Essential Links

Parent Links

Revised 2009

Information about Hearing Levels

Adapted from the Boys Town National Research Hospital

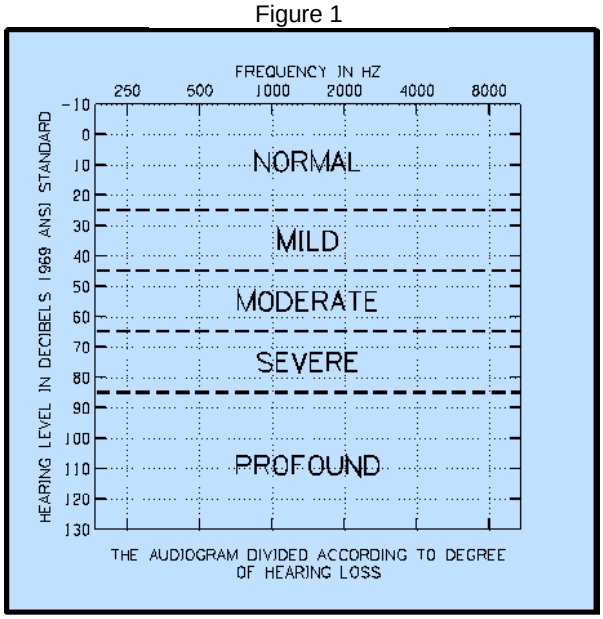
Understanding Hearing: Diagnosis and Evaluation

When a hearing loss is first diagnosed, the test results may seem confusing. Although hearing loss is often described as a percentage, it is too complex to describe with one number. Below are some answers to some of the most commonly asked questions about hearing loss and hearing tests.

What is An Audiogram And What Does it Tell Me?

Audiologists are professionals who specialize in evaluating hearing and conduct hearing tests. The results from the tests are recorded on an audiogram. An audiogram is a graph showing hearing sensitivity (figure 1).

Figure 1



The degree of hearing loss is determined by measuring hearing threshold, the levels in decibels (dB) at which a signal is just barely heard. The louder sounds must be made to be heard, the greater the degree of hearing loss. Thresholds are measured at several frequencies (pitches) and graphed on the audiogram. The frequencies tested are those important for hearing and understanding speech and other environmental sounds. Frequency is noted in Hertz (Hz).

What Can My Child Hear?

Those with mild hearing loss (26-45 dB) typically hear one-on-one conversation if they can see the speaker's face and are listening at close range. With a mild hearing loss, there may be difficulty hearing and understanding someone who is speaking from a distance or has a soft voice. Understanding conversation in noisy backgrounds also may be difficult. For young children who are learning speech and language, even a mild hearing loss can have serious effects on speech and language development.

With moderate hearing loss (45-65 dB) conversational levels of speech are difficult to hear and understand, even in quiet backgrounds. Listening in noise is extremely difficult.

With severe hearing loss (66-85 dB) hearing is difficult in all situations. Speech may only be heard if a speaker is talking loudly or at close range. Those with profound hearing loss may not hear even loud speech or environmental sounds and may not use hearing as a primary method of communicating.

How Does Hearing Affect Listening To Speech?

Another important term is the configuration of hearing loss. This refers to the pattern or shape of the hearing loss on the audiogram. Both the degree and the configuration of hearing loss will affect the ability to detect certain speech sounds. More hearing loss in one frequency region than another will affect the ability to hear sounds which have most of their energy in that region.

This graph (figure 2) shows the frequency and intensity where sounds of speech occur in average conversation. For example, an "s" sound has energy between 4000 and 8000 hertz (Hz) at an intensity of approximately 35 dB hearing level (HL). A person with hearing thresholds greater than 35 dB HL in that region may not hear the "s" sound.

Hearing test results for an individual with normal low frequency hearing, sloping to severe hearing loss, also are shown on the graph. For this hearing loss, speech sounds with energy form 250 to 1000 Hz will be heard, but speech sounds with energy at frequencies above 1000 Hz will not be heard. This loss of some speech components but not others can cause speech to sound muffled or distorted.

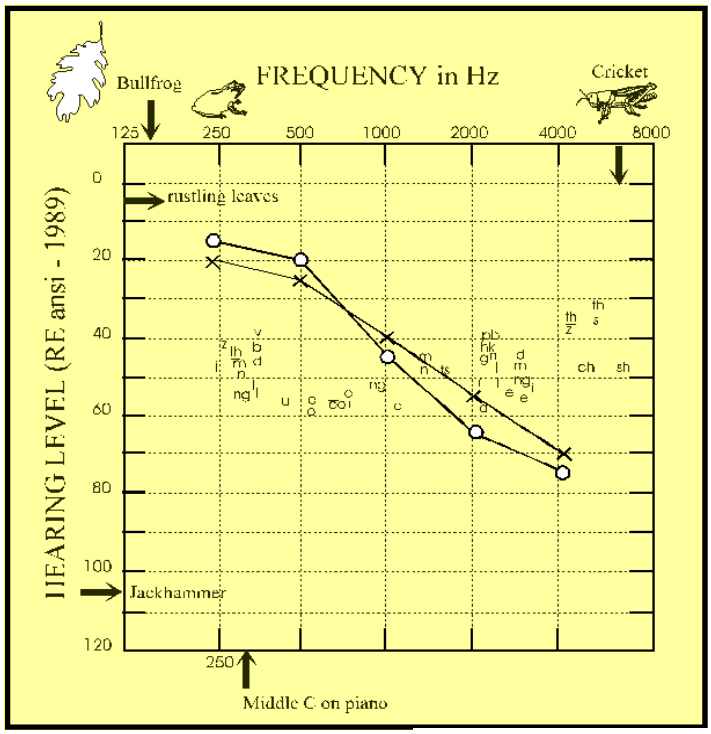


Figure 2

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