

Safe Ritual Nasal Rinsing

Use safe water to protect yourself from a deadly brain infection.

Many tiny germs live in warm water. *Naegleria fowleri* is a water-loving amoeba (very small germ) that is often found around the world in ponds, lakes, and rivers. It also can hide in pipes connected to tap water.

Naegleria is so small, even water that looks, smells, and tastes clean can have the amoebae swimming in it. Nasal rinsing with unsafe water can lead to infection.



Many people perform ritual nasal rinsing. This practice is included in Yogic, Ayurvedic, and Islamic traditions.

Within the Islamic faith, ritual nasal rinsing is included in a cleansing process called “wudu” or “ablution.” It is usually performed several times a day in preparation for prayer.

Infections from *Naegleria* are deadly and rare.

When water tainted with *Naegleria* is sniffed up the nose, the amoeba can travel to the brain. This causes the disease **primary amoebic meningoencephalitis (PAM)**, which destroys brain tissue and usually results in death.

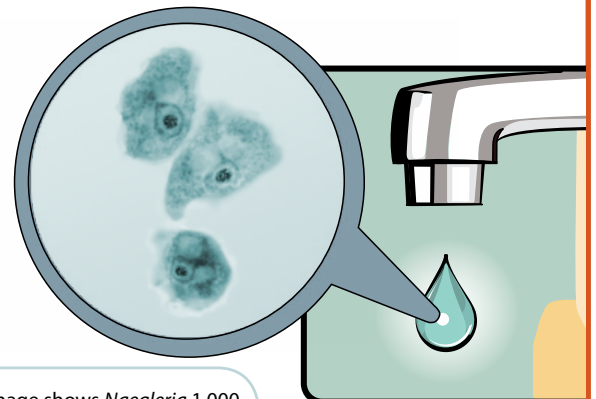
- **Infections are deadly:** Of 133 people known to be infected in the United States from 1962–2014, only three people have survived.
 - » Most *Naegleria* infections are due to swimming in warm lakes or rivers.
- **Infections are rare:** There has only been one reported infection associated with ritual nasal rinsing in the U.S.
 - » More infections linked to ritual nasal rinsing have been reported globally.
 - » Two infections have been linked to using neti pots or similar devices to rinse sinuses with salt solutions made from contaminated tap water.

You cannot get infected from drinking tainted water. You can only get PAM when contaminated water goes up into your nose.

Use safe water to protect yourself.*

Take at least one of these actions to make your water safe and lower your risk of becoming infected with *Naegleria* during ritual nasal rinsing:

- **Boil:** Use water that has been previously boiled for 1 minute and left to cool.
 - » At elevations above 6,500 feet, boil for 3 minutes.
- **Filter:** 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.
- **Buy:** Use water with a label specifying that it contains distilled or sterile water.
- **Disinfect:** Learn how to disinfect your water to ensure it is safe from *Naegleria*.
 - » Chlorine bleach used at the right level and time will work as a disinfectant against this germ.



This image shows *Naegleria* 1,000 times bigger than it really is.

Talk to your doctor if you have concerns.

Naegleria infection may be mild at first and include headache, fever, nausea, or vomiting. Later symptoms may include stiff neck, confusion, seizures, and hallucinations. The disease generally causes death within about 5 days after symptoms start.

*Learn more about *Naegleria* at <http://www.cdc.gov/naegleria/>

National Center for Emerging and Zoonotic Infectious Diseases
Division of Foodborne, Waterborne, and Environmental Diseases

