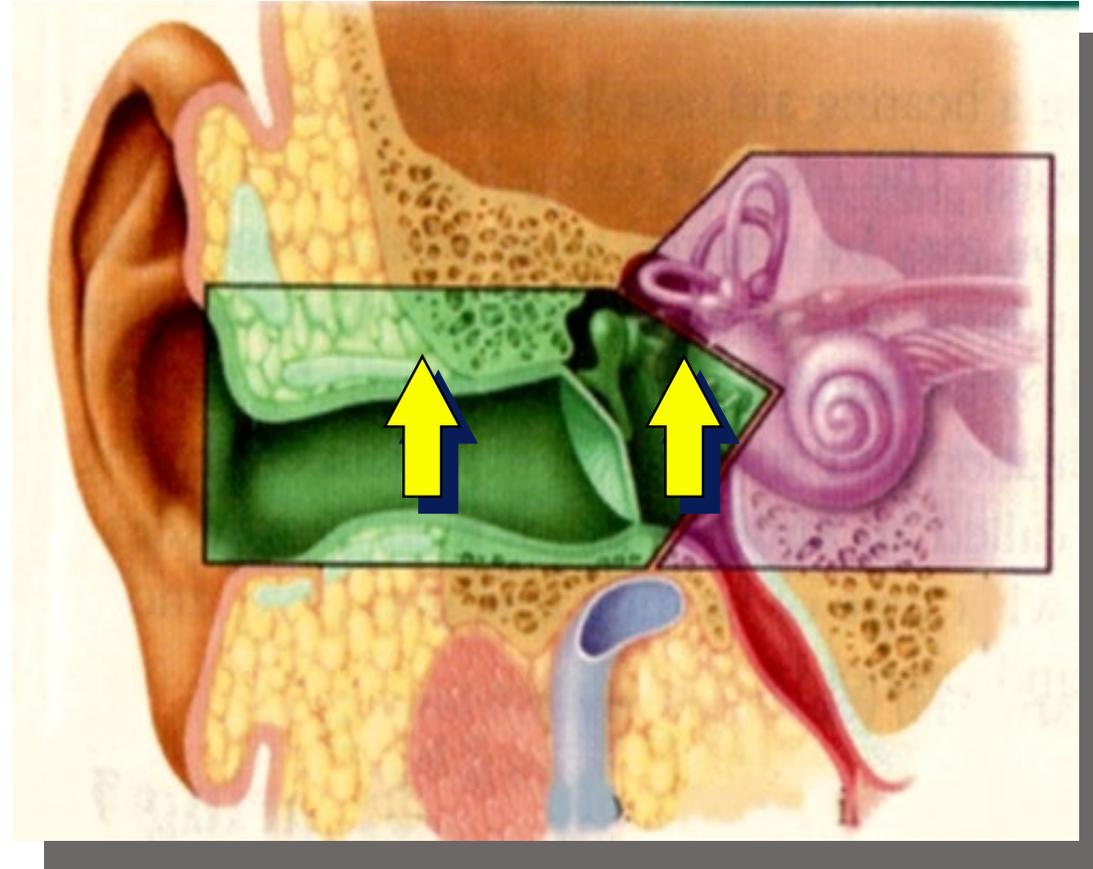
How your brain makes sense of sound that it gets from your ears:



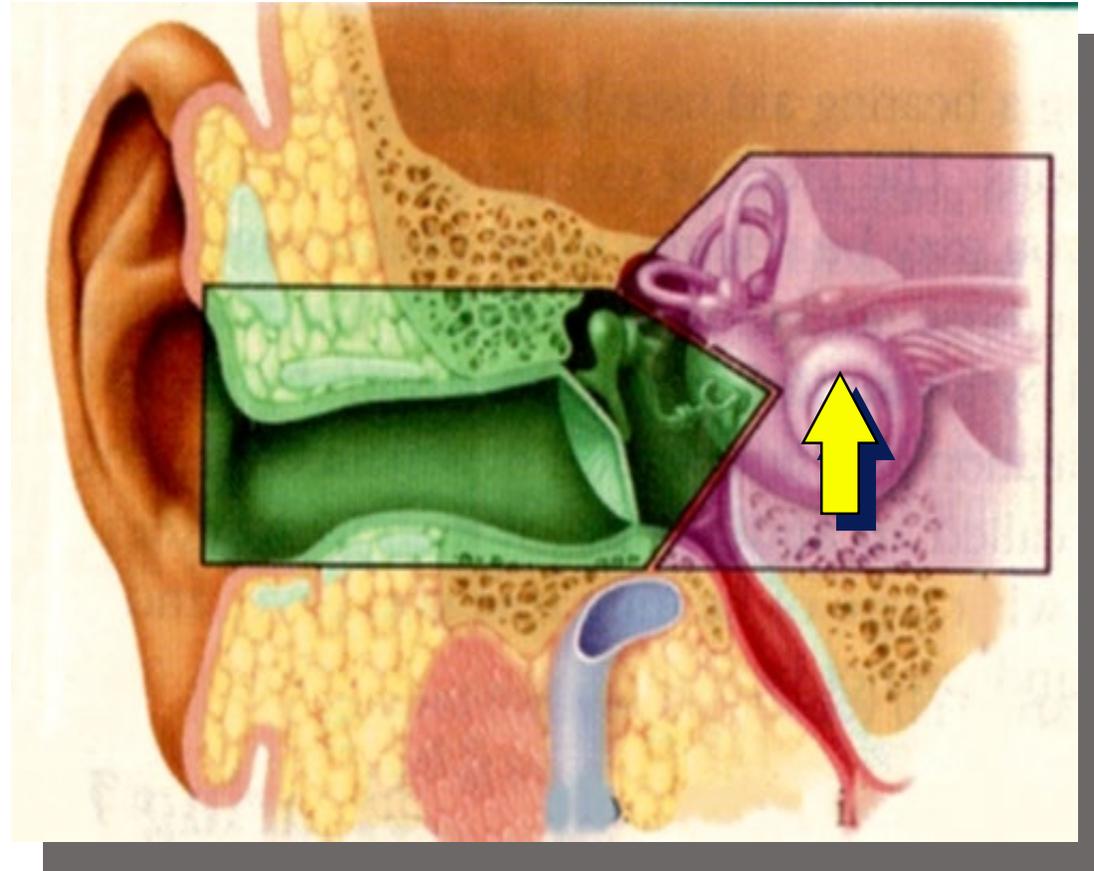
Segmentize

The brain separates the sounds it hears into different parts and keeps track of the different parts of it. This is how the brain makes sense of the environment.

Conductive Hearing Loss



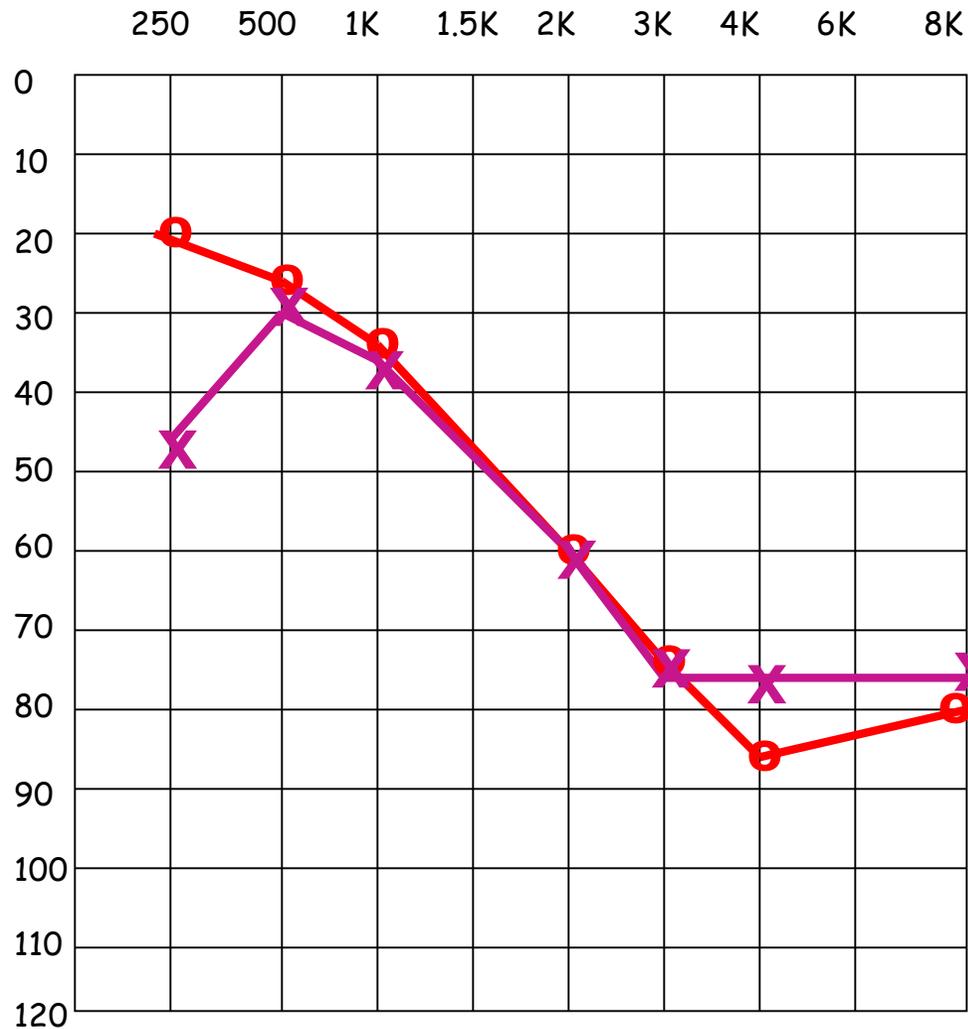
Sensorineural Hearing Loss



Causes of Sensorineural Hearing Loss

- Typical age-related changes
- Hereditary effects
- Exposure to noise—at work, at home, entertainment or recreation
- Oto-toxic medicines
- Some medical disorders – diabetes, heart disease

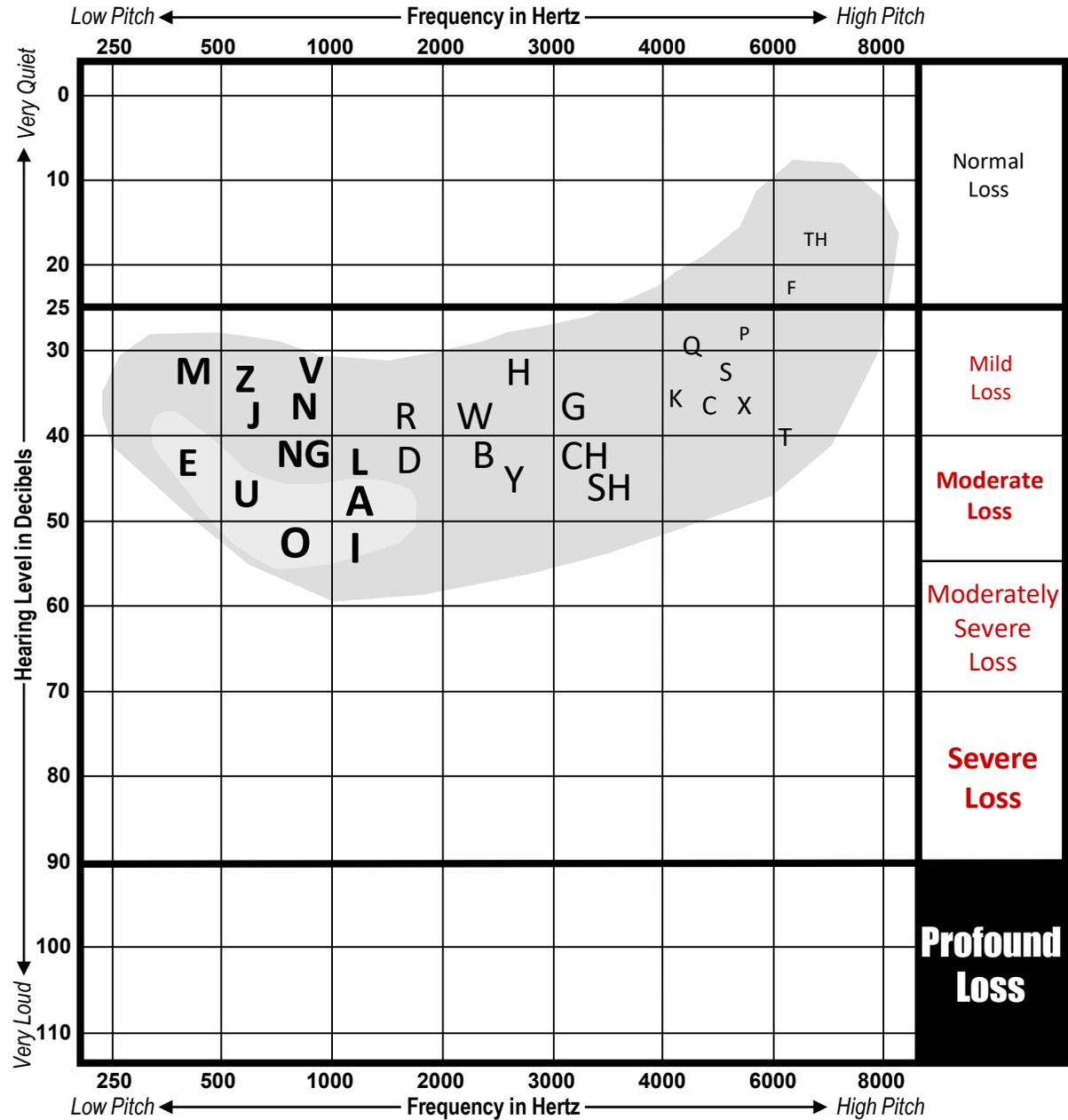




**What does
your
Audiogram
tell us?**



Audiogram

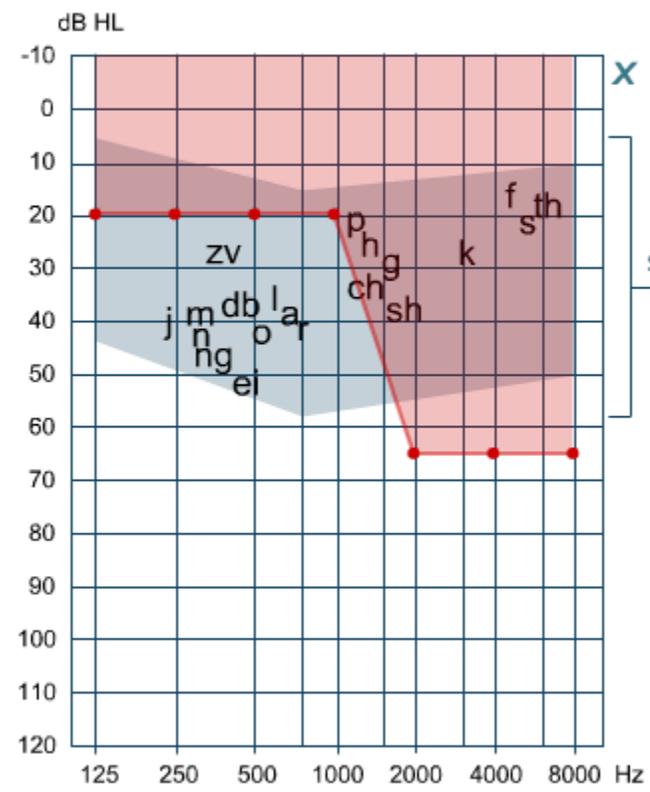


Your Hearing

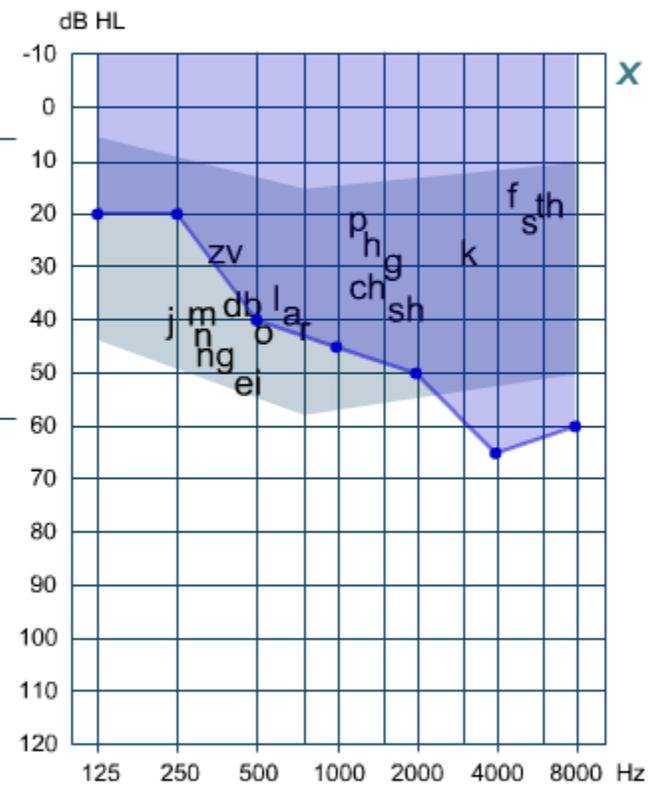
- The Audiogram**
- + Envirogram™
- Hearing and understanding
- Clarity simulator
- Speech in Noise
- NCOA Study

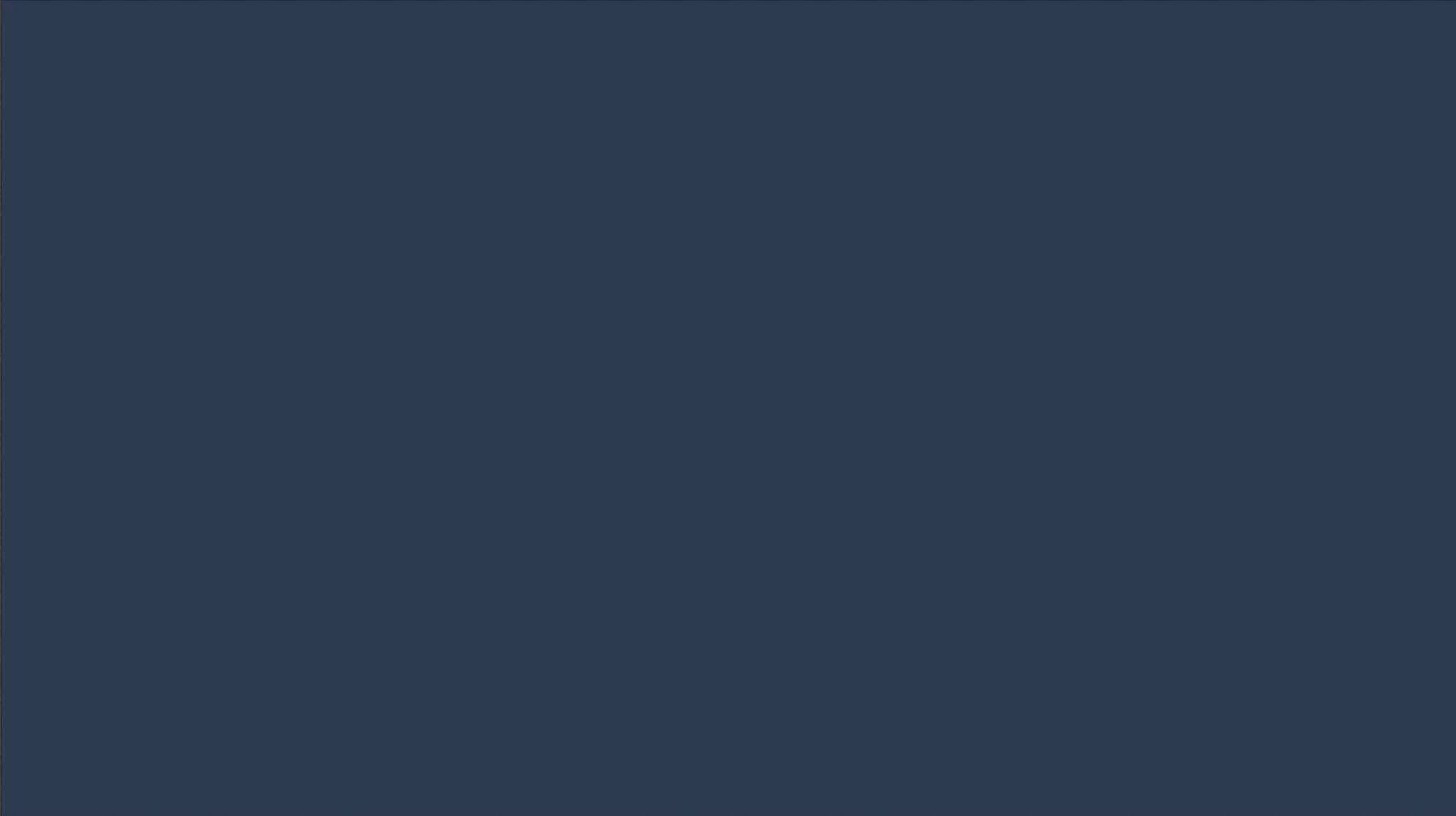
I n f o
H e l p

Show sound examples

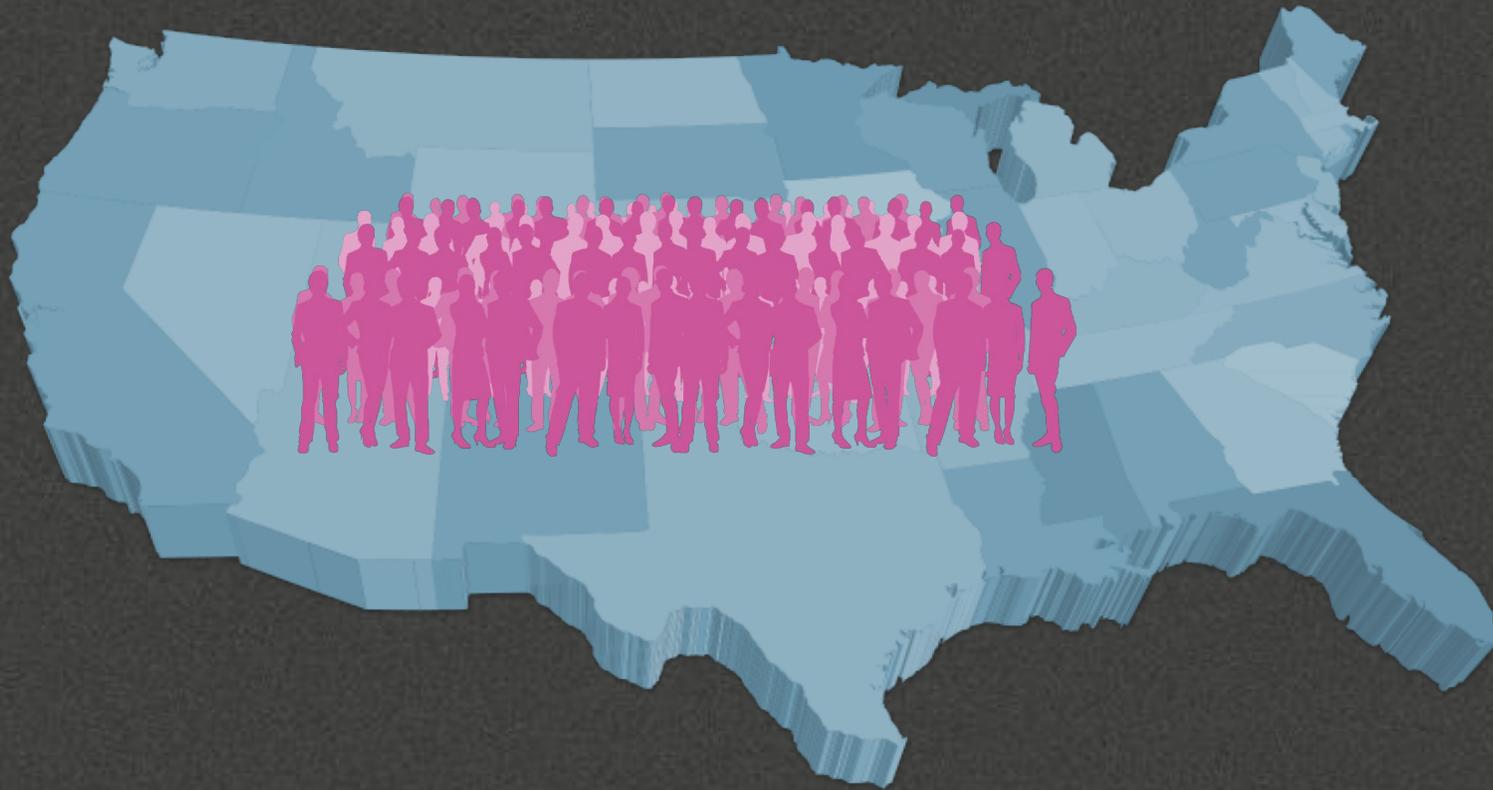


Speech Spectrum





Hearing loss is the third largest public health issue in America



40 million Americans are affected

Lifestyle and certain conditions can affect your hearing too

Learn How Hearing Loss Influences Your Overall Health



AGING Age-related hearing loss is permanent but treatable with hearing devices.



DEMENTIA Research indicates the severity of hearing loss is closely related to the risk of dementia.



DEPRESSION Untreated hearing loss may lead to social isolation and sensory overload.



VISION LOSS Untreated vision and hearing loss can increase the risk of falls and difficulty in performing activities of daily living.



HEART DISEASE Studies suggest a connection between low-frequency hearing loss and heart disease.



DIABETES Hearing loss occurs almost twice as often in adults who have diabetes than in those who don't.



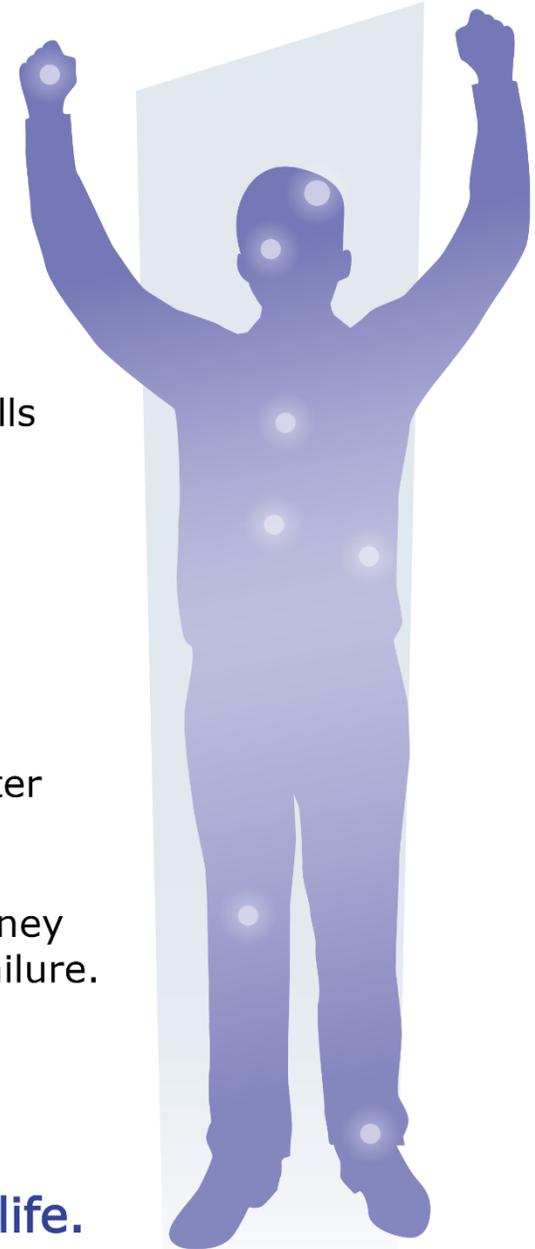
OTOTOXICITY More than 100 classes of commonly used over-the-counter and prescription drugs can cause damage to the inner ear.



KIDNEY DISEASE An estimated 54% of American adults with chronic kidney disease have hearing loss, possibly caused by toxins related to kidney failure.



RISK OF FALLS Those with hearing loss often have diminished spatial orientation awareness, impaired brain pathways or reduced attention capacity – which can increase the risk of falls.



Professional treatment of hearing loss can improve your quality of life.

Living with hearing loss can be a challenge

Dementia prevention, intervention, and care



Gill Livingston, Andrew Sommerlad, Vasiliki Orgeta, Sergi G Costafreda, Jonathan Huntley, David Ames, Clive Ballard, Sube Banerjee, Alistair Burns, Jiska Cohen-Mansfield, Claudia Cooper, Nick Fox, Laura N Gitlin, Robert Howard, Helen C Kales, Eric B Larson, Karen Ritchie, Kenneth Rockwood, Elizabeth L Sampson, Quincy Samus, Lon S Schneider, Geir Selbaek, Linda Teri, Naahed Mukadam

Executive summary

Acting now on dementia prevention, intervention, and care will vastly improve living and dying for individuals with dementia and their families, and in doing so, will transform the future for society.

Dementia is the greatest global challenge for health and social care in the 21st century. It occurs mainly in people older than 65 years, so increases in numbers and costs are driven, worldwide, by increased longevity resulting from the welcome reduction in people dying prematurely. The *Lancet* Commission on Dementia Prevention, Intervention, and Care met to consolidate the huge strides that have been made and the emerging knowledge as to what we should do to prevent and manage dementia.

Globally, about 47 million people were living with dementia in 2015, and this number is projected to triple

by 2050. Dementia affects the individuals with the condition, who gradually lose their abilities, as well as their relatives and other supporters, who have to cope with seeing a family member or friend become ill and decline, while responding to their needs, such as increasing dependency and changes in behaviour. Additionally, it affects the wider society because people with dementia also require health and social care. The 2015 global cost of dementia was estimated to be US\$818 billion, and this figure will continue to increase as the number of people with dementia rises. Nearly 85% of costs are related to family and social, rather than medical, care. It might be that new medical care in the future, including public health measures, could replace and possibly reduce some of this cost.

Dementia is by no means an inevitable consequence of reaching retirement age, or even of entering the ninth

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[http://dx.doi.org/10.1016/S0140-6736\(17\)31375-9](http://dx.doi.org/10.1016/S0140-6736(17)31375-9)
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(Prof Gill Livingston, S G Costafreda, C Cooper, Prof R Howard), Department of Old Age Psychiatry, King's College London, London, UK
(J Huntley); National Ageing Research Institute, Parkville, VIC, Australia (Prof D Ames MD); Academic Unit for Psychiatry of Old Age, University of Melbourne, Kew, VIC, Australia (Prof D Ames); Medical School, University of Exeter, Exeter, UK (Prof C Ballard MD); Centre for Dementia Studies, Brighton and Sussex Medical School, University of Sussex, Brighton, UK (Prof S Banerjee MD); Centre for Dementia Studies, University of Manchester, Manchester, UK (Prof A Burns MD); Department of Health Promotion, School of Public Health, Sackler Faculty of Medicine (Prof J Cohen-Mansfield PhD), Hecceg Institute on Aging (Prof J Cohen-Mansfield), and Minerva Center for Interdisciplinary Study of End of Life (Prof J Cohen-Mansfield), Tel Aviv University, Tel Aviv, Israel; Dementia Research Centre, University College London, Institute of Neurology, National Hospital for Neurology and Neurosurgery, London, UK (Prof N Fox MD); Center for Innovative Care in Aging, Johns Hopkins University, Baltimore, MD, USA (L N Gitlin PhD); Department of Psychiatry,

Key messages

- 1 The number of people with dementia is increasing globally**
Although incidence in some countries has decreased.
- 2 Be ambitious about prevention**
We recommend active treatment of hypertension in middle aged (45–65 years) and older people (aged older than 65 years) without dementia to reduce dementia incidence. Interventions for other risk factors including more childhood education, exercise, maintaining social engagement, reducing smoking, and management of hearing loss, depression, diabetes, and obesity might have the potential to delay or prevent a third of dementia cases.
- 3 Treat cognitive symptoms**
To maximise cognition, people with Alzheimer's disease or dementia with Lewy bodies should be offered cholinesterase inhibitors at all stages, or memantine for severe dementia. Cholinesterase inhibitors are not effective in mild cognitive impairment.
- 4 Individualise dementia care**
Good dementia care spans medical, social, and supportive care; it should be tailored to unique individual and cultural needs, preferences, and priorities and should incorporate support for family carers.
- 5 Care for family carers**
Family carers are at high risk of depression. Effective interventions, including STRategies for RelaTives (START) or Resources for Enhancing Alzheimer's Caregiver Health intervention (REACH), reduce the risk of depression, treat the symptoms, and should be made available.

- 6 Plan for the future**
People with dementia and their families value discussions about the future and decisions about possible attorneys to make decisions. Clinicians should consider capacity to make different types of decisions at diagnosis.
- 7 Protect people with dementia**
People with dementia and society require protection from possible risks of the condition, including self-neglect, vulnerability (including to exploitation), managing money, driving, or using weapons. Risk assessment and management at all stages of the disease is essential, but it should be balanced against the person's right to autonomy.
- 8 Manage neuropsychiatric symptoms**
Management of the neuropsychiatric symptoms of dementia including agitation, low mood, or psychosis is usually psychological, social, and environmental, with pharmacological management reserved for individuals with more severe symptoms.
- 9 Consider end of life**
A third of older people die with dementia, so it is essential that professionals working in end-of-life care consider whether a patient has dementia, because they might be unable to make decisions about their care and treatment or express their needs and wishes.
- 10 Technology**
Technological interventions have the potential to improve care delivery but should not replace social contact.

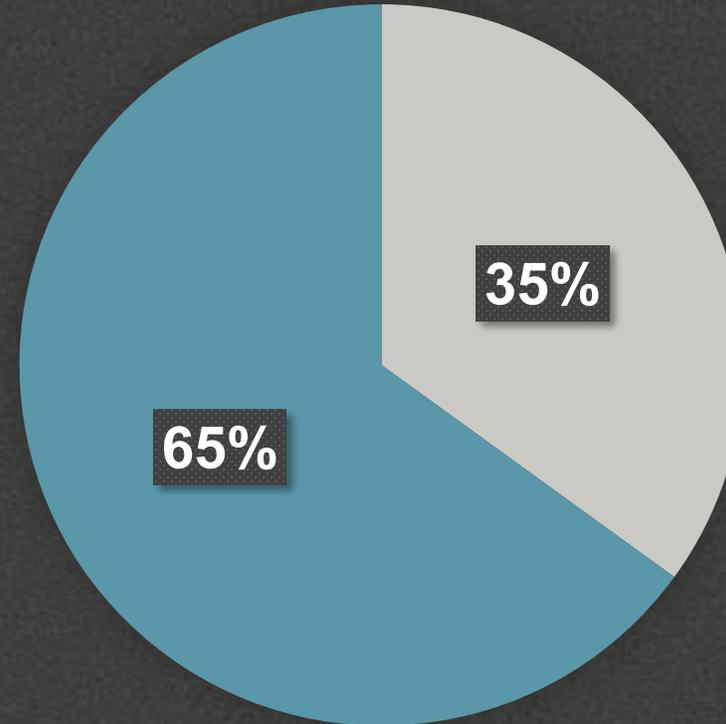


Hearing and health issues

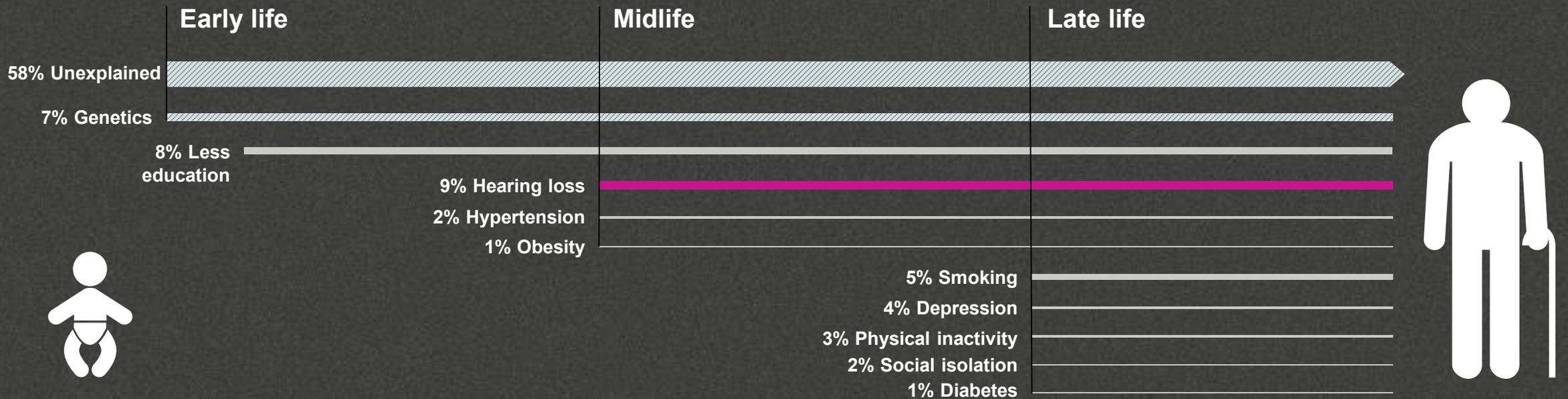
The latest review on Dementia and Causes

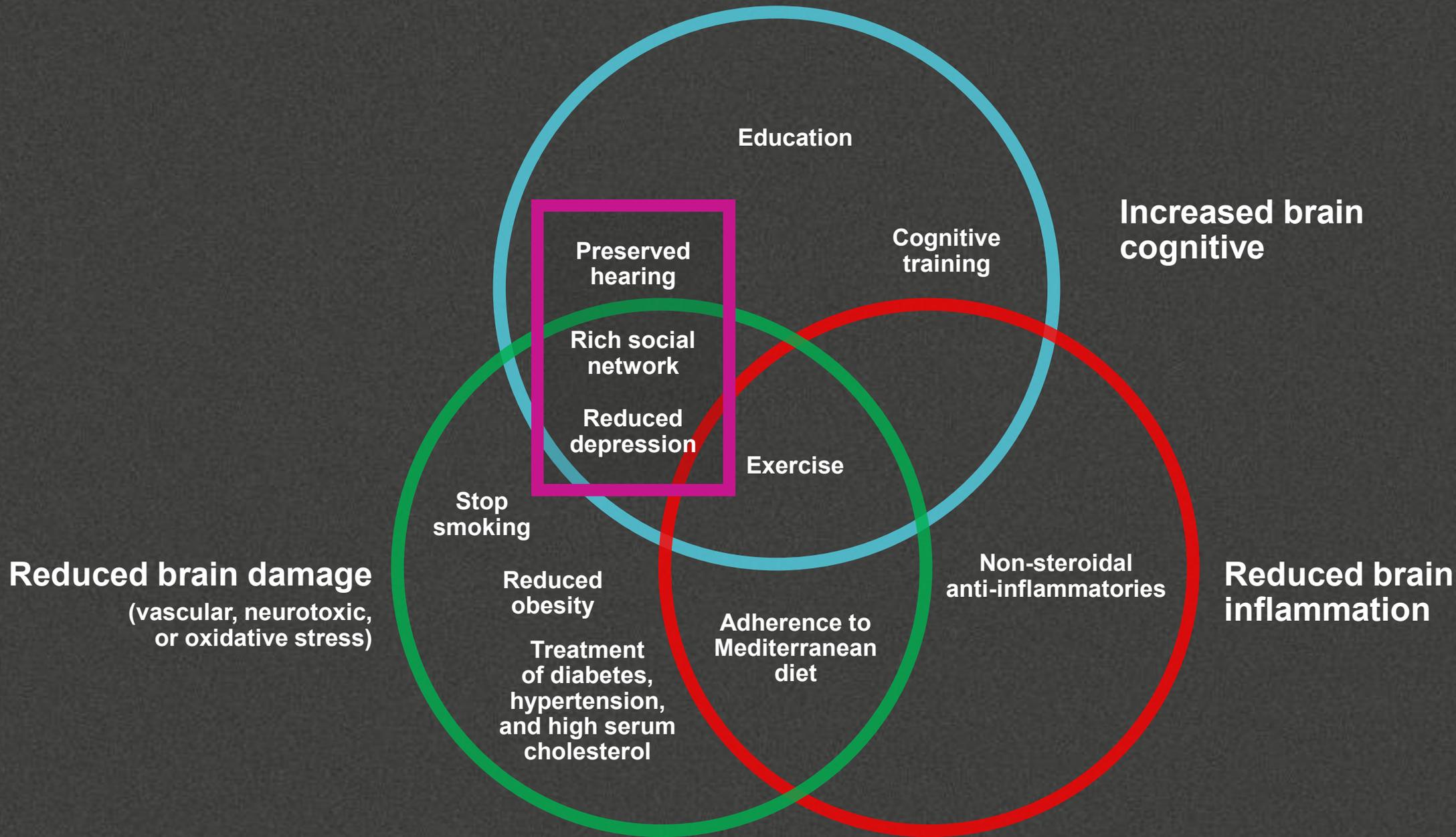
Risk factors

- potentially modifiable
- potentially non-modifiable



Life-course model of contribution of modifiable risk factors to dementia





**Preserved
hearing**

**Rich social
network**

**Reduced
depression**





Spoken Language Understanding should be automatic and effortless



Loss of the ability to *organize* sound



Effect of Hearing Loss: Listening Takes Effort



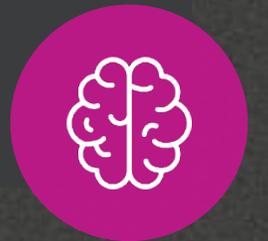
**Listening
Effort**



**Focused
Attention**



Concentration



All are active processes and under control of the listener

How **hearing loss** affects the hearing process



If you have hearing loss, it disrupts the normal relationship between your ears and your brain.

Your brain receives less sound information

This makes it harder for your brain to recognize sounds

Having to guess what people are saying forces you to concentrate harder

The extra effort leaves less mental capacity for remembering conversations

You feel more tired after conversations

You're more tempted to withdraw from social interaction

Hearing Loss and Cognitive Decline in Older Adults

Frank R. Lin, MD, PhD; Kristine Yaffe, MD; Jin Xia, MS; Qian-Li Xue, PhD; Tamara B. Harris, MD, MS; Elizabeth Purchase-Helzner, PhD; Suzanne Satterfield, MD, DrPH; Hilsa N. Ayonayon, PhD; Luigi Ferrucci, MD, PhD; Eleanor M. Simonsick, PhD; for the Health ABC Study Group

JAMA INTERN MED/VOL 173 (NO. 4), FEB 25, 2013



October, 2015 Journal of American Geriatric Society:

- ▶ Hearing Loss, Hearing Aid Use and Cognitive Decline
- ▶ 25 year follow up study on over 3000 participants
- ▶ Hearing loss is associated with accelerated cognitive decline in older adults.
- ▶ Hearing aid use attenuates such decline...
- ▶ Accelerated cognitive decline reported between normal hearing and hearing loss subjects (2x for mild, 3x for moderate, 5x for severe hearing loss)
- ▶ No difference in decline betw normal hearing and those using hearing aids.

**What do you find is the most difficult situation
when you have a hearing loss?**





How **hearing loss** affects the hearing process



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How can technology
**help your brain to
hear more naturally?**

Preserves the
important details
in speech

Reduces the
effort involved
in listening

Improves your
recall of
conversation

Helps your ears work
together to identify
where sound is
coming from

Takes your personal
listening preferences
into account

OpenSound Navigator™



Imagine a soundscape like this where you can talk to your guests



BrainHearing™ benefits

Oticon Opn S™ helps people hear better with less cognitive load

▶ **20%**

less listening effort*

▶ **20%**

better recall of conversations*

▶ **30%**

better speech understanding*

*Le Goff et al. 2016.



Our goal is to
preserve good
cognitive function
as long as we
possibly can.

Open up to a connected world



Extensive
range



TV



Oticon ON App



ConnectClip



Music



Computer



Landline phone

IFTTT

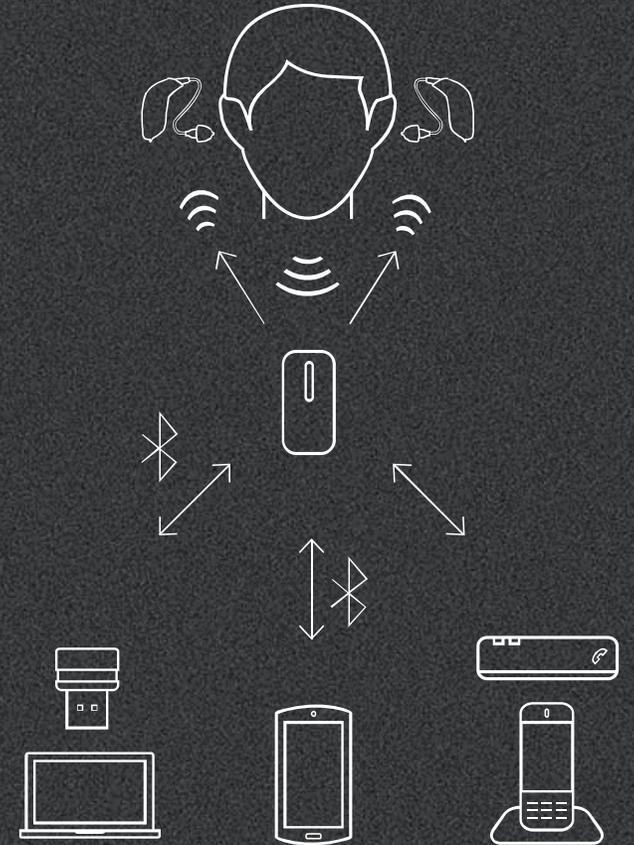
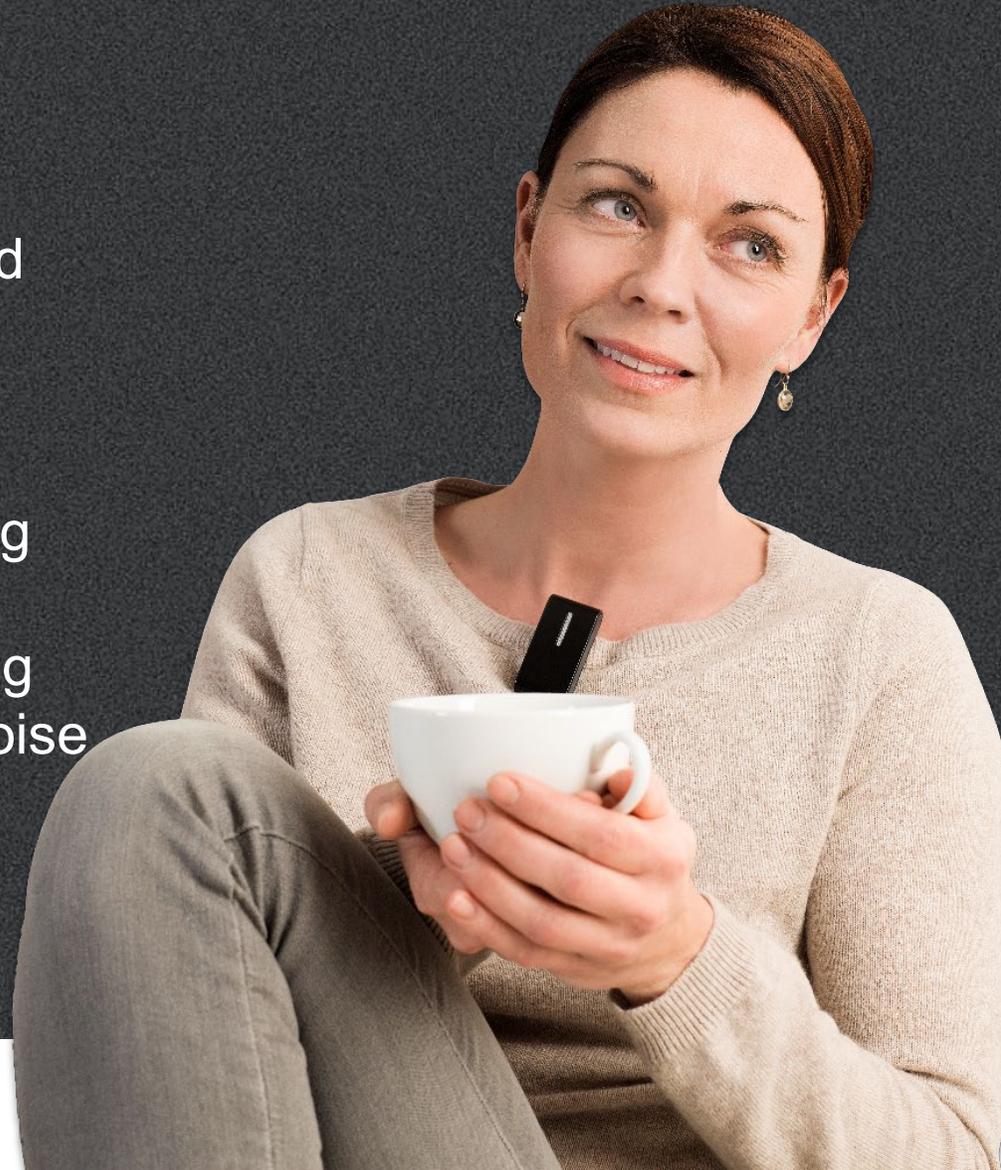
Internet
connectivity



Remote Control

ConnectClip

- ▶ Connect to devices which do not support direct wireless streaming. I.e. Android phones
- ▶ Direct Audio to hearing aids using ConnectClip – allowing improved Signal to Noise



Conclusions

Improved speech understanding*

even in the noisiest environments



Reduced listening effort*

over a broad range of environments



Motivation and empowerment

to participate and engage



Hearing Care is Health Care™



Hearing Loss is important to deal with sooner than later

Enjoy your friends and neighbors more with better hearing

Preserve good cognitive function as long as possible

See your Audiologist annually for a hearing evaluation

Stay active and engaged with others

Hearing is Healthcare

A silhouette of a person with their arms raised in a 'V' shape, standing on top of a large, bold, grey letter 'O'. The person's feet are positioned on the top edge of the 'O'.

Open up to YOUR world