

# ENT Treatment News

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## *How We Hear*

**BROOKFIELD** — The ear can be divided into four main sections:

- The Outer Ear
- The Middle Ear
- The Inner Ear
- The Neural System

**Outer Ear:** This section includes the part of the ear that you see on the outside of your head. It is called the pinna and it is made up of cartilage. Its primary job is to collect sound and funnel it down into the ear canal. Sometimes, people cup their pinna when they are having difficulty hearing something!

The outer ear also includes the ear canal.

The average adult ear canal is about one inch in length and most often has a curved shape. This helps to hold a hearing aid in place. The skin in the ear canal produces wax, which helps to prevent anything harmful from entering the ear.

**Middle Ear:** This section includes the eardrum, which is a membrane consisting of three layers of skin. Sound waves travel into the ear canal, which cause the eardrum to vibrate.

The three smallest bones (ossicles) in our body are also found in the middle ear space. They are called the malleus (hammer),

incus (anvil) and stapes (stirrup). These bones move in response to the eardrum vibration.

Beyond the eardrum is an air-filled space called the middle ear cavity. Sometimes this space becomes filled with fluid, like with an ear infection. Then the eardrum and ossicles are not able to move freely and people report not being able to hear well.

**Inner Ear:** The inner ear consists of the cochlea, which is a snail-shaped structure. It is a fluid filled space. The stapes sits at the oval window, which has a membrane that covers the opening to the cochlea. The

movement of the stapes causes the fluid in the cochlea to move. Tiny little hair cells inside the cochlea also move which sends an electrical message to the nerves.

**The Neural System:** The hearing nerve is the VIIIth cranial nerve, and its job is to carry sound to the brain to be processed. In most people, the left side of the brain processes speech while the right side processes sounds like music.

The inner ear also contains our balance system. The VIIIth cranial nerve actually carries information for both hearing and balance to the brain.

### *Special Offer!*

*Save Up To \$300 Off a Hearing Aid Purchase  
With a Free Hearing Screen for New Clients!*

As a special offer to new clients, I'm giving you the opportunity to receive a 10% discount on any new hearing aid package up to a maximum of \$300 with this coupon. This offer is for new clients only and not valid with other offers. This offer expires on June 15, 2014. To arrange for your free hearing screen, please call my office today at 262-780-4444. Please mention this ad when you call and bring this coupon with you on your office visit.

Check out our website:  
[www.enttreatmentcenter.com](http://www.enttreatmentcenter.com)

Most people do not wear their hearing aids while sleeping. Therefore, people with hearing loss run the risk of not hearing their smoke alarm in the event of a fire. Rest assured, there are products available that can help to alert you in other ways. They are as follows:

- Lower pitched alarm sound – Most people with hearing loss have a high frequency hearing loss, so a low frequency alerting sound would be easier to hear.
- Strobe lights
- Vibrating bed shaker
- Loud horn signal

## *Would you hear your smoke detector while sleeping?*



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Listen with your eyes, as well as your ears. Less than 50% of the English language is visible on the lips. However, you can still gather a lot of information from visual cues by watching the speaker's face. Think of the words "fat" and "mat"; They sound similar except for the initial letter. If you say the words to yourself in the mirror, you will see that they look very different!

### *Communication Tip:*

*Did You Know?  
Ninety percent of deaf children are born to hearing parents.*

### *Potential Hearing Aid Breakthrough*

There is new research published in the Journal of the Acoustical Society of America from Ohio State. Dr. Healy and Dr. Wang have developed a new algorithm that quickly analyzes speech and is able to remove most of the background noise. When using speech babble as the noise stimulus, subjects improved their comprehension of speech from 25% to 85%. The technology is still in the development phase, but hopefully will be available for use in hearing aids soon!