

# Swimmers Ear

## Advice About A Pesky and Sometimes Painful Problem

If an organ is going to be harmed by diving, odds are it's going to be an ear. Subject to barotrauma of descent and ascent, decompression sickness, congestion, infection and other maladies, ears are a regular source of divers' complaints.

You can best avoid damage due to barotrauma by avoiding a dive when gentle and effective equalization isn't possible, such as those times when a cold causes head congestion. By the same token, DCS can nearly always be avoided by judicious handling of inert gas loading and conservative ascents. It's all in the planning.

### Dive-related external ear infections

Like all skin, the external auditory canal usually remains free of infection unless its defenses are disrupted. Outer ear infection, also known as *swimmers ear* and *otitis externa*, is the result of frequent wetness of the cells lining the ear canal. Moisture causes the cells to swell and separate, allowing infectious agents to penetrate the skin. The risk is reported to be about five times greater in swimmers than nonswimmers.

Otitis externa is characterized by redness, swelling and itchiness or pain localized within the external auditory canal. The discomfort may worsen with manipulation of the ear. If pushing on the small flap of ear that covers the canal, pulling back and up on the entire organ or pushing on the

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Benja Iglesias Photo

face just in front of the ear cause marked pain, chances are you've got swimmers ear.

Even minimal inflammation can cause significant discomfort. There may be crusting or fluid discharge within or coming from the canal. You can see the inflammation and discharge easily by examining the ear with an otoscope, a device for examining the

status of the outer ear. These infections are mostly bacterial, although in about one-tenth of the cases, the offending agent is fungal in nature.

Infections of the outer ear canal typically are easy to differentiate from those of the middle ear; the latter are characterized by pain deep within the ear, muffling of sounds or decreased hearing, redness of the eardrum and

sometimes, fever. The pain generally is not made significantly worse by manipulation of the external ear.

Although the acute infection of external otitis usually resolves fairly quickly with topical washes and antibiotics, it often takes weeks before ear canal tissue is fully normal. The glands of the surface skin of the ear canal will not begin producing cerumen (earwax) again until the skin is not only no longer infected, but also no longer inflamed. Until then, even slight irritation can be enough to cause external otitis to flare again, so it's best to avoid a return to scuba until your ear is healed completely.

## Prevention is preferred

Prevention of problems within the external ear canal begins with protecting the tissue lining the canal and inhibiting the growth of infectious organisms.

It's important to keep the ear canal's natural defenses working efficiently. Keep your ears as dry as possible. After swimming or showering, use a fluffy towel to dry your ears well. Turn your head to each side and gently pull the earlobe in different directions to help water run out. A hair dryer set on the lowest speed and heat can also help dry ears, but be sure to hold it several inches away and otherwise exercise caution. Or, look into buying a special gadget designed for just this purpose, such as the *Sahara DryEar*.

What else works? Placing a few drops of mineral oil or lanolin into a dry and healthy ear canal before each dive can work surprisingly well. These preparations also help avoid the risk of over-drying the canal; plus, they won't leave you smelling like vinaigrette dressing.

If this doesn't prove effective, you can try a variety of prescription, over-the-counter (OTC) or homemade solutions. These solutions not only help to draw excess water out of the cells lining the ear canal, but, more importantly, they alter the pH balance within the canal slightly toward the acidic direction, thereby inhibiting bacterial and fungal growth.

## Drop in

There are a number of products available at your local pharmacy (e.g. Aqua Swim-EAR). However, the majority of these are mostly alcohol, a chemical that dissolves earwax and that can be excessively drying: This can leave the ear canal prone to infection. For the same reason, use products containing hydrogen peroxide with some restraint.

A freshly brewed concoction of one-third distilled water, one-third white vinegar and one-third isopropyl alcohol is often a much more effective mixture. It's also inexpensive, so keep it fresh and potent by making a new batch at least monthly. To use, fill a medicine dropper with the solution, tilt the head to one side, add two to three drops to each ear (taking care not to let the dropper touch the ear or anything else). Then gently massage the ear in a circular motion to ensure penetration, and allow the medication to sit for a full five minutes before lifting the head upright.

Clean your dropper with alcohol and then repeat with the other ear. Some folks like to rub the bottle between their hands to warm the solution just before using. (By the way, unless you plan to also reuse the solution for green salads, skip the wine varieties of vinegar and go with plain white distilled vinegar from ethyl alcohol.)

If the above step proves ineffective, try a product containing: 2 percent acetic acid, water, aluminum acetate, sodium acetate and boric acid. If you're interested, ask your doctor.

Your local pharmacist can easily compound nonprescription solutions very similar to the above, and at a reasonable cost. Take the following recipe to the pharmacy:

- Aqueous solution: 8 parts of aluminum acetate solution BP with five parts purified water, freshly boiled and cooled; or
- Nonaqueous solution: 2% acetic acid, in a propylene glycol vehicle containing propylene glycol diacetate 3% and sodium acetate 0.015%.

Once the bottles are opened, the shelf life for both will be about one week. Apply the drops (using the method discussed above) at both the beginning and end of each dive day or as directed by your doctor.

## Some warnings

A few cautions, no matter what drops are used, are in order:

- Use only in clear, open ear canals;
- Do not apply if there is any suspicion of a perforated eardrum as this could make matters much worse. See your doctor if you suspect rupture;
- Discontinue if the ear canal becomes excessively dry or irritated;
- Don't use if infection is already established in the canal.
- Don't attempt to dry the ear with cotton swabs or other devices that can result in earwax impaction or mechanical trauma.

Whatever approaches you take in preventing external ear infections, remember that it is unwise to dive with an ear that:

- Poses a threat to easy and complete equalization, or
- Is painful, infected, substantially inflamed, or congested.

If you have severe or chronic ear problems of any kind, consultation with an ear, nose and throat specialist (ENT) is recommended.

## About the Author

Doc Vikingo is a regular contributor to *Undercurrent* and in the past wrote a monthly column for *Scuba Diving*. A mental health professional in the greater Washington, D.C., area for nearly 30 years, he made his first dive with a double hose regulator and no BCD.