

What is a Hearing Aid Evaluation?

Includes:
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WROCC Outreach Site at Western Oregon University

What Is A Hearing Aid Evaluation?

An audiological evaluation and/or a hearing aid evaluation are conducted after a careful history of the client is obtained via direct questioning or from a physician's report. Client information, history, and evaluation results are recorded on an audiometric worksheet.

Definitions

The following list of definitions of items found on most audiological and hearing aid evaluations will help you understand the audiogram:

Puretone Average (PTA)

After puretone air conduction responses have been recorded for each ear, the responses at 500 Hz, 1000Hz and 2000 Hz are averaged and recorded in the summary chart of the audiogram. Measured in decibels (dB).

Most Comfortable Listening Level (MCL)

The hearing level at which a client finds listening to words or speech most comfortable. Individuals with normal hearing find speech most comfortable between 40-60 dB.

Uncomfortable Listening Level (UCL)

The hearing level at which a client finds speech uncomfortably, but not painfully, loud. The UCL is an important parameter for hearing aid fitting. Measured in decibels (dB).

Speech Recognition Threshold (SRT)

The Speech Recognition Threshold (SRT) is measured in decibels (dB), as are puretone thresholds. The SRT is generally conducted via air conduction but may be conducted by bone conduction, as well. The SRT is measured in decibels (dB) and should correspond closely to the Puretone Average (PTA).

Two-syllable words, called Spondee Words, are presented to the client. The SRT is defined as the lowest hearing threshold level at which 50% of a list of Spondee Words is correctly identified for each ear.

The SRT is a measure of test reliability of puretone air conduction at 500 Hz, 1000 Hz, and 2000 Hz. The SRT also suggests the level of loudness at which words should be presented for Word Discrimination testing. Words are generally presented to each ear at 40 dB above the SRT unless there is significant hearing loss. If hearing loss is present, words are presented at an individual's MCL.

Word Discrimination score (WD)

The Word Discrimination score (WD) is based on the percentage of words correctly understood when presented at MCL or at a normal conversational speech level (40dB-60dB). A phonetically balanced (PB) word list—contains all the consonants and vowels of the English language—is presented to each ear. The WDS is the number of correct words repeated from a presentation of 25 or 50 PB words from a standardized word list.



A U D I O M E T R

The purpose of word discrimination testing is to help determine word discrimination difficulty and to assist in determining the need for amplification.

For clients with high frequency hearing loss, a word list that emphasizes high frequency sounds is employed.

Word Discrimination in Sentences

Because we do not speak one word at a time, a better evaluation of speech discrimination is with an evaluation of speech material: coid, running speech or speech in noise testing.

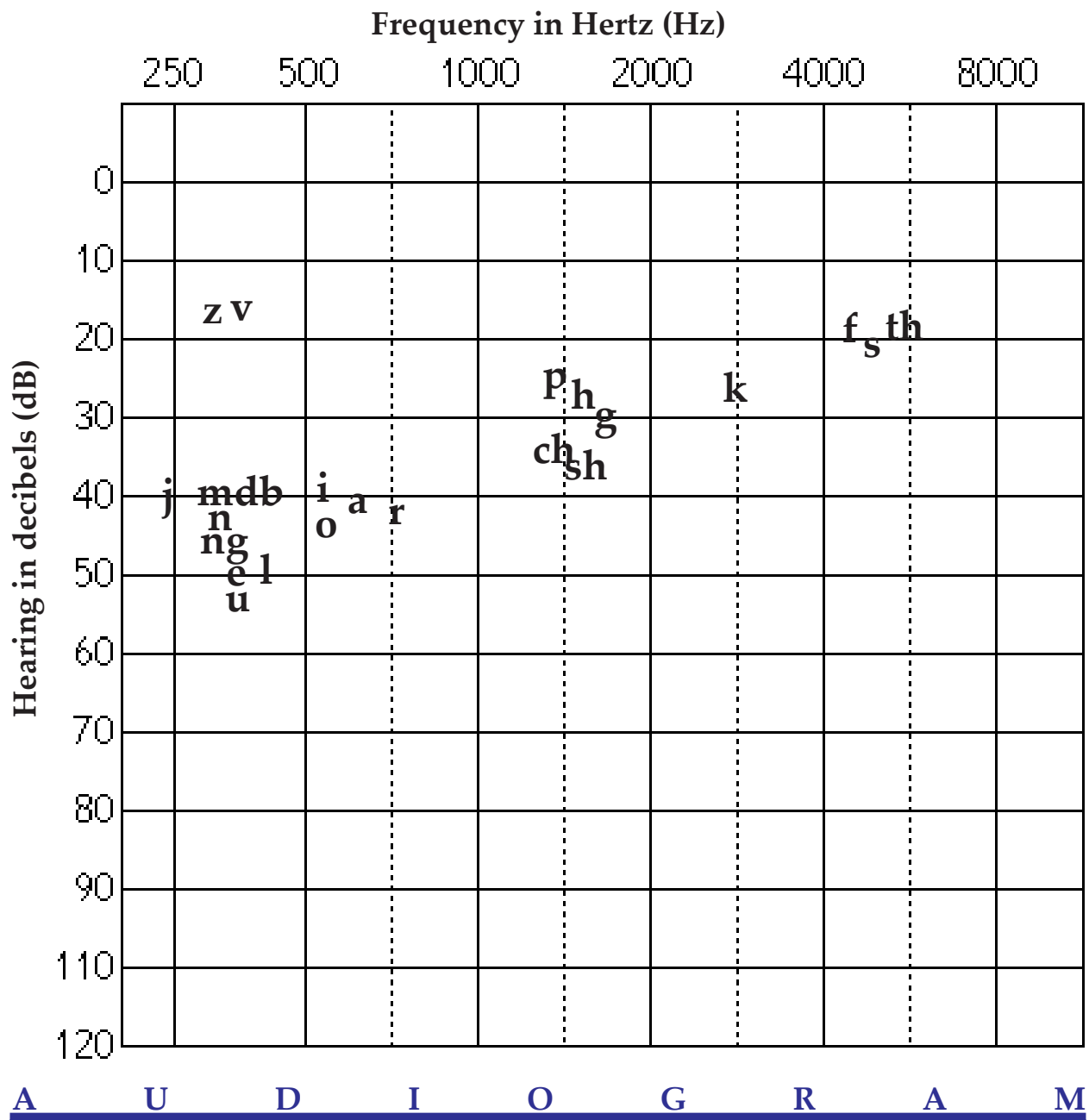
In order to understand the meaning of the Speech Recognition Threshold (SRT) and of Word Discrimination (WD) testing, one must first understand the intensity with which speech sounds are made when superimposed onto an audiogram. Consonants and vowels are produced with certain predictable intensities and at specific frequencies (see audiogram). A person's audiogram configuration will indicate how much difficulty she or he will have understanding speech. For example, a person with a high frequency hearing loss may hear beginning consonants and vowels well, but miss the plurals and past tenses of words.

Recording Information

The audiometric worksheet includes the audiogram, an audiogram key (legend), a data summary section, the impedance results, and a section for notes. The data summary section records results for puretone average (PTA), Speech Recognition Threshold (SRT), Word Discrimination score (WD), Most Comfortable Loudness level (MCL), and Threshold of Discomfort (TD) or Uncomfortable Level of Loudness (UCL). UCL is more commonly recorded and will be referenced for the remainder of this paper. PTA, SRT, MCL, and UCL are measured in dB. WD is measured in percentage. The data summary section includes information for the right ear, for the left ear, and for testing performed Soundfield (without earphones). This section may also include a box for effective masking levels, if necessary.

Audiological Evaluation vs Hearing Aid Evaluation

An audiological evaluation and a hearing aid evaluation each include basic audiometric data. An audiological evaluation often includes additional "site of lesion" testing, generally ordered by a physician. A hearing aid evaluation includes further puretone and speech testing to determine



comfortable and uncomfortable listening levels for successful hearing aid fitting. "Running speech" (reciting a nursery rhyme or the alphabet) is employed to determine Most Comfortable Listening Level (MCL) and Uncomfortable Listening Level (UCL). The hearing aid evaluation must always consist of two parts: the pre-evaluation and the post-hearing aid fitting. The pre-evaluation determines whether there is a need for amplification and, if so, what fitting parameters would best match the client. The post-hearing aid fitting determines efficacy of the hearing aid fitting and the audiologist and client work together to further fine tune the instruments.

Pre-Hearing Aid Evaluation Parameters

A Pre-Hearing Aid Evaluation should include the following parameters:

1. An inclusive client history
2. Basic client information recorded on the audiometric worksheet
 - Name
 - Birthdate
 - Sex
 - Date of Examination
 - Name of Audiologist
2. The Audiogram
 - Puretone Air Conduction Testing
 - Type of earphones: insert or TDH

- Appropriate masking levels, if necessary
- Puretone Bone Conduction Testing
 - Appropriate masking levels, if necessary

3. Speech and Word Testing

- Speech Reception Threshold Testing
 - Monitored live-voice or recorded word list
 - Appropriate masking levels, if necessary
- Word Discrimination in quiet at MCL and at 50 dB, a normal conversational speech loudness level
 - Monitored live-voice or recorded word list
 - Appropriate masking levels, if necessary
- Most Comfortable Level of Loudness (MCL) for speech and puretones
- Uncomfortable Level of Loudness (UCL) for speech and puretones
- Evaluation of hearing speech when background party (speech) noise is present

4. Counseling

- Discuss all options for hearing aid fitting appropriate to the client's hearing loss, personal needs, and pocket book
- Discuss client's expectations and provide manufacturer information about hearing aids
- Team with Vocational Rehabilitation Counselor to discuss client's needs

5. Take earmold impressions

The Hearing Aid Fitting

- Adjustment of the hearing aids to the client's hearing loss
- Computerized fitting of hearing aids while wearing hearing aids

- Aided soundfield testing in quiet
- Further adjustment of hearing aids if necessary
- Counseling the client about hearing aid use and an explanation of all controls
- Counseling the client about what hearing aids can and cannot do
- Provision of written information about the hearing aids and controls
- Explanation of warranty information
- Scheduling at least two weekly follow-up appointments
- Provision of information about compatible assistive listening devices
- Provision of information about local support groups for individuals with hearing loss

Post-Hearing Aid Fitting

The Post-Hearing Aid Fitting should include:

- Listening to the client's positive and negative experience with the hearing aids.
- Aided Soundfield Testing
 - Puretone Testing in quiet
 - Word Testing in quiet
 - Speech Testing in quiet
 - Word Testing when background party (speech) noise is present
 - Speech Testing when background party (speech) noise is present
- Adjustment of hearing aids to meet client's needs
- Continued counseling and hearing aid adjustments which occur over a four to six week period

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WROCC is one of the four Regional Postsecondary Centers for Individuals Who Are Deaf and Hard of Hearing which make up PEPENet, the Postsecondary Education Programs Network. The centers combine their efforts to provide a biennial conference, online trainings, cross-regional training and consultation, distance learning opportunities, and transition services. For more information, visit the PEPNet website at www.pepnet.org.



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Other items in this series:

How to Read An Audiogram
A Hearing Aid Primer

All brochures are available for download at www.wou.edu/wrocc. Click on Training Materials and scroll down to the brochure name(s).