

Cryptosporidium

Cryptosporidium is a parasite. This is a living thing (organism) that lives in, or on, another organism. It can infect your bowels (intestines) and cause cryptosporidiosis. This is a form of bowel infection called gastroenteritis, which leads to diarrhoea and being sick (vomiting). Infection can occur in humans and animals and is spread by contact with soil, water, food or surfaces that have been contaminated by infected stools (faeces) containing the parasite.

Young children are most likely to become infected. Symptoms usually last for up to two weeks, sometimes longer. Symptoms can be very severe in people whose immune system is not working properly. No specific treatment is needed for most people but you should drink plenty of fluids to avoid lack of body fluid (dehydration). You should not use a swimming pool for 14 days after the infection has cleared.

What is cryptosporidium?

Cryptosporidium is a parasite that can infect your bowels (intestines) and cause cryptosporidiosis. Cryptosporidiosis is an infection of your bowels (gastroenteritis) which can lead to diarrhoea and sometimes vomiting.

Cryptosporidium is a protozoan parasite. A protozoan is a microscopic, single-celled organism. Cryptosporidium can infect humans, cattle and other animals, particularly farm animals. There are two main species of cryptosporidium that cause infection in humans - *Cryptosporidium hominis* (*C. hominis*) and *Cryptosporidium parvum* (*C. parvum*).

How is cryptosporidiosis spread?

- Cryptosporidium passes out in the faeces of infected humans and animals. It can then be found in soil, water, and food, or on surfaces that have been contaminated.

- Human-to-human transmission of infection is possible – for example, by not washing your hands after changing the nappy of an infected child and then putting your hands in your mouth. This is known as faecal oral transmission.
- Outbreaks can occur within a household or, for example, within nurseries.
- Animal-to-human transmission is also possible. This is commonly through contact with infected animals in farms or zoos or through contact with infected animal dung.
- You may also become infected if you drink contaminated water. In fact, the largest outbreaks of cryptosporidiosis have occurred when drinking water becomes contaminated with sewage or manure. Adequate filtration of water is needed to remove the parasite.
- Swimming in contaminated water (for example, water from lakes or rivers) can also cause infection. Outbreaks have also occurred through swimming pool contamination, as chlorination doesn't always kill the parasite.
- Eating contaminated food is a less common way that you may become infected with cryptosporidium. For example, food that is washed in contaminated water or fruit or vegetables that are contaminated by infected manure that has been used to encourage them to grow.
- Unpasteurised milk may also be a source of infection.
- If you travel to countries which have poor sanitation, you may be at a greater risk of developing cryptosporidium infection.
- Sexual contact may also spread the infection, particularly oral sex, anal sex and finger/hand contact with partner's genital area.

What are the symptoms of cryptosporidiosis?

The main symptoms of cryptosporidiosis are:

- Watery [diarrhoea](#) with tummy (abdominal) cramps.
- Being sick (vomiting).
- [High temperature \(fever\)](#).

- Loss of appetite is also common.

Symptoms usually last around 12 to 14 days but can sometimes last for as long as one month. So, symptoms tend to last for longer than with other common causes of gastroenteritis. Also, in some people, symptoms may seem to improve and then become worse again (relapse) before the infection clears fully.

Some people who become infected with cryptosporidium actually have no symptoms, particularly if they have a healthy immune system. However, they can still pass on the infection to others. But usually infection with cryptosporidium causes a gastroenteritis-type illness. [Gastroenteritis is infection of the bowels \(intestines\)](#). It can take between 3 to 12 days after contact with cryptosporidium before you develop symptoms.

How common is cryptosporidiosis?

In 2017, South West England had the highest rate of Cryptosporidium laboratory reports in England and Wales, with 10.6 laboratory reports per 100,000 population, closely followed by the North East with 10.4 laboratory reports per 100,000 population. However, the actual number of infected people is likely to be higher, as a stool (faeces) sample may not be tested in the laboratory in all cases.

Cryptosporidium is one of the most common protozoal causes of gastroenteritis in the UK, and about 1 in 5 cases are associated with recent foreign travel.

Anyone can develop cryptosporidiosis but it most commonly affects children under the age of 5 years. Those who look after young children are also more likely to become infected. If your immune system is not working properly for some reason – for example, you are undergoing treatment for cancer or you have HIV infection – you are more likely to have serious infection.

How is cryptosporidiosis diagnosed?

Cryptosporidiosis is usually diagnosed when cryptosporidium is found in your stool (faeces) after a sample is sent to the laboratory. Occasionally, in people with a weakened immune system and a negative stool sample, cryptosporidium may be detected after a biopsy of the stomach or bowel. A [biopsy](#) is a procedure which involves taking a small sample of tissue from the body so that it can be looked at in detail.

What is the treatment for cryptosporidiosis?

Most people with cryptosporidiosis do not need any specific medication or treatment. Their immune system will usually work to clear the infection. Some studies have shown that medicines such as nitazoxanide may help clear symptoms more quickly in some people. However, this medicine is not routinely used in the UK. More evidence is needed regarding possible medicines to treat cryptosporidium infection.

If you have cryptosporidiosis, there are things that you can do to ease your symptoms and to help avoid complications while your immune system is doing the work. Most importantly, you should make sure that you drink plenty of fluids. The aim is to prevent lack of fluid in the body (dehydration), or to treat dehydration if it has developed. Once any dehydration is corrected, you should eat as normally as possible.

Fluids for adults

- As a rough guide, drink at least 200 mls after each watery stool (after each bout of diarrhoea).
- This extra fluid is in addition to what you would normally drink. For example, an adult will normally drink about two litres a day but more in hot countries. The above '200 mls after each watery stool' is in addition to this usual amount that you would drink.
- If you are sick (vomit), wait 5-10 minutes and then start drinking again but more slowly. For example, a sip every 2-3 minutes but making sure that your total intake is as described above.
- You will need to drink even more if you are dehydrated. A doctor will advise on how much to drink if you are dehydrated.

For most adults, fluids drunk to keep hydrated should include water, fruit juice and soups. It is best not to have drinks that contain a lot of sugar, such as cola or pop, as they can sometimes make diarrhoea worse.

Rehydration drinks are usually recommended in people who are frail, or over the age of 60, or who have underlying health problems. They are made from sachets that you can buy from pharmacies. (The sachets are also available on prescription.) You add the contents of the sachet to water.

Rehydration drinks provide a good balance of water, salts and sugar. The small amount of sugar and salt helps the water to be absorbed better from the gut (intestines) into the body. They do not stop or reduce diarrhoea. As with children (see below) do not use home-made salt/sugar drinks, as the quantity of salt and sugar has to be exact.

Note: if you suspect that you are dehydrated, you should contact a doctor. Symptoms of dehydration in adults include tiredness, dizziness or light-headedness, headache, muscular cramps, sunken eyes, passing little urine, a dry mouth and tongue, weakness and becoming irritable.

Symptoms of severe dehydration in adults include profound loss of enthusiasm (apathy), weakness, confusion, rapid heart rate, coma and producing very little urine. This is a medical emergency and immediate medical attention is needed.

Fluids for children to prevent dehydration

You should encourage your child to take plenty of fluids. The aim is to prevent dehydration. The fluid lost in their diarrhoea needs to be replaced. Your child should continue with their normal diet and usual drinks. In addition, they should also be encouraged to drink extra fluids. However, avoid fruit juices or fizzy drinks, as these can make diarrhoea worse.

Babies aged under 6 months are at increased risk of dehydration. You should seek medical advice if they develop infection of the bowels (gastroenteritis). Breast or bottle feeds should be encouraged as normal. You may find that your baby's demand for feeds increases. You may also be advised to give extra fluids (either water or rehydration drinks) in between feeds.

Rehydration drinks may be suggested by a healthcare professional for children at increased risk of dehydration. They are made from sachets available from pharmacies and on prescription. You should be given instructions about how much to give.

Rehydration drinks provide a perfect balance of water, salts, and sugar. The small amount of sugar and salt helps the water to be absorbed better from the gut into the body. Home-made salt/sugar mixtures are used in developing countries if rehydration drinks are not available but they have to be made carefully, as too much salt can be dangerous to a child.

Rehydration drinks are cheap and readily available in the UK and can be given to your child, but they are not essential. The most important thing is that your child drinks something. Lots of children dislike the taste of rehydration drinks – if that is the case, give your child whatever they like and will actually drink.

If your child vomits, wait 5–10 minutes and then start giving drinks again but more slowly (for example, a spoonful every 2–3 minutes). Use of a syringe can help in younger children who may not be able to take sips.

Note: if you suspect that your child is dehydrated, or is becoming dehydrated, you should seek medical advice. Symptoms of dehydration in children include passing little urine, a dry mouth, a dry tongue and lips, fewer tears when crying, sunken eyes, weakness, being irritable or lacking in energy (lethargic). Symptoms of severe dehydration in children include drowsiness, pale or mottled skin, cold hands or feet, very few wet nappies and fast (but often shallow) breathing. This is a medical emergency and immediate medical attention is needed.

Fluids to treat dehydration in children

If your child is mildly dehydrated, this may be treated by giving them rehydration drinks or other liquids. Read the instructions carefully for advice about how to make up the drinks and about how much to give. This can depend on the age and the weight of your child. If you are breastfeeding, you should continue with this during this time. It is important that your child should be rehydrated before they have any solid food.

Sometimes a child may need to be admitted to hospital for treatment if they are dehydrated. Treatment in hospital usually involves giving rehydration solution via a special tube called a 'nasogastric tube'. This tube passes through your child's nose, down their throat and directly into their stomach. An alternative treatment is with fluids given directly into a vein (intravenous fluids).

Eat as normally as possible

In children, correcting any dehydration is the first priority when they have cryptosporidiosis. However, if your child is not dehydrated (most cases) or once any dehydration has been corrected, encourage your child to have their normal diet. Do not 'starve' your child. This used to be advised but is now known to be wrong. So:

- Breast-fed babies should continue to be breastfed if they will take it. This will usually be in addition to extra rehydration drinks (described above).
- Bottle-fed babies should be fed with their normal full-strength feeds if they will take it. Again, this will usually be in addition to extra rehydration drinks (described above).
- Older children - offer them some food every now and then. However, if they don't want to eat, that is fine. Drinks are the most important and food can wait until their appetite returns.

For adults, it is also advised not to 'starve' yourself but to eat small, light meals if you can. Be guided by your appetite. You may not feel like food and most adults can do without food for a few days. Eat as soon as you are able but don't stop drinking. If you do feel like eating, avoid fatty, spicy or heavy food. Plain foods such as wholemeal bread and rice are good foods to try eating.

Preventing the spread of cryptosporidiosis to others

Cryptosporidiosis is very infectious. This means that you can easily pass on the infection to others. It is therefore essential that you adopt strict personal hygiene measures if you are infected. The following are recommended to prevent the spread of infection to others:

- Wash your hands thoroughly after going to the toilet. Ideally, use liquid soap in warm running water but any soap is better than none. Dry properly after washing. If your child wears nappies, be especially careful to wash your hands after changing nappies and before preparing, serving, or eating food.
- If a potty has to be used, wear gloves when you handle it, dispose of the contents into a toilet, then wash the potty with hot water and detergent and leave it to dry.
- Don't share towels and flannels.
- Don't prepare or serve food for others.
- If clothing or bedding is soiled, first remove any stools (faeces) into the toilet. Then wash in a separate wash at as high a temperature as possible.
- Regularly clean with disinfectant the toilets that you use. With hot water and detergent, wipe the flush handle, toilet seat, bathroom taps, surfaces and door handles at least once a day. Keep a cloth just for cleaning the toilet (or use a disposable one each time).
- You should stay off work, school, college, etc, while you have cryptosporidiosis. You should not return until you have been free of symptoms for 48 hours. Avoid contact with other people as far as possible during this time.
- Food handlers: if you work with food and develop diarrhoea or sickness (vomiting), you must inform your employer and immediately leave the food-handling area. If cryptosporidium infection is confirmed, you should inform your employer and stay away from work until 48 hours after the last episode of diarrhoea or vomiting. If your employer wants more detailed advice about when you can return to work, they should generally arrange for you to see an occupational health doctor, as your GP is only trained and insured to give general advice rather than go into the fine detail of what your work involves.
- You should not swim in a swimming pool for 14 days after your symptoms have cleared. This is because cryptosporidium can still be present in your stools during this time.

If you have cryptosporidiosis and you work with vulnerable groups of people such as the elderly, the unwell or the young, you should inform your employer.

Are there any complications of cryptosporidiosis?

As with any infection of the bowels (gastroenteritis), cryptosporidiosis can lead to lack of fluid (dehydration) and salt (electrolyte) imbalance in your body. This occurs if the water and salts that are lost in your stools (faeces) are not replaced by you drinking adequate fluids.

If you can manage to drink plenty of fluids then dehydration is unlikely to occur, or is only likely to be mild, and will soon recover as you drink. Severe dehydration can lead to a drop in your blood pressure. This can cause reduced blood flow to your vital organs. If dehydration is not treated, kidney failure may also develop. Some people who become severely dehydrated need a 'drip' of fluid directly into a vein. This requires admission to hospital.

Also, during any episode of diarrhoea, certain medicines that you may be taking for other conditions or reasons may not be as effective. This is because the diarrhoea means that reduced amounts of the medicines are taken up (absorbed) into your body. Examples of such medication are medicines for epilepsy, diabetes and contraception. Speak with your doctor or practice nurse if you are unsure of what to do if you are taking other medicines and have diarrhoea.

As mentioned above, symptoms of cryptosporidiosis can be more severe in those with a weakened immune system and can sometimes be life-threatening. The gallbladder and the pancreas gland may also become infected in such people.

One small study has also shown that *C. hominis* infection may lead to other symptoms in the two months following initial infection in some healthy people. Symptoms can include joint pain, eye pain, headaches and tiredness. It is thought that cryptosporidium infection may also cause a flare-up of symptoms in those with inflammatory bowel disease such as [ulcerative colitis](#) and [Crohn's disease](#).

Can cryptosporidiosis be prevented?

In general, good hygiene is essential to prevent the spread of many infections to others (including cryptosporidium) and to reduce your chance of picking up infections from others. Hand washing is the most important thing that you and your child can do. In particular, always wash your hands and dry them thoroughly and teach children to wash and dry theirs:

- After going to the toilet (and after changing nappies or helping an older child to go to the toilet).
- Before preparing or touching food or drinks.
- After handling raw food.
- Before eating.
- After working, feeding or playing with pets and other animals.

If you smoke, you should also wash your hands before smoking. The simple measure of washing and drying hands regularly and properly is known to make a big difference to the chance of developing many infections.

In addition to this (and particularly when travelling to areas with poor sanitation) you should avoid drinking untreated or unfiltered water. Foods washed or prepared using untreated water should also be avoided. So, avoid:

- Untreated tap water.
- Ice cream.
- Ice cubes.
- Salads and raw vegetables.
- Fruit that has already been peeled.

Also, try not to swallow water if you are swimming in lakes, rivers or swimming pools. If you are visiting a farm, make sure that you wash your hands thoroughly after contact with animals and also before eating.

The Chief Medical Officer in the UK advises that anyone who has immunodeficiency that affects a specific type of immune cell known as a 'T cell' should boil all their drinking water (even in the UK) to reduce their chance of infection. People with T-cell deficiency can include people with cancers affecting their blood, bone marrow or lymph cells and also people with HIV infection with CD4 counts less than 200. Ask your doctor if you think you may have a T-cell deficiency.

Further reading

- [Cryptosporidiosis: guidance, data and analysis](#); UK Health Security Agency.
- [Gastroenteritis](#); NICE CKS, May 2024 (UK access only)
- [Parasites - Cryptosporidium fact sheet](#); Centers for Disease Control and Prevention
- [Food handlers, Fitness to Work Guidelines](#); Food Standards Agency. 2009
- [Khurana S, Chaudhary P](#); Laboratory diagnosis of cryptosporidiosis. Trop Parasitol. 2018 Jan-Jun;8(1):2-7. doi: 10.4103/tp.TP_34_17. Epub 2018 May 28.
- [To B, Chai N, Fitzpatrick C, et al](#); Factors associated with Cryptosporidium in men who have sex with men: A systematic review. Int J STD AIDS. 2024 Aug;35(9):668-674. doi: 10.1177/09564624241249203. Epub 2024 Apr 26.

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