

Pediatric Hearing Tests

What types of hearing tests are there?

An audiologic evaluation can help determine if a hearing loss exists in one or both ears at frequencies (pitches) that are critical to normal speech and language development, and if the hearing loss is conductive or sensorineural.

Hearing screening

This is testing which can be carried out at any age. Hearing screening usually shows simply that a child's hearing is not at a normal level. If a child fails a screening test, he / she will be referred for a more detailed assessment. In recent years the importance of hearing screening for infants has been recognized. There is now legislation in many countries recommending that all newborns are screened for hearing loss. When hearing loss is identified, early appropriate support measures can also begin early.

Comprehensive hearing assessment

An audiologist skilled in working with young children completes a comprehensive hearing assessment. The results of the test are recorded on an audiogram, a graphic chart of audiometric results. Results are used to determine the type of hearing disorder and whether hearing instruments are needed. The physician determines whether medical or surgical treatment is required based on the audiometric findings and otologic examination.

Behavioral hearing tests

Conventional hearing tests usually require that the child respond in some way (verbally, by picture pointing, raising a hand, or through a "game") to soft sounds produced by an audiometer. By the age of three, these types of tests are generally appropriate. For younger children, beginning at about six months of age, other behavioral hearing tests that reinforce a baby's response to test sounds using an animated toy can be used very accurately.

These tests usually require the child to respond to soft sounds in some way (verbally, by picture pointing, raising the hand or through a "game"). These tests can be fun and for infants and toddlers, a head-turn response to a test signal is usually the best and most reliable testing method.

Auditory Brainstem Response (ABR)

For newborns or infants and children who cannot reliably perform the behavioral test procedures, other more objective tests, such as ABR, can help determine hearing abilities. Clicks or tonal "pips" are sounded in an infant's ears through earphones. The ABR provides information about the function of the auditory pathway to the level of the brainstem. The response to the clicks or tones are recorded, providing an estimate of hearing sensitivity.

Otoacoustic Emissions (OAEs)

These tests provide a unique way to examine the function of the cochlea. Sounds are sent to the child's ear with a small loudspeaker. A microphone records the response to the sound from the cochlea (known as an emission). This offers valuable information about the sensory hair cells in the cochlea.

Tympanometry (acoustic immittance testing)

This test helps determine how well the eardrum and middle ear are working. A gentle puff of air is delivered into the child's ear and the amount the eardrum moves in response to change in air pressure is recorded. If the eardrum does not move, for example, it could mean there is fluid behind the eardrum and otitis media with effusion may be present.

Visual response audiometry (VRA)

This procedure is used for children in the 6-month to 2-year range or hard to test children. With this technique, sounds are presented through headphones or a loudspeaker. Young children are taught to turn toward an animated toy or video as reinforcement for every time they hear a sound. This type of testing gets information about the child's hearing in both ears plotted on an audiogram.

Conditioned Play Audiometry (CPA)

Young children and pre schoolers are tested with CPA. This uses a game activity every time a sound is heard. One example is having the child drop a block in a bucket when a sound is heard. Sounds are usually presented through earphones and results are graphed on an audiogram. As with VRA, it is possible to get information about the child's hearing across pitches in both ears.

Pure tone audiometry

This technique is used with older children. Children are asked to push a button or raise their hand when a sound is heard through headphones, earphones placed in the child's ear or through a loudspeakers (in the case of an ear infection) known as soundfield audiometry.

Speech discrimination tests

When hearing loss is present, it is important to determine how well the child can understand speech under different listening conditions. Speech discrimination tests check the child's ability to hear words at different listening levels. A variety of tests are available to test children ranging from 3 years onwards.

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- [The Better Hearing Institute](#)
- [The Infant Hearing Guide](#)

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