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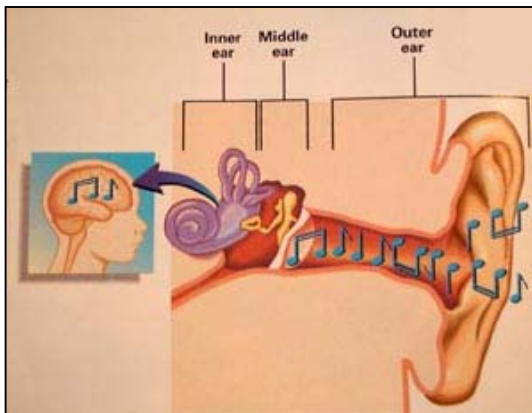
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Myringotomy with Tubes (Ear Tubes)

How Hearing Works

The ear is made up of three parts: the *outer ear*, the *middle ear* and the *inner ear*. Vibrations (sounds) travel down the ear canal and strike the eardrum (*outer ear*), causing the bones of the *middle ear* (malleus, incus and stapes) to move. The

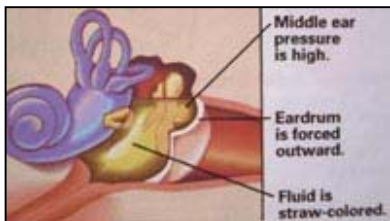


middle ear is normally filled with air which allows easy bony movement. Sound vibrations then move into the *inner ear*, which is filled with fluid, causing

movement of specialized "hair cells". These cells communicate with our brain, allowing us to hear.

Fluid in the Ear

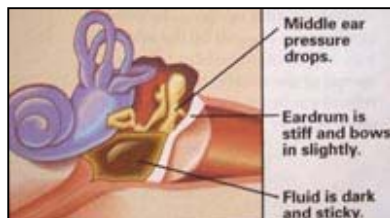
When fluid replaces the air normally found in the middle ear, a hearing loss occurs. This fluid is either active infection (acute otitis media) or the serum that results from recurrent infections or nasal allergy (serous otitis media).



When the fluid remains in the middle ear for a long time, it becomes thick, like glue, which

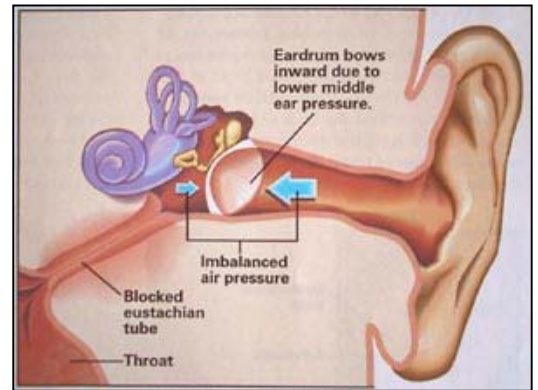
we call a "glue ear."

To image the degree of hearing loss your child has with fluid in the ear, place a commercially available, noise-reducing foam ear plug in your ear. This reduces hearing by about 25 dB, a significant reduction in a child who is trying to learn speech and language. In addition to hearing loss, fluid and infection in the middle ear can damage the eardrum occasionally leading to life-long problems.



Why does my child get so many ear infections?

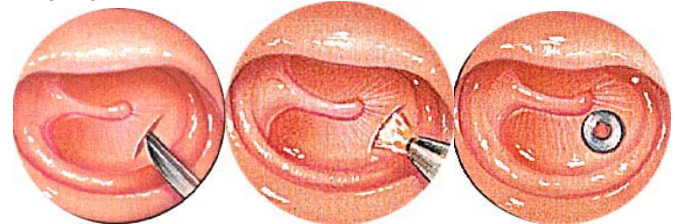
Children's Eustachian tubes are poorly developed. Colds (Upper Respiratory Infections, or URI's) further worsen the function of the Eustachian tube. When this tube is blocked, a negative pressure (vacuum) occurs causing a small amount of fluid to build up in the middle ear. This fluid is a perfect place for bacteria to grow. The infected fluid accumulates, becoming painful. Occasionally, the eardrum ruptures and fluid is seen in the ear canal. Antibiotics are usually necessary to treat this infection. Unfortunately, the primary source of the problem (the faulty Eustachian tube) persists - leading to recurrent ear infections.



How do we treat this "bad" Eustachian tube?

As children grow, their Eustachian tubes grow and function better. This growth, however, is slow. There are a number of things you can do to ensure the best function of your child's Eustachian tube: Breast feed your child if possible, avoid cigarette smoking in the home, avoid known allergies (food & environmental), avoid close contact with other sick children and keep your child current on his/her vaccinations.

In the event the above is not helpful, ear tubes are very effective in temporarily replacing the function of the Eustachian tube until it is working properly. The cycle of negative middle ear pressure leading to recurrent infection is broken. Your child should no longer get ear infections while the ear tubes are in place.

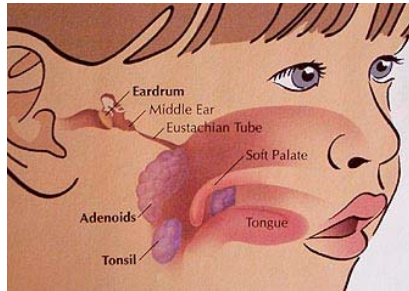


Tubes are placed using an operating microscope under a brief general anesthetic. A tiny, carefully placed incision is made in the eardrum and the middle ear fluid is removed at the time of surgery. A small tube is then placed to keep the myringotomy (hole in the eardrum) open.

Sometimes, adults develop fluid in the middle ear. This may occur following a cold or sinus infection. If the fluid does not go away, we may advise that an adult have tube placement in our office or at the outpatient surgery center. This would be done with local anesthesia without being put to sleep.

What about the Adenoids?

The adenoids are similar to the tonsils found in the back of the throat. Instead, they are found at the very back of the nose and can often worsen the function of the Eustachian tube. A *chronically-infected* adenoid pad provides a constant,



nearby source of bacteria that infects the Eustachian tube and is noticed by a constantly runny nose ("the green streamers"). An *enlarged* adenoid pad physically blocks the opening of the Eustachian tube and

is noticed by loud snoring at night. Removing an infected, often-enlarged adenoid pad has been shown to reduce the number of subsequent ear infections.