

# LISTEN UP!

Our ears warn us of dangers. They help us to estimate distances and convey emotions. Of all the senses, only our sense of hearing is always active. Too much noise can damage our ears.



## What happens inside our ears?

The **outer ear (1)** catches the sound waves like a funnel and directs them to the **auditory canal (2)**. From there, they hit the **eardrum (3)**, causing it to vibrate. This movement takes them to the smallest bones in the human body, named after their shape: The **hammer (4)** is fused to the eardrum, picks up the vibrations and transmits them to the **anvil (5)** and **stirrup (6)**.

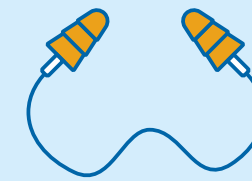
Transmission amplifies the sound waves and they reach the **cochlea (7)**, the actual hearing organ. It is filled with lymph and full of hair cells that bend under the movement of the sound, converting the vibrations into electrical impulses. At the end of the cochlea is the **auditory nerve (8)**, which sends what is heard to the brain, where it is processed.

Our ears also help us to keep our balance. The organ responsible for balance is located in the inner ear. Its **archways (9)** are filled with fluid that measure the movements of our head. Our brain interprets this information and passes it on to our organs.

Illustrations: Territory

## How to protect your ears

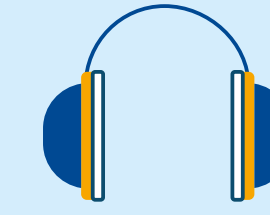
The right hearing protection should be chosen carefully to protect the ears. Employees should decide what type they wish to use.



**Earplugs**  
These are inserted into the auditory canal.



**Otoplastic**  
These earmolds are individually adapted to the auditory canal.



**Ear muffs**  
Capsules enclose both outer ears.



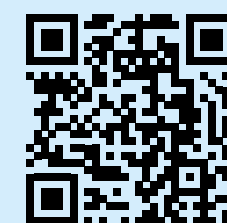
## Hard of hearing through a bald patch inside the ear

**When ears are repeatedly exposed to high sound levels over several years, this can result in irreversible noise-induced hearing loss.**

This occurs when the hair cells in the cochlea (7) are destroyed and die. This results in a kind of bald patch inside the ear. It's like a field of wheat in the wind: if the wind (noise) is too strong, the stalks (hair cells) are unable to stay upright. With every new exposure to noise, more hair cells are irreversibly destroyed.



Further information, seminar offers, media and support programmes from BGHW can be found in the e-magazine: [mehr.bghw.de/hoergutzu](http://mehr.bghw.de/hoergutzu)



## How loud are noise-makers?

Sound levels of familiar everyday noises in decibels (db).

