Lilia Sanchez

Laboratory 6/7-SENSORY PHYSIOLOGY

September 29, 2023

PURPOSE: SENSORY PHYSIOLOGY- PERFORM A SERIES OF EXCERCISES THAT MEASURE THE CAPABILITIES OF THE SENSORY SYSTEM

PROCEDURE 1:

WORKING IN PAIRS, WE HAD ONE PARTNER SIT FACING AWAY FROM THE OTHER PARTNER.

THE PERSON UNDERGOING THE TEST WILL PUT ON THE EARPHONES. THE RED EARPHONE GOES ON THE RIGHT EAR AND THE BLUE EARPHONE GOES ON THE LEFT EAR.

THE PERSON ADMINISTERING THE TEST WILL RANDOMLY SELECT FREQUENCIES AND THE EAR TO WHICH THESE FREQUENCIES WILL BE APPLIED.

AT THE START OF EACH FREQUENCY TEST, THE DECIBEL LEVEL WILL BE SET TO ZERO AND THE TONE WILL BE APPLIED. THE DECIBEL LEVEL WILL BE INCREASED ONE NOTCH AT A TIME UNTIL THE SUBJECT RAISES HIS/HER HAND INDICATING THE EAR IN WHCIHC THE ONE WAS HEARD.

THE EXAMINER WILL THEN MARK THE AUDIOGRAM WITH A RED PEN FOR THE RIGHT EAR AND A BLUE PEN FOR THE LEFT EAR. EACH MARK WILL BE MADE MATCHING THE TONE FREQUENCY AND THE DECIBEL AT WHICH IT WAS FIRST HEARD.

THE TEST WILL CONTINUE UNTIL A GOOD SAMPLING OF FREQUENCIES FOR EACH EAR HAS BEEN OBTAINED, AT THE VERY LEAST, A TEST WILL BE CONDUCTED AT THE FREQUENCIES OF 500, 1000, AND 2000 HZ.

AT THE CONCLUSION OF THE TEST, THE COLORED MARKS ON THE AUDIOGRAM WILL BE CONNECTED TO FORM A LINE GRAPH OF HEARING ABILITY FOR EACH EAR.

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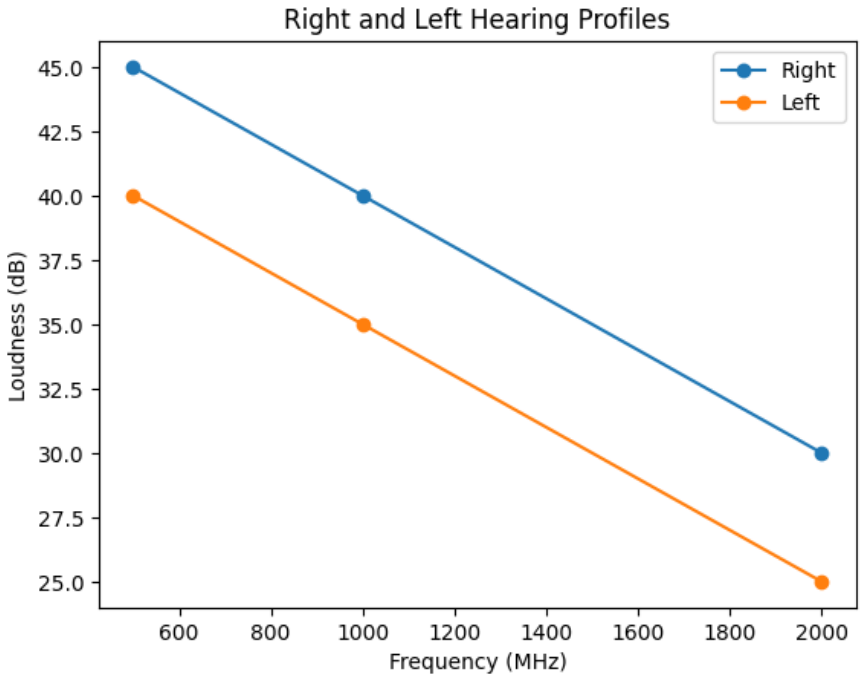
RESULTS:



DISCUSSION:

In reviewing the audiometry results, at 500 Hz, the right ear responds to sound waves at 40dB. At 1000 Hz, the response is recorded at 35dB and at 2000 mHZ, the response is noted to be at 25mHZ.

In the left ear, the amplitude is recorded at 45 dB at a 500Hz, 40 db at 1000 Hz 30 dB at 2000Hz.

Sounds of different pitch cause peak vibrations of the basilar membrane in different regions. Low frequency(pitch) sounds cause peak vibrations of the basilar membrane more towards the apex of the cochlea.

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High frequencies cause peak vibrations more toward the base of the cochlea. The sensory hair cells (phonoreceptors) are located on the basilar membrane with the microvilli "hairs" projecting into the endolymph of the cochlear duct. These receptors generate impulses in response to the specific environmental stimuli. Afferent pathways then allow for sensory neurons to relay impulses to the CNS. Here, within the CNS, the interpretation centers located in the temporal lobe of the cerebral cortex translate these impulses into perceived sensations.

CONCLUSION:

In review of these results, it is confirmed that stronger sensations result from higher frequencies of nerve impulse arrival. This is known as intensity coding and is frequency, not amplitude, dependent. The purpose of this experiment is to confirm/measure the capabilities of the sensory system. In retrospect, the left/right ear interpretation of the nerve impulses vary slightly in dB, but is noted to be insignificant.