

# HEARING LOSS

## Australian Hearing

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2008

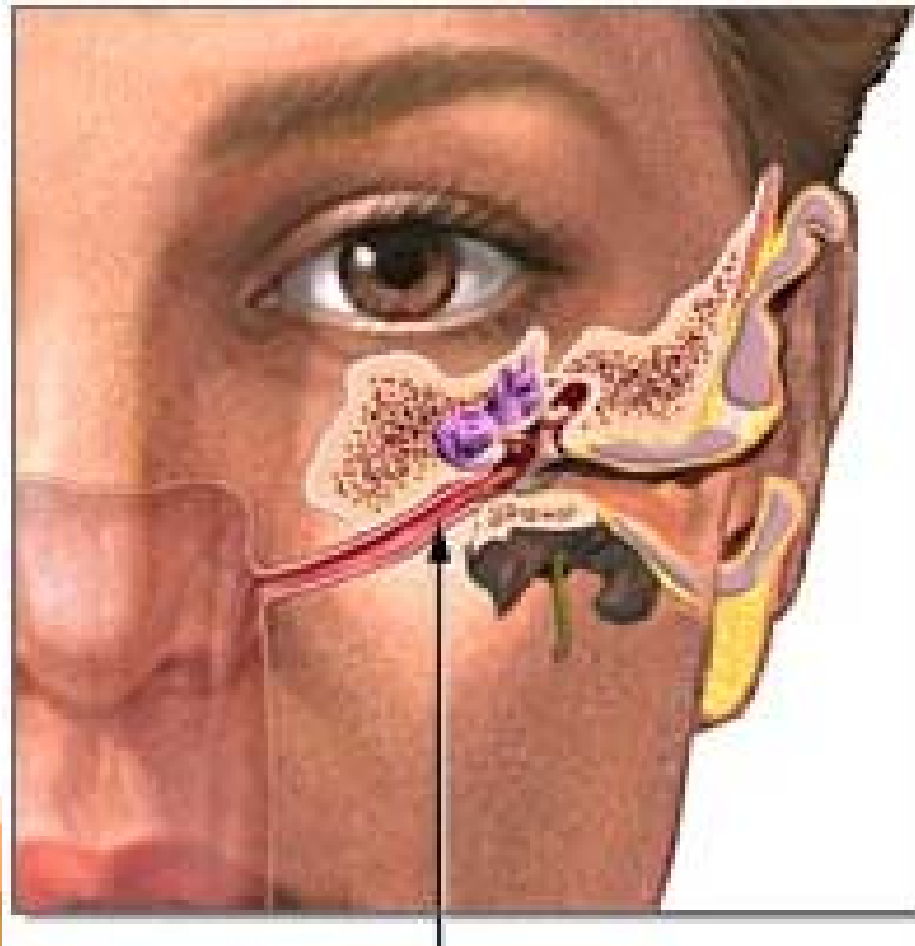


# Hearing loss

- Explain how the ear works and common causes of hearing loss
- Describe the effects of hearing loss



# Our ears are very complex

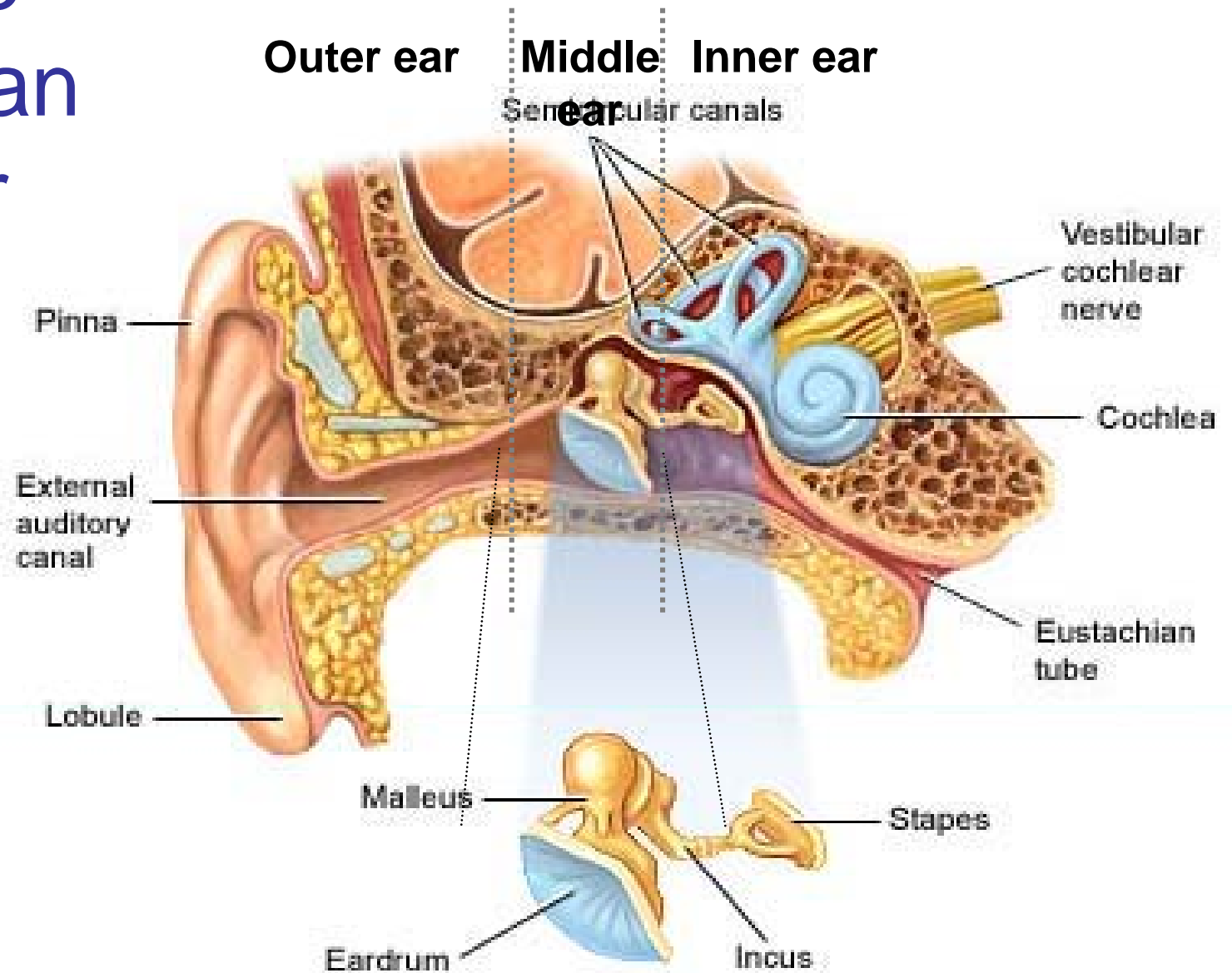


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# The human ear



# The human ear

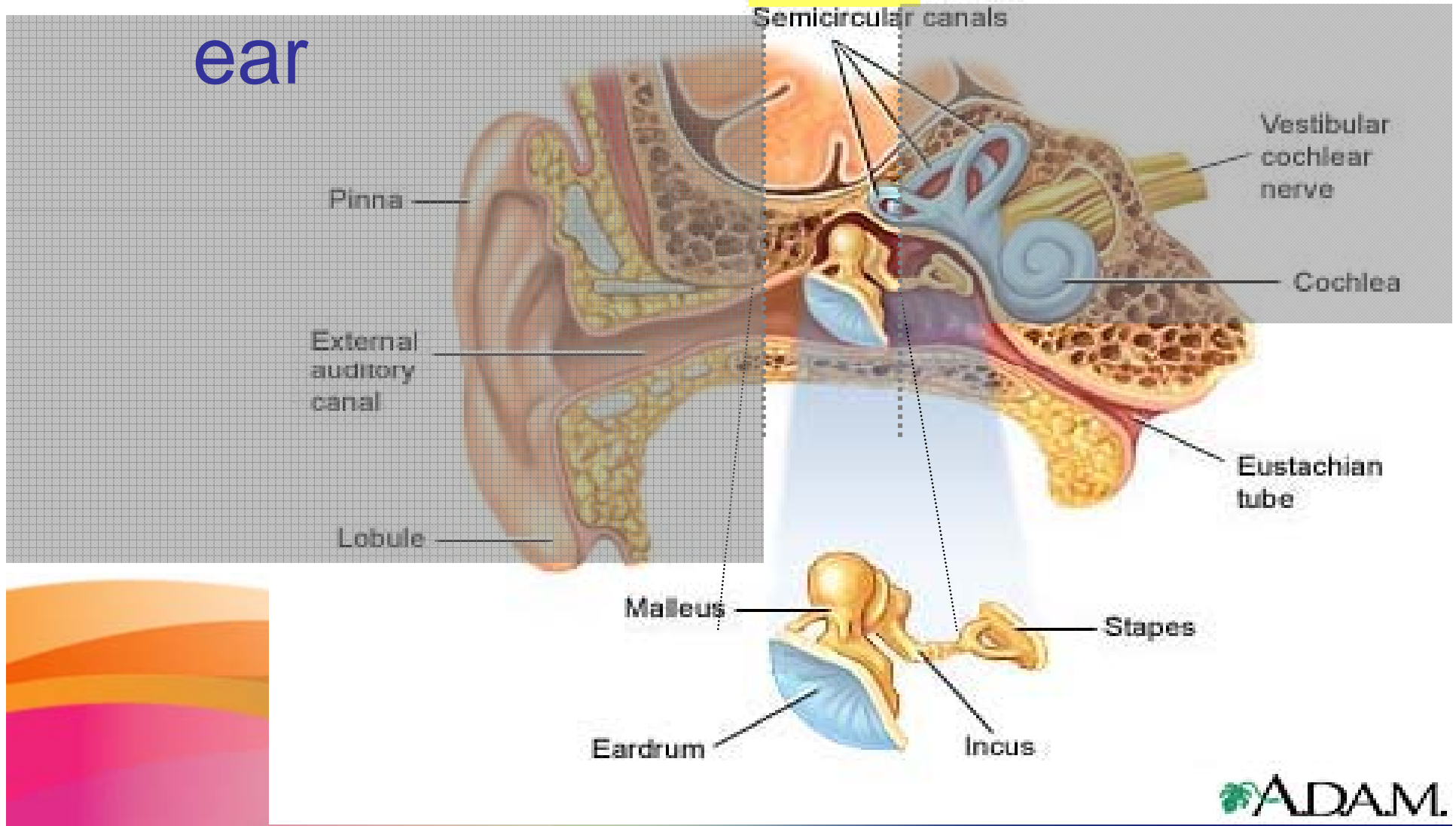


# The human ear

Outer ear

Middle ear

Inner ear

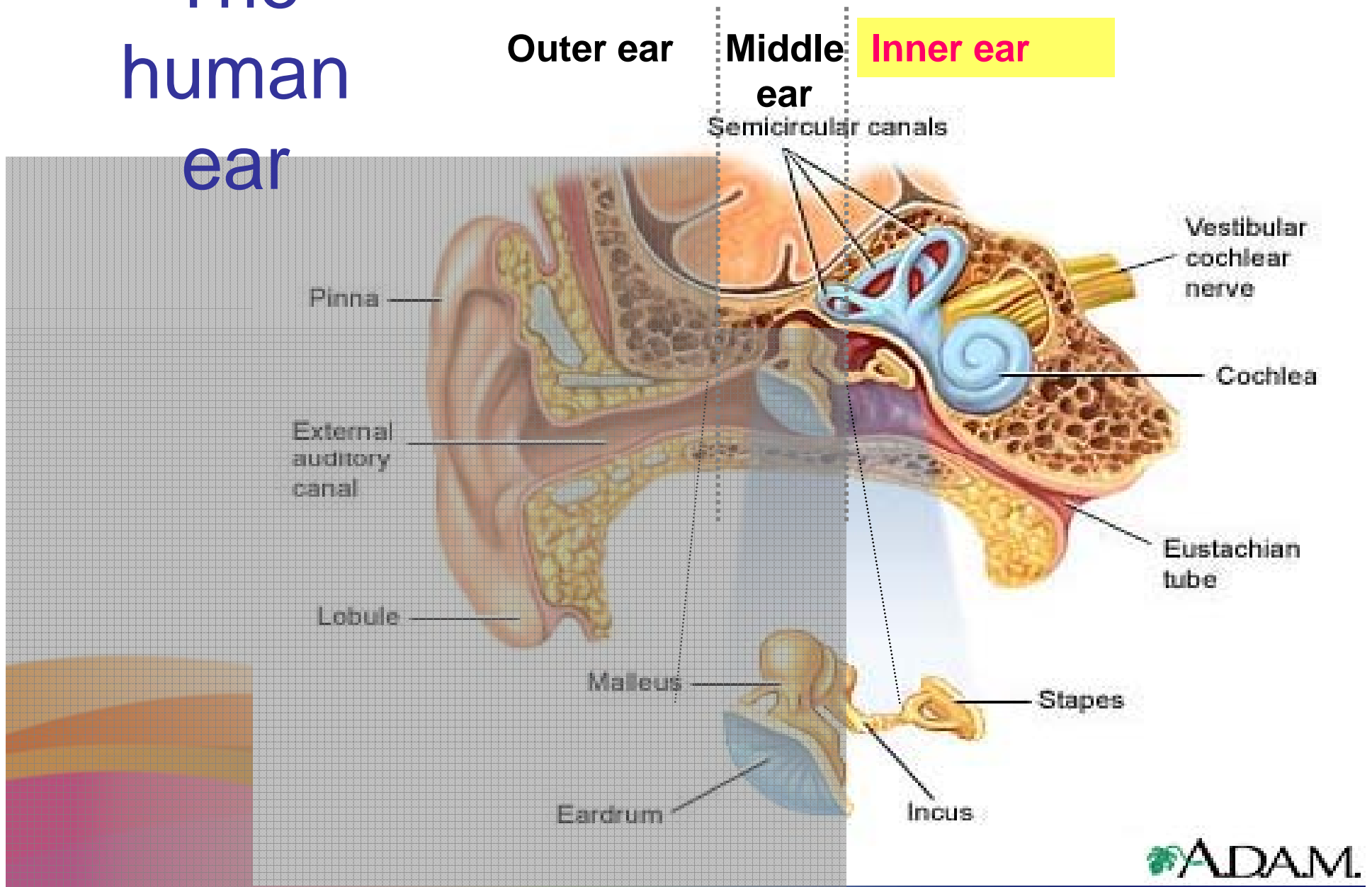


# The human ear

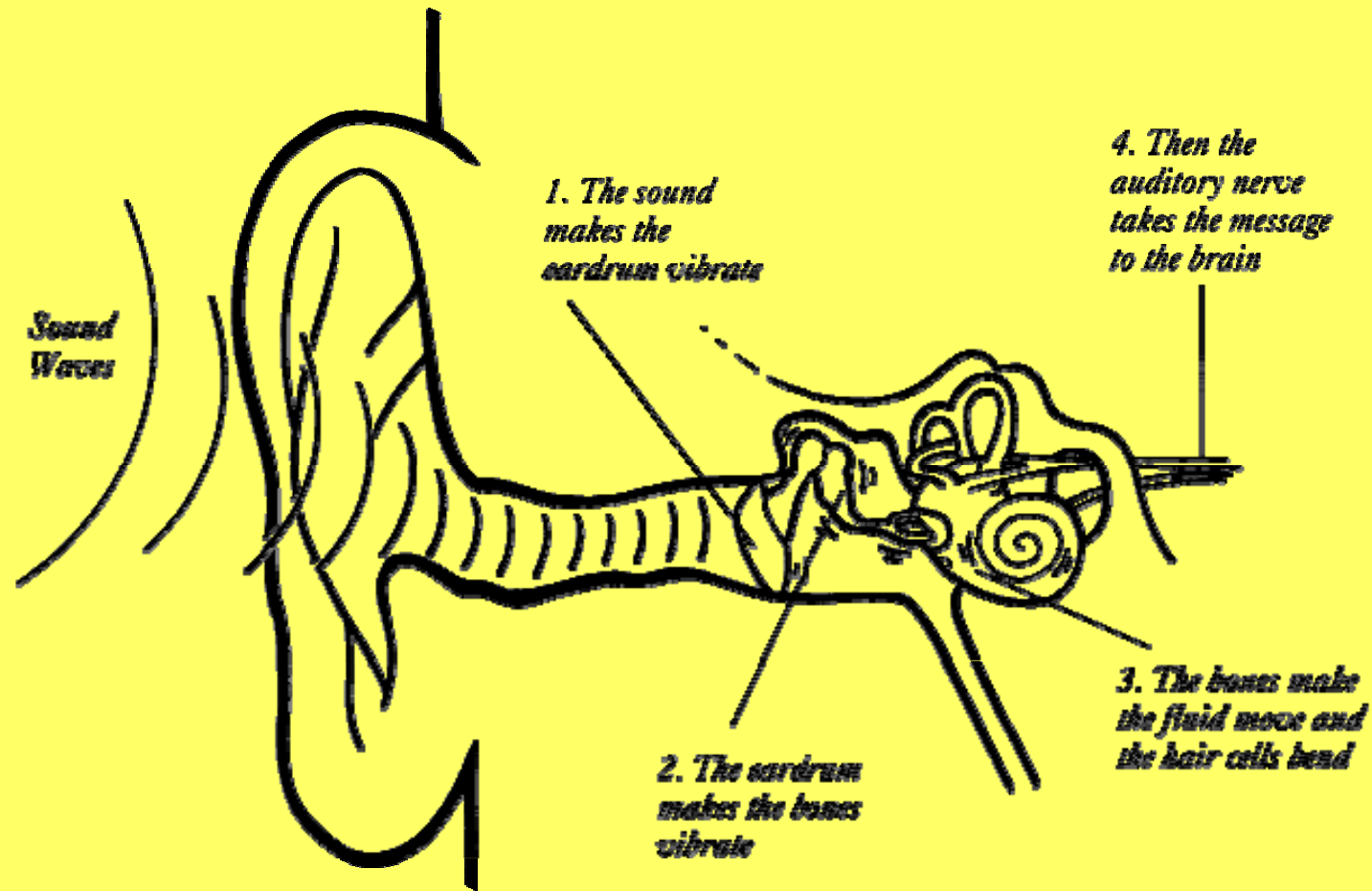
Outer ear

Middle ear

Inner ear



# How the ear works



# Hearing Loss - types

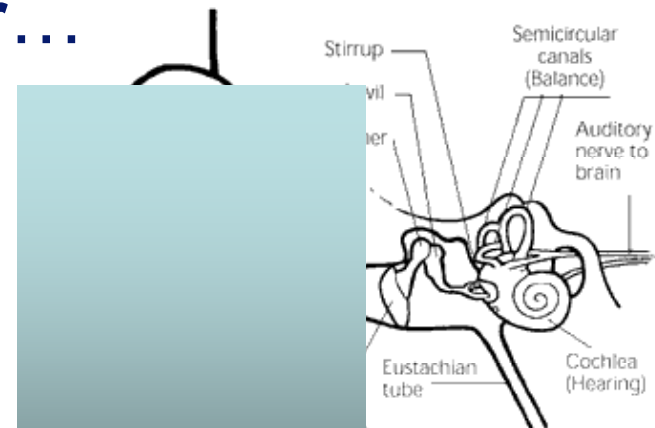
- Conductive

= Hearing loss caused by damage or blockage in the **outer ear...**

- For example:
  - Wax occlusion
  - Foreign body

**...or middle ear**

- For example:
  - Middle ear fluid ('glue ear')
  - Perforated eardrum



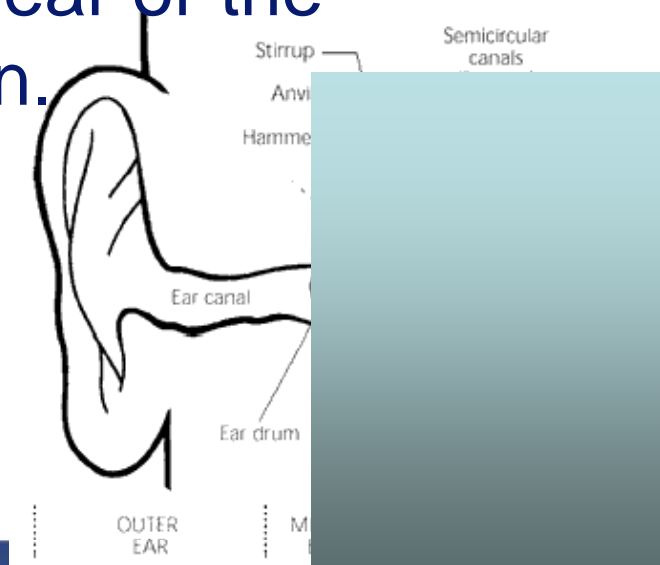
# Hearing Loss - types

- **Sensori-neural**

= Hearing loss caused by damage to the hearing nerves in the inner ear or the sound pathways to the brain.

- For example:

- Ageing
- Noise exposure
- Meningitis
- Inherited deafness



# Hearing Loss - types

- ... or mixed, where there is something wrong in the OUTER or MIDDLE *and* INNER ears
  - For example
    - Wax occlusion
    - + loss due to age
  
    - Perforated eardrum
    - + noise exposure

# Characteristics of hearing loss

Hearing loss is more than not being able to hear sounds loudly enough.



# Characteristics of hearing loss

- Soft sounds can't be heard
- Key parts of particular speech sounds might not be audible
- Separating sounds may be difficult
- The range of hearing is reduced



# Characteristics of hearing loss

Which mean you tell us  
that you can  
“hear” speech  
but

I can't understand it

# Impact of hearing loss

Difficulties communicating causes:

- Strained relationships
- Frustration, isolation, loneliness, embarrassment and/or depression
- Incorrect labelling – they are rude, getting a bit vague
- Danger - can't hear phone ring, doorbell etc.



# Simulation of Hearing Loss

The quick brown fox jumped over the lazy dog

- What does a ***mild*** hearing loss sound like?

The \_i\_ brown \_ox jum\_ed over the lazy dog



# Simulation of Hearing Loss

The quick brown fox jumped over the lazy dog

- What does a ***moderate*** hearing loss sound like?

\_e \_i\_ brown \_o\_ jum\_ed over \_e \_azy dog



# Simulation of Hearing Loss

The quick brown fox jumped over the lazy dog

- What does a **severe** hearing loss sound like?

\_e \_i\_ brow\_ \_o\_ \_um\_ed o\_er \_e \_a\_ do\_



# Simulation of Hearing Loss

The quick brown fox jumped over the lazy dog

- What does a ***profound*** hearing loss sound like?

\_e \_ \_ \_ \_ow\_ \_o\_ \_um\_ o\_ \_e \_a\_ \_o\_



Questions or comments?

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**Hearing**

# HEARING AIDS

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# Hearing Aids/Devices

- Hearing aid styles
- How they can help and
- Their limitations.



# Custom hearing aids



# Behind-the-ear hearing aids



# Open-fit hearing aids



# Hearing aid technology

Noise reduction

Directional microphone

Speech enhancement

Situation detection



Sound smoothing

Data logging / learning

Wind noise reduction

Feedback management

AutoPhone

e2e wireless



# Selecting the right hearing aid for you

- Listening needs
- Lifestyle
- Hearing loss
- Cosmetic preferences
- Ear shape
- Management needs



# What do different hearing aids have in common?

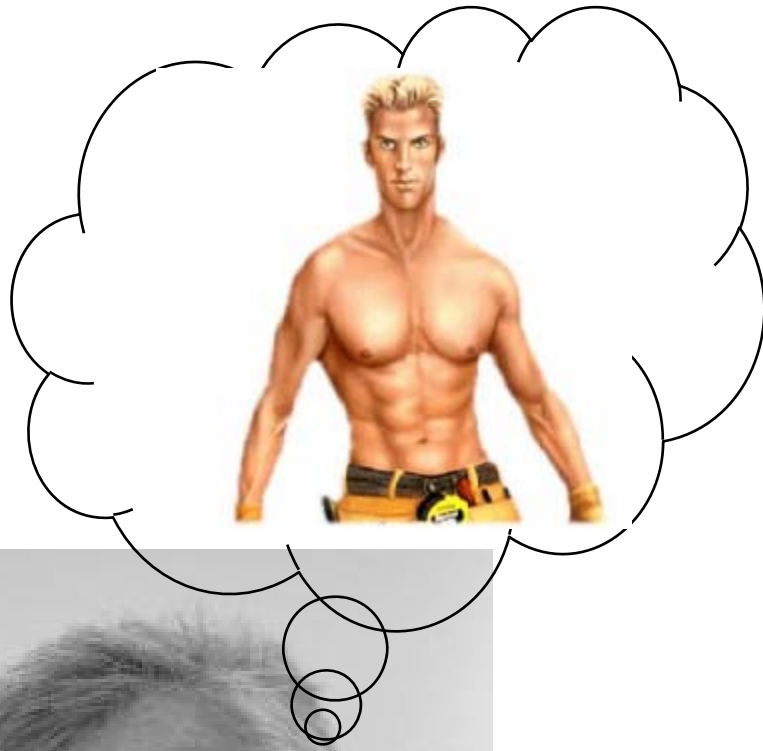
- Selectively increase the volume of sounds
- Make softer sounds audible
- Make moderate or loud sounds comfortable
- Improve speech understanding
- Increase awareness of environmental sounds



# Long-term Benefits

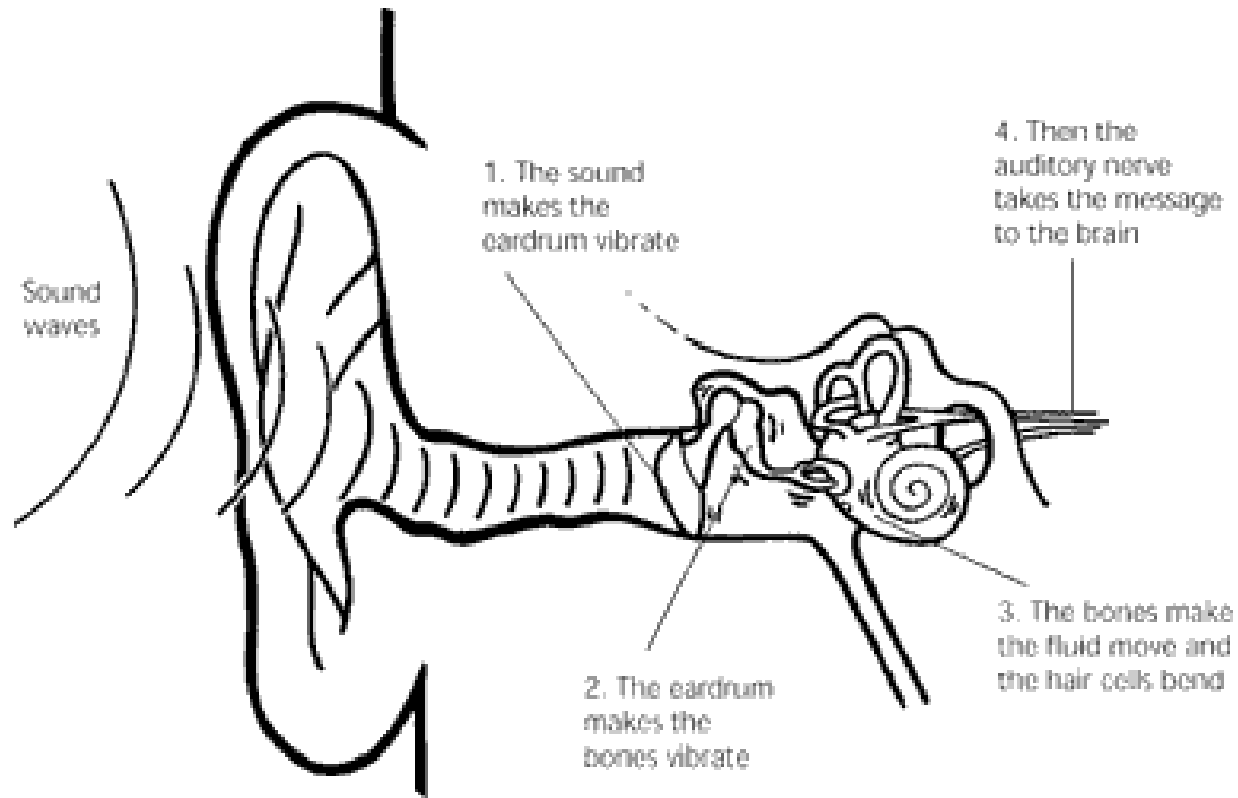
- Improved relationships with family and friends
- Higher self-esteem
- Improved mental health
- Greater independence and security





What  
hearing aids  
**don't** do  
is allow you to  
hear as well  
as you did  
when you were  
young.

## Sound still needs to travel through an “impaired” system even when hearing aids are being worn



**Other communication tactics are extremely important.**

Sounds that haven't been heard for a long time may be annoying or unusual for a while.

**The toilet flushing may sound like an explosion!**



**The pages of the newspaper may sound very sharp.**



**Birds singing may sound very different to normal.**



People gradually adjust to these new sounds if hearing aids are worn regularly

**It may also take time to get used  
to one's own voice.**

“I sound as if I am talking  
through a microphone...”

**You are actually!**

**The hearing aid microphone!**



Everything will gradually sound normal again but one needs to wear their hearing aids as much as possible so that their brain can get used to the new sounds.



It's a bit like buying a new pair of shoes.

You need to wear them for a while before they feel as comfortable as....



... YOUR OLD WORN IN  
PAIR OF SLIPPERS



Assistive listening devices are available for people who continue to have difficulties with situations such as the telephone, TV or groups.

Some situations like the telephone are still quite difficult because you rely totally on your hearing and don't have any visual cues.



# T.V amplification devices



# FM Systems for Meetings, Groups and TV.

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# What is an FM System?

An FM is a unit that has two parts.

One part is either attached to the hearing aids or worn around the neck (Receiver)

The other is a Transmitter.



# What does an FM do?

- The transmitter is placed near the speaker of interest, in the middle of a meeting table or on your TV speaker.
- It transmits the sound directly into your hearing aids.
- No noise, no interference over a great distance e.g.: 10 m.



- Questions or comments?



# TINNITUS

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# What is it ?

**Tinnitus is a perception of noise, often buzzing or ringing, which does not originate outside the hearer**

A study of 1000 people in the Blue Mountains found tinnitus rates of 30%. However less than 1% reported that their tinnitus was extremely annoying

Approximately 75% of all people who experience tinnitus are not bothered by it.



# Do you have Tinnitus?

- What does it sound like?
- Is it a bother?

Tinnitus is common and normal.



# Brain please ignore my Tinnitus.

- Most people never hear tinnitus because the brain ignores it.
- This is called Habituation
- Because the ears normal background nerve activity has no significance most brains “habituate it” or ignore it and it never becomes a conscious experience.
- Have you ever forgotten your glasses on the top of your head ? .... same thing.



# Why do I hear Tinnitus then?

Several factors might cause you to hear your tinnitus:

- Most common is a hearing loss as your brain goes searching for the sound it is missing and finds your tinnitus.
- Illness, stress, tiredness, extreme quiet and other



# Why does Tinnitus become a bother?

Those worried by their Tinnitus frequently and subconsciously have assessed it to be a threat.

This is a natural human reaction.

# What can I do?

- Avoid complete silence – soft background radio, hearing aids
- Relaxation techniques reduce the stress of tinnitus and apparent loudness
- Use hearing aids for most of the day.
- Learn more about Tinnitus eg: Tinnitus Association
- Find the triggers



# What can I do?

Talk to an audiologist at Australian Hearing.

Seek advice from other experts

Your local Australian Tinnitus Association has some great information and materials.



- Questions or comments?

