

# **Blastocystosis**

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# Blastocystosis

## (*Blastocystis* Infection)

### What is Blastocystosis?

Blastocystosis (BLAST-oh-sis-TOS-is) is an illness caused by a microscopic parasite, *Blastocystis* (also known as *Blastocystis hominis*). Once a person or animal has been infected with *Blastocystis*, the parasite lives in the intestine and is passed in feces. Because the parasite is protected by an outer shell, it can survive outside the body and in the environment for long periods in some cases.

During the past 2 decades, *Blastocystis* infection has become recognized as a common cause of waterborne disease in humans in the United States. *Blastocystis* can be found worldwide and within every region of the United States.

### How do you get Blastocystosis and how is it spread?

The *Blastocystis* parasite lives in the intestine of infected humans or animals (e.g., cats, dogs, pigs, horses, cattle). Millions of germs can be released in a bowel movement of an infected human or animal. *Blastocystis* is found on surfaces or in soil, food, or water that has been contaminated with the feces from infected humans or animals. You **can** become infected after accidentally swallowing the parasite; you **cannot** become infected through contact with blood. *Blastocystis* can be spread by:

- Accidentally swallowing *Blastocystis* picked up from surfaces (such as bathroom fixtures, changing tables, diaper pails, or toys) contaminated with feces from an infected person or animal.
- Drinking water or using ice made from contaminated sources (e.g., lakes, streams, shallow [less than 50 feet] or poorly monitored or maintained wells).
- Swallowing recreational water contaminated with *Blastocystis*. Recreational water includes water in swimming pools, water parks, hot tubs or spas, fountains, lakes, rivers, springs, ponds, or streams that can be contaminated with feces or sewage from humans or animals.
- Eating uncooked food contaminated with *Blastocystis*.
- Having contact with someone who is ill with Blastocystosis.
- Traveling to countries where Blastocystosis is common and being exposed to the parasite as described in the bullets above.

### What are the symptoms of Blastocystosis?

*Blastocystis* infection can cause a variety of intestinal signs or symptoms, which include

- Abdominal pain
- Diarrhea
- Constipation
- Gas or flatulence
- Greasy stools that tend to float
- Upset stomach or nausea

Patients also report fatigue, skin rashes, and joint pain. Some people with *Blastocystis* infection have severe symptoms, while others have no symptoms at all. In this class of disease, researchers have found that people with more severe symptoms may be infected with more virulent types of microbes, and also may have a genetic makeup which causes the microbe to produce more severe illness.

### **How long after infection do symptoms appear?**

That is difficult to say. In animal studies, symptoms of Blastocystosis appear within two weeks after becoming infected. In humans, some people may have few symptoms when initially infected, but the symptoms may become worse over a period of months or years.

### **How long will symptoms last?**

In some patients, Blastocystosis is an acute illness, meaning that symptoms will last for a short time (several weeks). In other patients, the disease may become chronic, and symptoms will last indefinitely. Researchers are working to understand why some infections produce chronic illness, while others clear on their own.

### **Who is most likely to get Blastocystosis?**

Anyone can get Blastocystosis. Persons more likely to become infected include

- International travelers.
- Close contacts (such as those in the same family or in the same household or child care setting) or caregivers of infected people.
- People who drink water or use ice made from contaminated sources (e.g., lakes, streams, shallow or poorly monitored or maintained wells). Contaminated water may include water that has not been boiled, filtered, or disinfected with chemicals.
- Children in child care settings, including diaper-aged children.
- Backpackers, hikers, and campers who drink untreated or insufficiently treated water or who do not practice good hygiene (e.g., proper hand washing).
- People who swallow contaminated water while swimming, especially in lakes, rivers, springs, ponds, and streams. Several community-wide outbreaks of Blastocystosis have been linked to drinking water contaminated with *Blastocystis*.
- People exposed to human feces through sexual contact.

## **What should I do if I think I may have Blastocystosis?**

Contact your health care provider.

## **How is a *Blastocystis* infection diagnosed?**

Your health care provider will likely ask you to submit stool samples to check for the parasite. Because *Blastocystis* can be difficult to diagnose, your provider might ask you to submit multiple stool specimens collected over a few days. Even in that case, the diagnostics may fail to detect the infection. Researchers have developed more reliable diagnostics, but those are not widely available to patients. BRF is working to make more reliable diagnostics available to patients.

## **What is the treatment for Blastocystosis?**

There is no FDA approved treatment for Blastocystis infection. Physicians have reported success in some patients with several prescription drugs, but the success rates for treatment of Blastocystis are much lower than for other diseases. Many patients remain symptomatic after treatment.

## **My child does not have diarrhea, but was recently diagnosed as having *Blastocystis* infection. My health care provider says treatment is not necessary. Is this true?**

Because treatments are unreliable, it may not be appropriate to treat an asymptomatic patient. Researchers and patients have also reported that symptoms began after antibiotic treatment, so it is possible that antibiotic treatment could make an individual case worse.

## **If my child or I have been diagnosed with Blastocystosis, should I worry about spreading the infection to others?**

Yes, *Blastocystis* infection can be very contagious. Follow these guidelines to avoid spreading *Blastocystis* to others:

1. Wash your hands with soap and water after using the toilet and before handling food. Use of a fingernail brush to clean under the fingernails may help.
2. Do not swim in recreational water (pools, hot tubs, lakes, rivers, the ocean, etc.) while you have diarrhea and for 1 week after your diarrhea stops. You can pass

*Blastocystis* in your feces and contaminate the water after your symptoms have stopped.

3. Avoid fecal exposure during sexual activity. This is especially important while experiencing diarrhea caused by *Blastocystis*.
  - Use a barrier during oral-anal sex.
  - Wash hands immediately after handling a condom used during anal sex or after touching the anus or rectal area.

If your child is diagnosed with *Blastocystis*, follow these guidelines to help your child avoid spreading *Blastocystis* infection to others:

1. Wash your hands and your child's hands after changing the child's diapers or assisting your child with toileting.
2. Do not allow your child to swim while he or she has diarrhea and for 1 week after your child's diarrhea stops.

In some diseases, public officials have recommended that children be removed from child care environments while they have diarrhea. However, because diarrhea from *Blastocystis* can last indefinitely, illness, this may not be feasible for this disease.

## **How can I prevent a *Blastocystis* infection?**

### **Practice good hygiene.**

1. Wash hands thoroughly with soap and water.
  - a. After using the toilet and before handling or eating food, especially while having diarrhea.
  - b. After changing a diaper or assisting with toileting, especially if you are caring for diaper-aged children, even if you are wearing gloves.
  - c. After touching something that could be contaminated (such as a trash can, cleaning cloth, drain, or soil).
  - d. After handling animals or their toys, leashes, or feces.
2. Assist or visually supervise young children and other people you are caring for with hand washing as needed.
3. Protect others by not swimming if you are experiencing diarrhea and for 1 week after your diarrhea stops. This is essential for children in diapers.
4. Shower with soap and water before entering recreational water. Wash children thoroughly, especially their bottoms, with soap and water after they use the toilet or their diapers are changed and before they enter the water.
5. Keep *Blastocystis* and other germs out of pools, hot tubs, lakes, rivers, the ocean, etc. by taking the following steps
  - Take children on frequent bathroom breaks or check their diapers often.
  - Change diapers in the bathroom or a diaper-changing area.

### **Avoid water that might be contaminated.**

1. Do not drink untreated water from shallow wells, lakes, rivers, springs, ponds, and streams.

2. Do not drink untreated water or use ice made from untreated water during community-wide outbreaks of disease caused by contaminated drinking water.
3. Do not swallow recreational water. For more information on recreational water-related illness, visit CDC's [Health Swimming website](#).
4. Do not drink untreated water or use ice made from untreated drinking water in countries where the water supply might be unsafe.

In the United States, nationally distributed brands of bottled or canned carbonated water and soft drinks are safe to drink in terms of *Blastocystis* contamination. Commercially packaged non-carbonated soft drinks and fruit juices that do not require refrigeration until after they are opened (those that are stored unrefrigerated on grocery shelves) also are safe.

**If you are unable to avoid using or drinking water that might be contaminated, then you can make the water safer to drink by doing one of the following:**

- Heat the water to a rolling boil for at least 1 minute (at altitudes greater than 6,562 feet [ $>2,000$  meters], boil water for 3 minutes).  
**OR**
- Use a filter that has an absolute pore size of 1 micron or smaller, or one that has been NSF rated for "cyst removal." For information on choosing a water filter, see CDC's Fact Sheet [A Guide to Water Filters](#).
- If you cannot heat the water to a rolling boil or use a recommended filter, then try chemically treating the water by chlorination or iodination. Using chemicals may be less effective than boiling or filtering because the amount of chemical required to make the water safe is highly dependent on the temperature, pH, and cloudiness of the water.

**Avoid food that might be contaminated.**

1. Use safe, uncontaminated water to wash all food that is to be eaten raw.
2. Wash and/or peel all raw vegetables and fruits before eating.
3. Avoid eating uncooked foods when traveling in countries with minimal water treatment and sanitation systems.

**Avoid fecal exposure during sexual activity. This is especially important while experiencing diarrhea caused by *Blastocystis*.**

1. Use a barrier during oral-anal sex.
2. Wash hands immediately after handling a condom used during anal sex or after touching the anus or rectal area.

**If my water comes from a well, should I have my well water tested?**

It depends. You should consider having your well water tested if you can answer "yes" to any of the following questions:

- **Are members of your family or others who use your well water becoming ill?**  
If yes, your well may be the source of infection.

- **Is your well located at the bottom of a hill or is it considered shallow?** If so, runoff from rain or flood water may be draining directly into your well and causing contamination.
- **Is your well in a rural area where animals graze?** Well water can become contaminated with feces if animal waste seepage contaminates the ground water. This can occur if your well has cracked casings, is poorly constructed, or is too shallow.

Tests used to specifically identify *Blastocystis* are expensive, difficult, and usually require hundreds of gallons of water to be pumped through a filter. If you answered “yes” to the above questions, consider testing your well for fecal contamination by testing it for the presence of coliforms or *E. coli* instead of *Blastocystis*. Although tests for fecal coliforms or *E. coli* do not specifically tell you whether *Blastocystis* is present, these tests might show whether your well water has been contaminated by feces. For more information on other germs and chemicals that can contaminate well water, see [Contaminants in Well Water](#).

These tests are only useful if your well is not routinely disinfected with chlorine, since chlorine kills fecal coliforms and *E. coli*. If the tests are positive, it is possible that the water may also be contaminated with *Blastocystis* or other harmful parasites, bacteria and viruses. Contact your local health department or your county cooperative extension service to find out who offers water testing in your area. For information on well testing, see [Well Water Testing Frequently Asked Questions](#). If the fecal coliform test comes back positive, indicating that your well is fecally contaminated, stop drinking the well water and contact your local water authority for instructions on how to disinfect your well.

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*This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider.*