

Swimmer's ear

Swimmer's ear is an infection or inflammation of the canal between the eardrum and the outer ear. This condition can be triggered by exposure to water, or mechanical damage due to overzealous cleaning. The infection can be caused by fungi or bacteria. Another name for swimmer's ear is otitis externa.

The ear is made up of three different parts:

- **Outer ear** - the part you can see
- **Middle ear** - separated from the outer ear by the eardrum. The middle ear contains tiny bones that amplify sound waves
- **Inner ear** - where sound waves are translated into electrical impulses and sent to the brain. It also houses the vestibular apparatus that controls position awareness and balance.

Symptoms of swimmer's ear

Some of the symptoms of swimmer's ear include:

- Pain
- The pain may be exacerbated by moving the head or pulling at the ear
- Itchiness
- Foul-smelling yellow or green pus in the ear canal
- Reduced hearing
- Noises inside the ear, such as buzzing or humming.

Causes of swimmer's ear

Some of the causes and risk factors include:

- **Water** - dirty water can deliver bacteria to the ear canal. A wet ear canal is also prone to dermatitis. Tiny cracks or splits in the skin can allow bacteria to enter.
- **Mechanical damage** - attempts to clean the ears using fingernails, cotton buds or other objects may cut the delicate tissues of the ear canal and lead to infection.
- **Chemical irritation** - hairsprays, shampoos and hair dyes may get into the ear canal and irritate the tissues.
- **Middle ear infection (otitis media)** - an infection within the middle ear can trigger an infection or inflammation in the ear canal.
- **Diabetes** - this condition can make earwax too alkaline, which creates a more hospitable environment for infectious agents.
- **Folliculitis** - an infected hair follicle within the ear canal can trigger a generalised infection.
- **Narrow ear canals** - some people's ear canals are narrower than usual. This means that water can't drain as effectively.

Complications of swimmer's ear

Some of the possible complications of swimmer's ear include:

- **Chronic otitis externa** - infection persists, or else keeps recurring.
- **Narrowing of the ear canal** - repeated infections can cause the ear canal to be narrowed by scar tissue. The risk of swimmer's ear is increased if water can't drain out properly. Narrow ear canals may also affect hearing.

- **Facial infection** - the infection may escape the ear canal, down small holes in the surrounding cartilage, and lead to painful facial swelling.
- **Malignant otitis externa** - the infection may spread to the bones and cartilage of the skull.

Malignant otitis externa is a dangerous complication

Malignant otitis externa is the spread of infection to the bones of the ear canal and lower part of the skull. This may cause structural damage in severe cases. Without treatment, the infection may reach the cranial nerves and the brain. People with reduced immunity or diabetes are at increased risk of this complication. Malignant otitis externa is a medical emergency. If you have swimmer's ear and experience strange symptoms, such as dizziness or muscular weakness in your face, seek immediate medical help.

Diagnosis of swimmer's ear

Swimmer's ear is diagnosed by physical examination. The skin of the ear canal will appear red, scaled and peeling when examined using an otoscope. The eardrum may be inflamed and swollen. Microscopic examination of the discharge in the ear canal will, in most cases, tell the doctor whether the infection is caused by bacteria or fungi. The diagnosis can be confirmed by culturing a swab of pus. In the case of malignant otitis externa, further tests - including skull x-rays, magnetic resonance imaging (MRI) and computed tomography (CT) scans - are taken. Treatment depends on the degree of bone infection (osteomyelitis), but is generally lengthy and involves prolonged courses of antibiotics. Surgery may also be necessary.

Treatment for swimmer's ear

Treatment for swimmer's ear depends on the severity of the infection and the type of infectious agent, but may include:

- Thorough cleaning and drainage of the ear canal
- Measures to keep the ear canal dry, such as using earplugs or a shower cap while bathing
- Painkillers
- Heat packs held to the ear
- Anti-fungal preparations
- Antibiotic ear drops
- Steroid-based ear drops
- A wick inserted into the ear canal to deliver medicated drops close to the eardrum
- Oral antibiotics
- Intravenous antibiotics
- Surgery, to treat and drain infected skull bones.

Prevention strategies

Suggestions to reduce the risk of swimmer's ear include:

- Avoid swimming in dirty or polluted waters.
- Wear earplugs when you swim.
- Dry your ears thoroughly after exposure to water.
- To make sure that ear canals are completely dry, use a couple of drops of one part alcohol and one part vinegar in each ear.
- Plug your ears with cotton wool when using hair spray, shampoo or other chemical products.
- Don't be too enthusiastic about cleaning your ears.
- Avoid poking your fingers in your ears, because fingernails can cut the skin of the ear canal.

Where to get help

- Your doctor
- Ear specialist

Things to remember

- Swimmer's ear is an infection or inflammation of the canal between the eardrum and the outer ear.
- The range of causes includes water in the ear canal, mechanical damage, chemical irritation and infected hair follicles.
- Treatment options include antibiotics, anti-fungal preparations and keeping the infected ear dry.

This page has been produced in consultation with, and approved by:

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