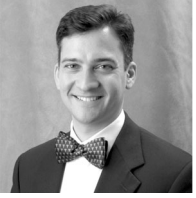

The Doctor Is In

BY DR. DAVID HILL

Swimmer's Ear

Let me clear up any confusion right now by saying that swimmer's ear does not make you a better swimmer. In fact, if you are using your ears to swim you should probably refine your stroke. Swimmer's ear is a painful infection of the outer ear that occurs when the ear canal becomes waterlogged. But with a few precautions, most swimmers can glide happily through the summer.

What is the outer ear?

Swimmer's ear is called otitis externa because it involves the outer ear. The most obvious part of the outer ear is called the pinna or auricle. The little button in front of the ear is the tragus. Like the pinna and tragus, the outer third of the ear canal is made of cartilage. The skin lining the canal has hair follicles, oil glands, and glands that form ear wax (cerumen). The bottom of the ear canal is lined with tiny fissures that may carry infection into surrounding tissues. The canal (and therefore the outer ear) ends at the surface of the eardrum (tympanic membrane). Swimmer's ear is distinct from otitis media, a collection of pus *behind* the eardrum.

What's up with ear wax?

Cerumen plays dual protective roles. First, it forms a physical barrier against insects, dirt, and trauma. Second, cerumen is mildly acidic and contains enzymes to suppress the growth of bacteria and fungi. Wax normally migrates out of the ear on its own; removing it with a foreign object not only leaves the ear canal unprotected but risks trauma to the canal or eardrum.

What are the symptoms of swimmer's ear?

Swimmer's ear begins with itching of the ear canal, often accompanied by a sense of fullness in the ear. The canal may become painful, especially with movement of the pinna or tragus. As the infection progresses your child may complain of hearing loss or pain with jaw movements. The ear may even become red and swollen. Swimmer's ear alone shouldn't cause a fever unless the infection is quite severe.

How does the infection progress?

When water sits in the ear canal it can remove the protective oil and cerumen, allowing the lining of the canal to become boggy and swollen. The swelling blocks oil and cerumen glands, setting up a vicious cycle. The weakened ear tissue is vulnerable to infection by bacteria *Staphylococcus aureus, Pseudomonas aeruginosa* or fungi *Aspergillus niger*. The body's immune system responds, producing more pain and swelling. In severe cases the ear canal may become completely blocked. Untreated infections may spread to surrounding bone or soft tissue including the salivary (parotid) gland or the jaw (temporomandibular) joint.

Who gets it and when?

Predictably swimmer's ear is most common in the summer, but it may occur year-round, especially in warmer, more humid climates. Risk factors include swimming, excessive sweating, trauma to the ear canal, and loss of cerumen. People with long, narrow ear canals are at higher risk as are those who wear hearing aids. Not all water is the same; lake water with high bacteria counts may be worse than ocean or pool water. Water with a higher pH (less acidic) may also increase the risk of infection. In 90% of cases only one ear is affected.

How can I prevent swimmers ear?

Swimmers have a few options to prevent infection. First, they can dry the ear canals after swimming by blowing them with a hair dryer on the coolest setting. Hold the dryer about a foot from the ear for one minute. They may also rinse the ear canal after swimming with ear drops containing weak acetic, sulfuric, or propionic acid. These solutions are available in most pharmacies, but a homemade solution of 1:1 vinegar and rubbing alcohol works as well. Ear plugs can be a hassle, but they seem to work if they effectively keep out moisture. One study of seven different types of ear plug found that Vaseline-soaked cotton balls were most effective and easiest to use.

What can you do for swimmer's ear?

For symptomatic swimmer's ear antibiotic ear drops are first-line therapy. There are several different brands, but all are effective against the bacteria that cause most cases of swimmer's ear. Antibiotics are often combined with topical steroids to reduce inflammation. Drops are placed in the affected ear two to four times a day, usually for seven to ten days. Pulling back gently on the pinna helps the medicine penetrate the ear canal. When swelling is too severe for the drops to penetrate, your doctor may need to insert a wick in the ear canal. The most severe cases call for oral antibiotics. Ideally, your child will stay out of the water until he or she has improved.

What if the drops don't work?

Swimmer's ear usually responds to therapy within a couple of days. One cause of prolonged inflammation is an allergy to the antibiotic neomycin contained in some ear drops. In these cases changing antibiotics does the trick. Sometimes prolonged drainage and pain result from a middle ear infection (otitis media) with a perforated eardrum. These cases usually respond to oral antibiotics. Severe diabetics and immunosuppressed patients may get fungal infections that respond to different classes of topical antibiotics.

What other conditions mimic swimmer's ear?

The ear canal may be the site of a boil. These are quite painful and usually require surgical drainage and oral antibiotics to resolve. Skin conditions like seborrhea and eczema can cause flaking and scaling of the ear canal and decrease cerumen production. Not only can these conditions appear similar to swimmer's ear, they can leave the ear canal vulnerable to actual infection. They are best treated using topical steroids and acidifying agents.

Dr. David Hill is a board certified pediatrician at Cape Fear Pediatrics. He and his wife have three children.