

# Hearing loss: How hearing is tested.

## NID Training Disability Diary



NID Training NPC

- Compiled by Dr Jean Mitchell

### Discussion

Modern hearing testing began in 1922 with the invention of the Western Electric 1-A audiometer. This was one of the first accessible electronic devices that generated sounds at specific frequencies (pure tones) and volumes. Before this, hearing tests were conducted using a tuning fork or other devices placed at predefined distances from the patient. This crude method produced inaccurate assessments. Today, pure tone audiometry remains the foundation of the audiogram. The CORONA 19 pandemic has meant that some tests that need close contact between audiologist and patient has meant that some tests have been adapted to maintain distancing (De Sousa, et al., 2020).

Pure-tone audiometry includes listening to sound tones at various pitches and volumes in a sound-proofed booth. The patient is asked to wear headphones connected to an audiometer. There might be specially placed speakers in the booth used for testing infants, small children or people with hearing aids or cochlear implants. An audiologist gives the patient instructions through the headphones.

Hearing impairment is described in levels or degrees of hearing loss and is measured in decibels (dB). A decibel is a measure of the intensity or loudness of sound. A whisper is about 20 dB, while loud music at concerts can be about 80 to 120 dB. Constant exposure to sounds greater than 85 dB can cause hearing loss. The level or degree of hearing loss is plotted on an audiogram where an audiologist records the hearing response of each ear (Hoth & Balji , 2017).

Speech audiometry is a component of most hearing tests and uses recorded or live speech instead of pure tones, in a quiet setting. The speech portion of the test evaluates the softest speech sounds that the patient can

hear and understand. This is called the threshold. The patient is required to repeat words that are presented at a level well above the threshold to discover how well they can understand. Some audiologists use speech sounds to determine the patient's most comfortable listening level and the upper limits of comfort for listening.

There are some hearing tests that are not conducted in a quiet room. During these tests the speaker says words and statements while increasingly noisy sounds are introduced. These tests are useful for assessing 'real-world' hearing ability, mimicking how someone might hear in a restaurant or a noisy supermarket (Campos & Launer, 2020).

### Conclusion

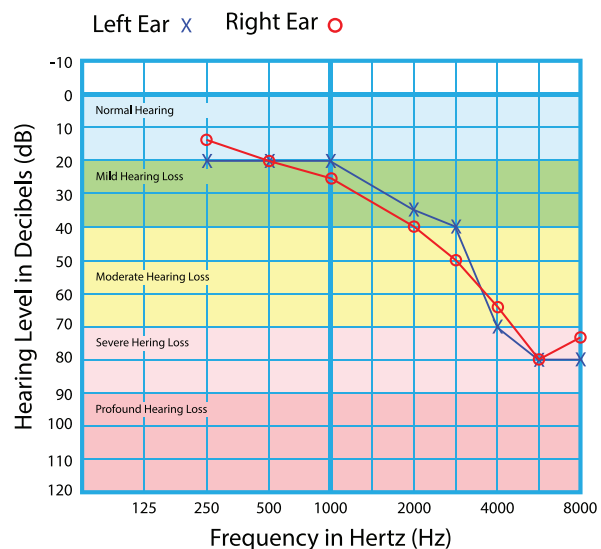
Much research is being conducted not only on diagnosing hearing loss, but also on the effects hearing loss has on wellbeing. As hearing tests are not invasive nor painful, they should not be delayed when symptom are noticed.

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### References

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AUDIOGRAM



### Introduction

When hearing loss is detected or experienced it is advisable to have a hearing test done by a registered audiologist. While a person might be afraid to undergo hearing tests, there is actually nothing to fear because hearing tests are painless and non-invasive. Those most at risk of hearing loss are people older than 60, as well as people in high-noise occupations. The audiologist will discuss the patient's symptoms and create a case history to determine if a patient could have anything inherited or genetic in their family and discover what the lifestyle causes might be (Campos & Launer, 2020).