Free-living amebae

Frequently Asked Questions

What are free-living amebic infections?

Free-living amebae (*Acanthamoeba, Balamuthia, Naegleria*) are microscopic single-celled organisms that live in water and soil and can be rare causes of disease and death in humans and animals.

Who gets free-living amebic infections?

It is possible for anyone to become infected by free-living ameba, some people are at greater risk including:

- Young boys – While the reasons are unclear, young boys might participate in more water activities like diving and playing in the sediment at the bottom of lakes and rivers which can increase the risk of becoming infected with Naegleria fowleri.

- People with weak immune systems – Those with cancer, HIV/AIDS, a history of organ/stem cell transplant, diabetes, or other immunocompromising conditions are at greatest risk

How are free-living amebic infections spread?

Free-living amebae are commonly found in water and soil worldwide. The ameba cause infection often through the nasal passages but also through the eye and through broken skin. Once ameba migrate through the nasal passage, they can go on to infect the lower respiratory tract or the brain. *Acanthamoeba* species can be found in salt or freshwater, *Balamuthia mandrillaris* can be found in soil and dust, and *Naegleria fowleri* is found in warm or hot freshwater (like lakes, rivers, and hot springs).

What are the symptoms of free-living amebic infection?

Acanthamoeba spp. and *Balamuthia mandrillaris* are free-living amebae capable of causing granulomatous amebic encephalitis (GAE) which is a rare infection that can include symptoms such as confusion, fever, seizure, loss of balance and bodily control, impaired speech, vision or hearing, headache, or nausea and vomiting. *Naegleria fowleri* can cause symptoms such as headache, fever, nausea, or vomiting, stiff neck, confusion, loss of balance, seizures, and hallucinations.

How are free-living amebic infections diagnosed?

Free-living amebic infections are often diagnosed by laboratory testing of cerebrospinal fluid and are only available in a few labs in the United States. Because these infections are so rare and hard to detect, diagnosis sometimes happens after a person has died.

What is the treatment for free-living amebic infection?

Invasive infection caused by free-living amebae is often difficult to diagnose and few medications have been successful in treating patients. See your healthcare provider right way if you think you have a free-living amebic infection.

Can people with free-living amebic infection pass the illness to others?

Free-living amebic infections are not spread from person to person. There is no need to avoid contact with infected individuals.

How can free-living amebic infections be prevented?

- Assume there is always a low level of *Naegleria fowleri* infection when swimming in freshwater lakes, rivers, and hot springs.

- The only certain way to prevent infection is to avoid water-related activities in warm freshwater.

- If you choose to swim, you can reduce your risk of infection by limiting the amount of water that goes up the nose

  - Hold your nose shut, use nose clips, or keep your head above water when taking part in water-related activities in bodies of warm freshwater.
  - Avoid putting your head under water in hot springs and other untreated geothermal waters.
  - Avoid water-related activities in warm freshwater during periods when water temperatures are high.
  - Avoid digging in, or stirring up, the sediment while taking part in water-related activities in shallow, warm freshwater areas.

- When making a solution for irrigating, flushing, or rinsing your sinuses (for example, when using a neti pot, sinus rinse bottle, or other irrigation device, or performing ritual nasal rinsing), use safe water to protect yourself. Rinse the irrigation device after each use with safe water and leave the device open to air dry completely.

  - Use water that has been previously boiled for 1 minute and left to cool. At elevations above 6,500 feet, boil for 3 minutes.
  - Use a filter designed to remove some water-loving germs. The label may read "NSF 53" or "NSF 58." Filter labels that read "absolute pore size of 1 micron or smaller" are also effective.
  - Use water with a label specifying that it contains distilled or sterile water.
  - Learn how to disinfect your water to ensure it is safe from *Naegleria fowleri*.

Where can I get more information?

- Your health care provider
- Your local health department
- NJ Department of Health: www.nj.gov/health/cd/topics/fla.shtml
- Centers for Disease Control and Prevention: https://www.cdc.gov/dpdx/freelivingamebic/

This information is intended for educational purposes only and is not intended to replace consultation with a healthcare professional. Adapted from the Centers for Disease Control and Prevention and the World Health Organization.