

# Audiology

## What Is Audiology?

Audiology is the branch of science and medicine that studies and treats hearing loss and balance disorders. Audiologists provide comprehensive diagnostic and rehabilitative hearing services.

## Conditions Audiology Treats

Children who have disabilities and complex injuries can experience hearing loss. Conditions that most often lead to the need for a hearing specialist or pediatric audiologist include:

- [Cerebral palsy](#).
- [Brain injury](#) and related neurotrauma.
- [Cleft lip and palate](#).
- Developmental delay.
- Genetic syndromes.

## Audiology Tests and Treatments

Early diagnosis and interventions help reduce the effect of hearing loss on a child's communication abilities and overall development. At Gillette Children's Specialty Healthcare, audiology tests are designed for children and teens who:

- Might be nonverbal.
- Experience developmental delays.
- Have other challenges that can affect evaluations and testing.

We perform the following tests for patients of all ages and ability levels. We also offer speech therapy for those who have communication issues resulting from hearing difficulties.

### [Auditory Brainstem Response \(ABR\) Testing](#)

If your child is young, developmentally delayed, or unable to control their movements (and therefore unable to recognize and reliably respond to sounds), an ABR test can be useful. The test uses electrodes to measure the brain's reaction to sounds and to show how well your child's auditory system works.

In the past, ABR evaluations could only happen during sleep or under sedation. Gillette is the first children's health

care organization in the Twin Cities to offer ABR testing that doesn't require a child to be asleep or be sedated. Your child can talk, eat and move around without disrupting the tests. When necessary, we also have the expertise to sedate and test patients.

### Conditioned Play Audiometry

In conditioned play audiometry, the hearing test becomes a game. For example, your child might drop a block into a bucket each time they hear a sound. The audiometry test measures how well your child can hear sounds at specific frequencies.

### Otoacoustic Emissions Testing

An otoacoustic emissions test measures the health of the inner ear (cochlea) by using a small earphone, which sends sound into your child's ear. If the inner ear is healthy, we can measure a response or echo.

### Tympanometry

Tympanometry provides information about the health of the middle ear. First, we examine your child's ear canal to make sure there is a clear path to the eardrum. Next, we place a device in the ear that changes air pressure inside the ear, making the eardrum vibrate. A machine records the movements on graphs called tympanograms.

### Visual Reinforcement Audiometry

This test measures your child's sensitivity to specific frequencies. Light-up toys and videos reinforce your child's head-turn response to a sound. If we discover hearing loss, [our ear, nose and throat \(ENT, or otolaryngology\)](#) specialists can perform additional tests.

## Integrated Care

Our audiologists will work closely with you and your family to find a custom treatment plan for your child's needs. Our experts understand how complex conditions, such as genetic syndromes, craniofacial conditions and neurodevelopmental delays, relate to hearing challenges.

Through every part of your child's journey, we offer services, technology and facilities designed to make their process as comfortable as possible within a family-centered environment.

## Our Care Team



[Analyse Ludwig, AuD, CCC-A, FAAA](#)

[Audiologist](#)

## **Locations**



[St. Paul Campus](#)

[Make An Appointment](#) **[651-290-8707](#)**

This information is for educational purposes only. It is not intended to replace the advice of your health care providers. If you have any questions, talk with your doctor or others on your health care team.

If you are a Gillette patient with urgent questions or concerns, please contact Telehealth Nursing at **[651-229-3890](#)**.