Josh's Logbook

17|5|17

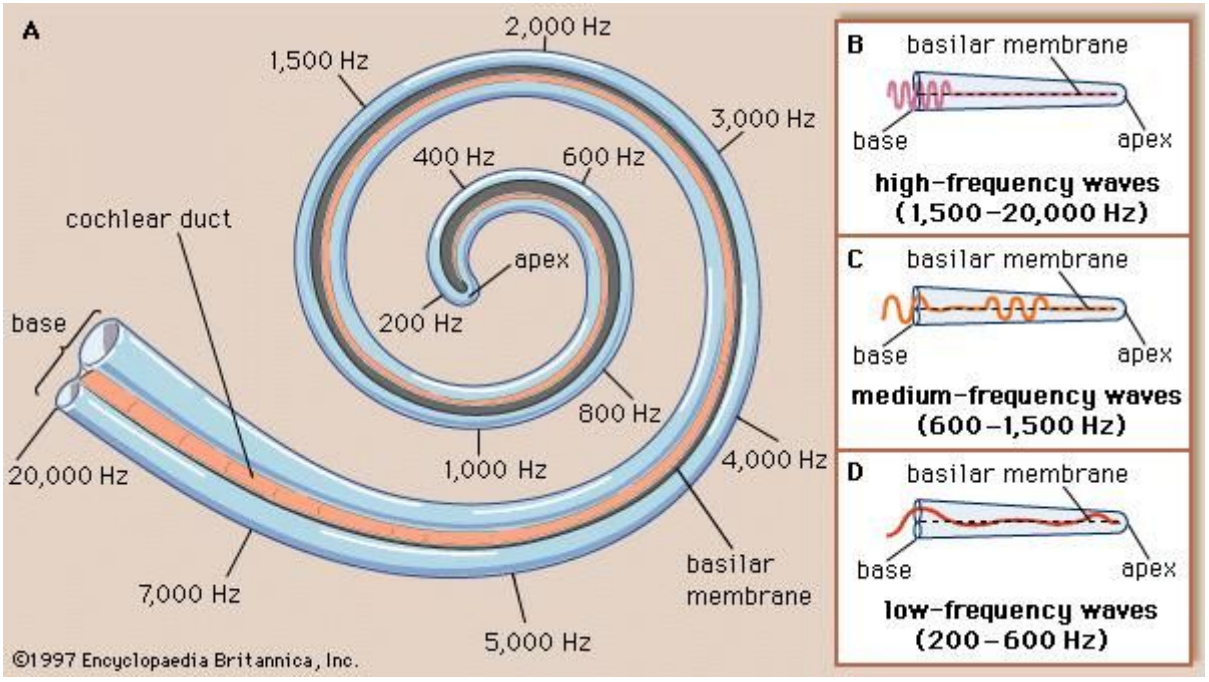
Talked to my dad and found an interesting topic that I want to research, how age affects your ability to hear high frequency sounds?

18|5|17

I had a discussion with my teacher and she agrees that I should continue with my subject. I will need to use consent forms.

22|5|17

I've found that my topic is called Presbycusis. The loss of the hearing of high frequency sounds is to do with when you get older you lose hair cells in your inner ear that convert acoustic vibrations to into electrical signals. The part responsible to the loss of hearing high frequency sounds is the tonotopic organisation of the inner ear (The Cochlea). Presbycusis is developed in the apical region.



This is a diagram that shows how the further away from the apex is a higher frequency. You lose those outer hair when you grow older. This normally occurs around the age of 60. This isn't able to be restored medically or with surgery. They may also have trouble hearing 'S' or 'H'. One in 3 adults have hearing loss.

29|5|17

Presbycusis most of the time comes with hearing loss. Most of the time hearing loss is in both ears. Hearing loss can be deadly since you may have trouble hearing smoke alarms. Being hearing impaired can cause you to have trouble

with day to day problems since you can't hear instructions and commands. The Cochlea is filled with fluid.

How do we hear?
Sound waves enter the outer ear and then enter the ear canal. These sound waves cause the eardrum to vibrate and sends the vibrations to three bones called Malleus, Incus and Staples. These bones change the air vibrations to fluid vibrations since the Cochlea can only detect fluid vibrations. As soon as the vibrations make the fluid in the cochlea ripple, a wave forms that makes hairs near the Cochlea. There are microscopic hair sensors (Stereocilia) that sense the movement of the wave and then they bend. Bending causes pore channels to open up. Then chemicals rush into the cells and create an electrical signal.

The auditory nerve carries this electrical signal to the brain and that is when we hear the thing that we call sounds. All this happens in the matter of milliseconds.

7|6|17

Listening to loud music can damage the ear permanently. Blood pressure and diabetes can affect your hearing loss. Most cases of hearing loss in old people is a combination of hearing loss over time and loud sounds.

8|6|17

When you get older it gets harder to hear higher pitched sounds (D, T, S, Sh, F, Th) but lower pitch sounds are easier to hear (as o, a, ah, i, e)
Sources used so far.

14|6|17

Presbycusis is the most common type of hearing loss since you have a 30-40% chance of it when you are at the age of 65. Hearing aids do help with Presbycusis.

19|6|17

Edited my actual project.

20|6|17

Edited my actual project.

22|6|17

Edited my actual project.

28|6|17

Edited my actual project.

7|7|17

Edited my actual project.

15|7|17

Edited my actual project.

23|7|17

Created my survey.

27|7|17

Surveyed a few people.

28|7|17

Surveyed a few people.

29|7|17

Surveyed a few people.

30|7|17

Surveyed a few people.

31|7|17

Surveyed a few people.

1|8|17

Surveyed a few people.

3|8|17

Surveyed a few people.
Did work on Project.

4|8|17

Surveyed a few people.

5|8|17

Surveyed a few people.

6|8|17

Finished Surveying people.
Did work on project.

13|8|17

Finished project.

Sights For Information

https://www.britannica.com/science/presbycusis

https://biology.stackexchange.com/questions/27822/why-do-adults-lose-hearing-at-high-frequencies

https://www.nidcd.nih.gov/health/age-related-hearing-loss

http://www.hopkinsmedicine.org/healthlibrary/conditions/otolaryngology/presbycusis_85,P00463/

https://my.clevelandclinic.org/health/articles/presbycusis-age-related-hearing-loss

https://hearnet.org.au/hearing-problems/presbycusis

YouTube Videos For The Frequencies

5000 Hz
6000 Hz
7000 Hz
8000 Hz
9000 Hz
10 000 Hz
11 000 Hz
12 000 Hz
13 000 Hz
14 000 Hz
15 000 Hz
16 000 Hz
17 000 Hz
18 000 Hz