

## Do you need help?

- Are you having trouble understanding speech?
- Is it hard for you to know where sounds are coming from?
- Do you struggle to hear clearly when it is noisy?



## Getting help....

- ✓ The ears work with the brain to solve these problems, so you should first contact your audiologist.
- ✓ If you still have trouble, then a brain care specialist, called a neurologist, might be able to help.
- ✓ Even if you are not sure if there is a problem, seeing a specialist can help you learn what to watch out for.
- ✓ Brain scientists are only just beginning to tackle these types of problems. Every day we discover new results and new therapies!

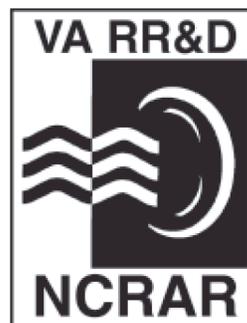
## Other resources:

Hearing Loss Association of America:  
[www.hearingloss.org](http://www.hearingloss.org)

Better Hearing Institute:  
[www.betterhearing.org](http://www.betterhearing.org)

American Speech-Language-Hearing Association: [www.asha.org/public/](http://www.asha.org/public/)

National Institute on Deafness and Other Communication Disorders:  
[www.nidcd.nih.gov/health/hearing](http://www.nidcd.nih.gov/health/hearing)

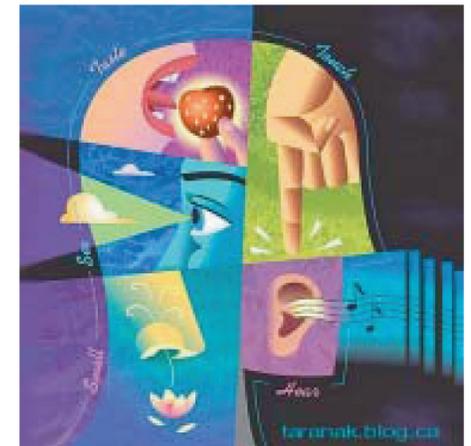


PFEM# 1067

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Portland, Oregon 97207  
(503) 220-8262 x54525  
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# How Does the Brain Help Us Hear?

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# What Does the Brain Have to do with Hearing?

## The Ears and the Brain are a Team

Our ears and brain form a team that allows us to know about the world around us. This team keeps us connected to the world and to the people in that world.

Your ears are only the first of many steps that sounds need to climb before you can hear them. Without passing through the ears, there is no way for the listener to become aware of a sound. However, the journey doesn't end there!

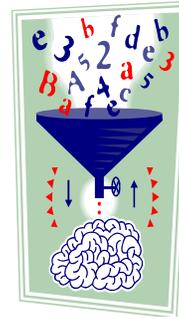
The inner ear turns sound waves into electrical signals. The auditory nerve sends those signals from the ear to the brain. Some brain areas compare the signals coming from the two ears to figure out where the sounds came from. Other brain areas decode or process language and music.

There are brain areas specifically designed to analyze every sound that is important to us. These brain areas work together to create a full picture of the sounds in our world.



## Sounds Become Words

The brain takes sounds, and turns them into words and sentences and, then eventually, into ideas. In a few tenths of a second, a sound from your ear can become an idea in your mind. Without good teamwork between your ears and your brain, this could never happen.



## Sounds Are Located in Space

One of the most important jobs the ears and the brain do is to tell us where things are. Unlike your eyes, your ears are always open, and can monitor all around you.

The signals from your ears are compared



by a part of the brain called the brainstem. First, your brain figures out whether the sound was closer to your left ear or right ear, by comparing how soon the sounds from each ear arrived. Then, your brain figures out whether the sound was louder from your left ear or right ear. The brain uses these two pieces of information to calculate where the sound came from. From this, the brain makes a mental picture of the world around you.

## The Brain Sorts Out the Sounds

The brain works hard to make a mental picture of the world using information from the things that are making the sounds we hear. If the brain weren't sorting out these sounds, it would all be a big jumble. When we are outside, in a restaurant, or with a large group of people, many sounds reach our ears at once. It is the brain that helps us to keep it all straight.



## The Ears and The Brain Are Vulnerable

As we age, our ears and our brains age too. Any damage that they have suffered builds up over time.

The brain has a very complex job to do. It needs to get good information from the ears. If the information is distorted because the ears have been damaged from noise or the normal aging process, the brain can't do its job as well.

Sometimes, even if the ears are working well, the brain may be the weak link.

There are many ways to learn if the brain is working properly. One sign is having difficulty with language. This is a common sign that the brain is struggling. Another sign is having trouble sorting out different sounds.