

Audiometry (physiology)

Tone audiometry is an electroacoustic examination method of hearing. It is one of the methods of hearing testing, where the sensitivity of hearing to individual tones is tested using a tone generator. It is carried out by an instrument - an audiometer, which generates tones of a certain frequency and intensity.

The course of audiometric examination

During the actual measurement, the examinee is placed in a soundproof cabin and the resulting tone is sent to the examined ear by an airborne or bone hearing aid. The examiner, usually an audiological nurse, gradually amplifies the intensity of the pure tone, and at the moment when the examinee signals that he hears the tone, the examiner records the level of sound intensity, then moves on to the next tone. Audiometric examination determines the thresholds of individual tones quantitatively, but this is a subjective feeling of the patient.

After all the measured frequencies are exhausted, the same is repeated on the other ear. The result of the examination is recorded in an audiogram. If necessary for diagnosis, bone conduction examination is also performed, where a vibrator is attached to the mastoid processus. The device is calibrated according to the auditory threshold of air and bone conduction of normally hearing people. Audiometers must be calibrated regularly, according to the law it is done once every 2 years and calibration is performed by accredited metrological institutes.



The course of audiometric examination

Hearing is measured from low frequencies, i.e. 250 Hz, to high frequencies of 10 000 Hz and from -10 to 100 dB. The number of decibels is given by the tenfold logarithm of the ratio of the intensity of the examined tone to the intensity of the auditory threshold. The method described above allows us to objectify, qualify and localize hearing loss. By comparing air and bone conduction, we can distinguish hearing defects caused by impaired conduction of hearing into the inner ear, so-called conductive disorders, and disorders caused by damage to the inner ear, perceptual disorders..

Evaluation of examination results

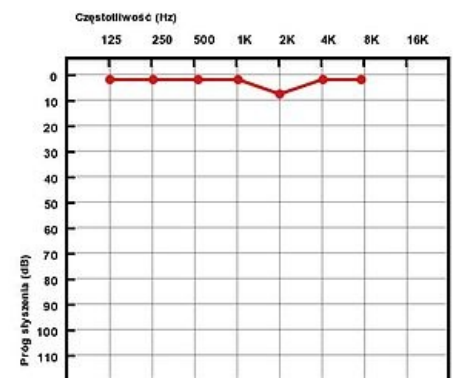
Hearing loss is often described as follows:

- hearing up to 15 dB loss is considered to be normal hearing,
- perceptual disorder is manifested by symmetrical loss in bone and air conduction,
- Conductive hearing loss manifests itself as loss of conduction in the air, while bone conduction is normal.

The rate of hearing loss is assessed as:

1. Moderate hearing loss = 25-40 dB,
2. Moderate hearing loss = 41-65 dB,
3. Severe hearing loss = 66-90 dB,
4. Very severe failure including deafness = 90 dB or more.

The method of recording the examined hearing has been unified by the International Audiological Congress so that the audiogram is comprehensible to everyone, regardless of where, when and how it originated.



Normal audiogram

Links

Related articles

- Hearing examination. Classification of basic disorders by audiogram
- Hearing Examination • Otoacoustic Emission
- Hearing threshold and auditory field
- Hearing loss

References

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