



Swimmer's ear: Prevention and treatment

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Introduction

Swimmer's ear or acute otitis externa is an infection of the ear canal.¹⁻⁷ It is a painful condition, characterised by inflammation of the skin of the external ear canal which is situated between the eardrum and the outer ear.¹⁻⁵ The most common cause of this infection is bacteria invading the skin inside the ear canal.⁶ Fungal causes are less likely and cause more itching and less pain.^{4,5}

Risk factors

Several factors may increase the risk of developing swimmer's ear.^{2,3}

Excess moisture or water in the ear

Prolonged humid weather, heavy perspiration or water that remains in the ear after swimming may create a favourable environment for bacteria.⁶ Swimmer's ear is most commonly seen in patients who have been infected with contaminated or unclean water which gets trapped in the ear, for example, from warm water exposure at mineral baths and spas.^{1-3,5} Too much moisture in the ear may irritate and break down the skin in the ear canal, allowing bacteria or fungi to penetrate the skin.⁷ Swimming on a regular basis removes some of the ear wax, allowing water to soften the skin. Bacteria, which are normally found in the ear canal may then enter the skin more easily and multiply under these moist conditions causing inflammation and infection.¹⁻³

Mechanical damage

Swimming is not the only risk factor for developing swimmer's ear. Anything that causes a break in the skin of the ear canal

may lead to an infection.⁷ Vigorous cleaning, scratching or trying to remove wax from the ear canal with cotton swabs or small objects may injure the skin, potentially leading to infection.^{2-5,7} Cleaning the ear canal removes ear wax. Ear wax serves to protect the ears from water, bacteria, and injury.³

Signs and symptoms of swimmer's ear

The most common symptoms may include^{1-5,7}:

- Ear pain – the pain may be exacerbated by moving the head or pulling at the ear
- Itching of the ear or ear canal
- Tenderness
- Irritation
- The outer ear may look red or swollen
- Hearing loss, if the ear canal has swollen shut
- Drainage from the ear – the discharge is unpleasant smelling and white or yellow and drains from the ear

Treatment of swimmer's ear

Treatment for swimmer's ear depends on the severity of the infection and the type of infectious agent.²

Cleaning

Cleaning the outer ear canal may be necessary to facilitate the flow of ear drops to all infected areas.⁶ A trained medical professional may use a suction device or ear curette to clean away flaky skin, discharge, clumps of earwax, and other debris.^{1,2,6}

Medications for infection

Early in the disease process, mild acidic ear drops such as acetic acid or boric acid may be enough to prevent infection.¹ Altering the pH or acidity of the ear canal is usually effective and may help restore the ear's normal environment.^{1,4,6} Antiseptics are preferred to antibiotics as first line agents of local ear infections. Acetic acid is the agent most frequently used. It has both antibacterial and antifungal actions. It

reduces swelling associated with external otitis and may also be used for cleansing and irrigating. It is effective against many organisms, including *Pseudomonas*, *Haemophilus spp* and *Candida albicans*. Boric acid is weakly bacteriostatic and fungistatic.⁸

For moderate to severe infections, the doctor may prescribe ear drops that contain antibiotics to fight the infection, possibly mixed with a corticosteroid to reduce swelling and itching of the ear canal.^{1,2,7} If the ear canal is completely blocked by swelling, inflammation or excess discharge, the doctor may insert an ear wick made of cotton or gauze to promote drainage and help draw medication into the ear canal.⁶ For severe infections, the doctor may prescribe oral antibiotics.^{2,4}

Pain medication

Bothersome ear pain may be relieved with over-the-counter medication, such as paracetamol or ibuprofen.^{2,3,5} Heat packs held to the ear may also relieve pain and discomfort.^{2,5}

Prevention

Swimmer's ear may be prevented by applying a few drops of dilute acetic acid in spirit ear drops (as long as the eardrum is intact) immediately after swimming.^{2,4,6} The alcohol helps remove (evaporate) water and the acetic acid alters the pH of the ear canal.⁴ Over-the-counter drops are available.^{2,4,5,8}

If swimming frequently, experts recommend the following tips to reduce the chance of developing swimmer's ear:

- Avoid swimming in dirty or polluted waters^{2,5}
- Wear ear plugs made for swimming^{3,5}

- Dry the ears thoroughly after swimming^{2,5}
- Wear a shower cap while showering²
- Ears should not be cleaned, and hair spray, shampoo and soap should be kept out of the ear.^{1,2}

Conclusion

Swimmer's ear is regarded as one of the most painful ear conditions. Prompt treatment may help prevent complications and more serious infections.

References

1. Hofmeyr L. Swimmers ear (Acute otitis externa). c2015. Accessed: 8/10/2019. Available from: <https://lmhofmeyr.co.za/conditions/ear-problems/swimmers-ear-acute-otitis-externa/>
2. Swimmers Ear. Better Health Channel. Last updated: August 2014. c2018. Available from: <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/swimmers-ear>
3. Goguen LA. Patient education: External otitis (including swimmer's ear) (Beyond the Basics). Last updated: April 10 2018. c2019. Available from: [https://www.uptodate.com/contents/external-otitis-including-swimmers-ear-beyond-the-basics?search=patient-information-external-otitis-including-swimmers-ear-Beyond&source=search_result&selected Title=1~150&usage_type=default&display_rank=1](https://www.uptodate.com/contents/external-otitis-including-swimmers-ear-beyond-the-basics?search=patient-information-external-otitis-including-swimmers-ear-Beyond&source=search_result&selected%20Title=1~150&usage_type=default&display_rank=1)
4. Kessar BW. External Otitis (Swimmer's Ear). Last reviewed. Aug 2019. c2019. Available from: <https://www.msmanuals.com/en-au/professional/ear,-nose,-and-throat-disorders/external-ear-disorders/external-otitis-acute>
5. Medline Plus. Last updated: 2/10/2019. c2019. Accessed: 10/10/2019. Available from: <https://medlineplus.gov/ency/article/000622.htm>
6. Swimmers Ear. Mayo Clinic. Accessed: 11/10/2019. c2019. Available from: <https://www.mayoclinic.org/diseases-conditions/swimmers-ear>
7. Cook SP. Reviewed. Swimmer's Ear (Otitis Externa). Date reviewed: March 2016. Available from: <https://kidshealth.org/en/parents/swimmer-ear.html>
8. South African Medicines Formulary (SAMF). Otologicals. S02. Otitis Externa. Pages 588-89.

