

## Hearing & Amplification

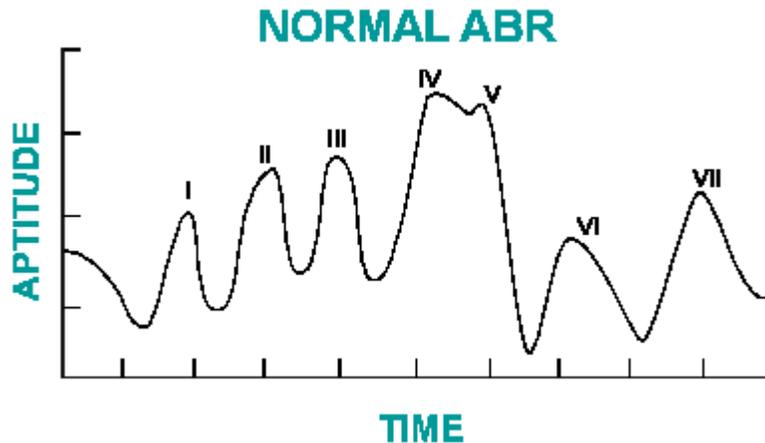
### All About Hearing Loss

#### Hearing Tests To Expect As Your Child Grows

As your child grows, a variety of hearing tests will be conducted by the Audiologist.

##### Birth to 6 Months of Age

Currently, a diagnostic auditory brainstem response (ABR) test is the only method available for testing hearing in newborns and infants up to 6 months of age.



While this test is similar to the ABR screening that is often performed in newborn nurseries, the diagnostic ABR gives more detailed information about the degree of hearing loss across frequencies in both ears. This is also known as a frequency-specific ABR.

Under two months of age, this test can be performed while a baby is sleeping naturally. If a baby is older or very active, a liquid medicine may be used to help your baby sleep.

For this test, small bandaid-type electrodes are placed behind each ear and on your baby's head. Sounds are then presented to the ears using miniature earphones. The electrodes pick up responses from the hearing nerve and are displayed on a computer screen. This test usually lasts about 2 hours.

##### Infants and Toddlers (6 mos. - 24 mos.)

Children older than 6 months can be tested using a behavioral technique known as Visual Reinforcement Audiometry (VRA). With this test, a sound is presented either through miniature earphones or a loudspeaker.

The child is trained to turn to the sound by the use of an animated toy. By using this technique, it is possible to obtain detailed information about the child's hearing loss across frequencies in both ears. Test results are graphed on an audiogram.

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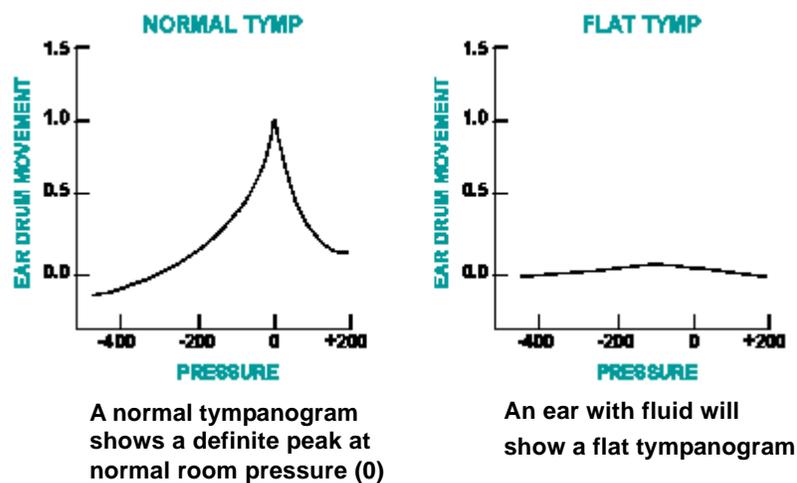
**Young Children and Preschoolers (24 months - 5 years)** Children in this age range are tested using Conditioned Play Audiometry (CPA). This is a game-like activity where the child is asked to do a specific task, such as dropping a block in a bucket, every time a sound is heard. Typically, sounds are presented through miniature earphones and results are graphed on an audiogram. As with VRA, it is possible to obtain detailed information about the child's hearing loss across frequencies in both ears.

Other tests may be conducted in addition to the standard tests that are run at specific ages.

### Tympanometry

Tympanometry is used to determine if the baby's middle ear is functioning normally. This test is important because fluid in the middle ear or other abnormalities can affect hearing responses.

This test is performed by placing a small earphone in the baby's ear canal and gently changing the air pressure in the ear. This test is helpful in identifying the presence of an ear infection and/or fluid in the middle ear.



Other patterns are found with various middle ear problems, including eardrum perforations, eustachian tube problems, etc. If the tympanogram shows a tracing that is not normal, your baby may be referred to his/her physician.

Tympanogram testing also may be used to evaluate if pressure equalization (tympanostomy) tubes are present and working correctly. Your child's physician and audiologist use both the tympanogram and ear examination results to see if the tube is open. The picture to the right shows an ear drum with a tympanostomy tube in place.



### Diagnostic Otoacoustic Emissions (OAEs)

Diagnostic otoacoustic emissions generally are used in combination with ABR and behavioral audiometric results. A miniature earphone is placed in the ear canal and a series of tones are presented. The sensitive microphone measures an echo from the inner ear. This information helps define your child's type of hearing loss.