



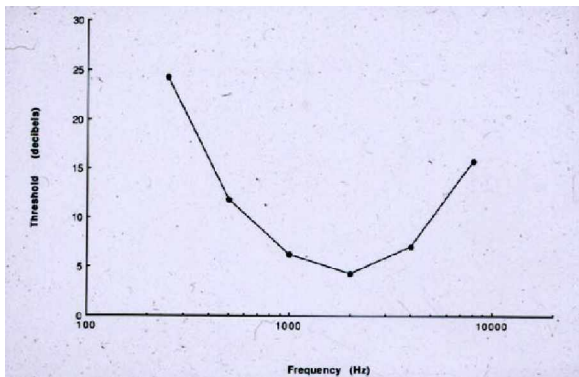
## Audiometric Threshold

Many involved in Hearing Loss Prevention Programs often hear use of the term “threshold” and wonder just what threshold means and how threshold is measured.

Clinically, audiologists define audiometric threshold (in a pure tone air conduction hearing test) as *the level at which a test subject responds to a test signal (tone) 50% of the time on ascending trials*. In simpler terms, threshold is the hearing level at which the test stimulus (tone) is just barely audible.

The range of potential sound pressure levels audible to the human ear is vast and in fact logarithmic. Because of this, it became necessary to compress the immense range of sound pressures into a more manageable scaling unit called the “decibel”. Most often, sound measurements are conveyed using the dB SPL scheme; dB stands for “decibel”, while “SPL” refers to “sound pressure level”. An arbitrary, measurable pressure level of 20 micropascals serves as the dB SPL reference point corresponding to a sound pressure level barely audible to the human ear, at the most sensitive frequency to human ear.

Scientists developed normative human threshold values (in dB SPL) using normal and healthy young adult ears at all frequencies audible to the human ear. This normative data resulted in a curve known as the “human curve of audibility” (shown below):



Each point of the curve is a normative threshold level at the selected test frequency; all curve points possess a corresponding sound pressure level (SPL). By definition, each point of the threshold curve becomes 0 dB HL. It is important to note that 0 dB HL does not refer to absence of sound; 0 dB HL corresponds to a measured normative sound pressure level in humans at a particular test frequency.



Clinical instruments have the capability to measure threshold levels down to -15, -20 dB **HL**. To the layperson, minus (-) dB **HLs** may simply be thought of as very acute hearing. For practical purposes, normal hearing ranges from 0 to 25 dB **HL**. The scale extends to 95, 100, or 105 dB **HL** depending on the output limit of the audiometer. T K Group audiometers have a maximum output of 95 dB **HL**. When no response is made after numerous 95 dB **HL** signal presentations, a “no response” (NR) level is recorded.

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Authored by: Robert Williams, Au.D. | Director Audiology | T K Group, Inc.