

## **Ear Problems**

### **Tubes in Ears**

Young children who have colds, allergies, or small ear canals can have a middle ear blocked with mucus, leading to infections and muffled hearing. Normally, a passage between the middle ear and back of the nose, called the eustachian tube, equalizes air pressure with the outside world, but the tube can be closed for many reasons, and pressure builds up. To relieve all of these problems, doctors can insert spool-shaped plastic tubes through the ear drum to equalize air pressure in the middle ear, reduce pressure, and allow fluid to flow out. The tubes generally reduce pain in the ear.

### **Swimmer's Ear**

Sometimes, the outer part of the ear and ear canal can become infected because the ear canal has been compromised. Normally, the ear canal is lined with antibacterial ear wax and fine hairs to trap debris, but extra moisture from showering or swimming can alter the antibacterial qualities of ear wax, allowing bacteria and fungi to invade. Ear plugs, ear buds, hair dyes, bleaches, and shampoos in the ear canal can also disrupt the protective lining. The result is a red ear (usually just one), painful when touched. In severe cases, the ear canal may swell shut and drain clear, white, or yellow fluid that can crust over the ear. Very severe cases can result in some temporary hearing loss, ringing in the ear, and dizziness.

### **The Problem with Ear Buds**

Damage to the cochlea can reduce hearing impulses to the brain. When tiny hair cells in the cochlea are damaged or degenerate as we grow older, people notice a loss of high-pitched sounds, then difficulty understanding speech in noisy surroundings. About half of people over 70 have impaired hearing for this reason. Young people get it when loud noises damage hair cells in the cochlea. Playing music through ear buds at high volume can damage these cells. As of now, damaged hair cells cannot be replaced. Sometimes, hearing loss is accompanied by a ringing sound with no external cause, called tinnitus. About 1 in 5 people between 55 and 65 report tinnitus.

### **Conductive Hearing Impairments**

Sometimes malformation or malfunction of bones in the middle ear can reduce the vibrations that are conducted to the cochlea. Injuries such as a severe blow or infection to the ear can damage the hammer, anvil, and stirrup bones so that they transmit less vibration. Sometimes, the hammer and anvil are separated, or the anvil bone is broken or eroded from recurrent ear infections. Some injuries or infections can also separate the anvil from the stirrup or erode the stirrup so that it no longer connects with the inner ear. Any of these conditions greatly reduce hearing.

### **Ruptured eardrum**

The eardrum is a thin membrane separating the outer and middle ear. A blow to the ear, foreign objects in the ear (often a cotton swab used to clean the ear), or pressure from infection inside the ear can break the eardrum or put a hole in it. When the eardrum is damaged, hearing decreases because the middle and inner ears receive less vibration coming from the outer ear.