The ear and its importance as a sense organ

The world of noises, harmonics, and language is accessible to humans through the sense of hearing. In addition to the eyes, nose, mouth, and skin, the ear is one of the most important sense organs − that is, an organ that can take in and process stimuli from its surroundings.
The following examples will show you why the sense of hearing is so important.

Orientation

Acoustic signals generate rhythmic pressure waves in the air that ears perceive as sounds, harmonics, and noises. We are able to orient ourselves very well in our surroundings with our ears as sense organs. We can concentrate on a certain sound even in very difficult conditions.
Here is one example of how important the function of hearing is in everyday life: When you step out the front door, you hear the muffled ringing of a bicycle bell. You turn your head just in time to be able to avoid a collision with the quickly approaching bicyclist. People with hearing loss are at a disadvantage in such a situation and must therefore protect themselves through increased visual alertness.

Communication

Our ears provide us with more information about the world and our fellow human beings than we think: For instance, when we are talking on the phone, we can recognize whether the person on the other end is sad or happy based on the pitch of his or her voice − even if the differences are few and subtle.

It is astonishing how many emotional meanings can be expressed by the melodic inflection, intonation, volume, and tone of the spoken word “yes.” Experts estimate that there are approximately 27 possible messages that can be interpreted differently.

People with hearing damage are at a disadvantage: Although they are capable of recognizing the word as “yes” based on the speaker's synchronous lip movement, they easily lose the emotional content of the words. One way of compensating for this would be to pay attention to the nonverbal communication of the other person, that is, to visually observe and evaluate the body language such as gestures and facial expressions.

Sound perception

If we take a closer look at the sensory impression of “hearing,” we will determine that we can also perceive harmonics and sounds independent of visual impressions, as the following example shows:
We try to follow a piano concert with our eyes closed. The sounds emanating from the piano impinge on our pinnas, which collect the sound waves like a funnel. The sound travels to the middle ear. The pressure waves of the sounds cause the eardrum to oscillate and vibrate. The oscillations are conveyed to the inside via the three ossicles – the malleus, incus, and stapes – and transferred to the oval window of the cochlea. The basilar membrane contains hair cells – sensory cells with tiny hairs at the end. The lymphatic fluid in the cochlea, which starts oscillating due to the sound, stimulates these hair cells. At this point, the mechanical oscillations triggered by the sound waves are converted to electrical nerve impulses. The auditory nerve is stimulated. The auditory system now transmits the electrical impulses to the auditory center in the brain, which processes the information as an auditory sensation. We hear.

A fascinating aspect is that when our eyes are closed, our brain produces a picture of a pianist playing a piano even if we cannot see the pianist at that moment. This picture is stored in our cerebrum, but only if we have already visually experienced the scene of a pianist playing music.

Language acquisition

For age-appropriate language development in children, it is particularly important that the sense of hearing be intact. Spoken communication skills as well as social development can be negatively impacted if congenital or early childhood hearing loss is not detected in a timely manner. This is because only technical devices such as hearing aids can provide the greatest possible compensation for the hearing problem. However, this does not always work. In particularly severe cases, the only way to compensate for hearing loss is systematic support, the acquisition of other skills such as lip reading, sign language, and the increased use of written language. As a rule, this makes the everyday lives of people with hearing loss objectively more strenuous than the everyday life of a hearing person.