

What are pathogens?

A pathogen is an organism that causes disease.

Your body is naturally full of microbes. However, these microbes only cause a problem if your immune system is weakened or if they manage to enter a normally sterile part of your body.

Pathogens are different and can cause disease upon entering the body.

All a pathogen needs to thrive and survive is a host. Once the pathogen sets itself up in a host's body, it manages to avoid the body's immune responses and uses the body's resources to replicate before exiting and spreading to a new host.

Pathogens can be transmitted a few ways depending on the type. They can be spread through skin contact, bodily fluids, airborne particles, contact with feces, and touching a surface touched by an infected person.

Pathogen types

There are different types of pathogens, but we're going to focus on the four most common types: viruses, bacteria, fungi, and parasites.

Viruses

Viruses are made up of a piece of genetic code, such as DNA or RNA, and protected by a coating of protein. Once you're infected, viruses invade host cells within your body. They then use the components of the host cell to replicate, producing more viruses.

After the replication cycle is complete, these new viruses are released from the host cell. This usually damages or destroys the infected cells.

Some viruses can remain dormant for a time before multiplying again. When this happens, a person appears to have recovered from the viral infection, but gets sick again.

Antibiotics do not kill viruses and therefore are ineffective as a treatment for viral infections. Antiviral medications can sometimes be used, depending on the virus.

Bacteria

Bacteria are microorganisms made of a single cell. They are very diverse, have a variety of shapes and features, and have the ability to live in just about any environment, including in and on your body. Not all bacteria cause infections. Those that can are called pathogenic bacteria.

Your body can be more prone to bacterial infections when your immune system is compromised by a virus. The disease state caused by a virus enables normally harmless bacteria to become pathogenic.

Antibiotics are used to treat bacterial infections. Some strains of bacteria have become resistant to antibiotics, making them difficult to treat. This can happen naturally, but also happens because of the overuse of antibiotics, according to the World Health Organization (WHO)[Trusted Source](#).

Fungi

There are millions of different fungal species on Earth. Just 300Trusted Source or so are known to cause sickness. Fungi can be found just about everywhere in the environment, including indoors, outdoors, and on human skin. They cause infection when they overgrow.

Fungi cells contain a nucleus and other components protected by a membrane and a thick cell wall. Their structure can make them harder to kill.

Some new strains of fungal infections are proving to be especially dangerous, such as Candida aurus, and have prompted more research into fungal infections.

Parasites

Parasites are organisms that behave like tiny animals, living in or on a host and feeding from or at the expense of the host. Though parasitic infections are more common in tropical and subtropical regions, they can occur anywhere.

Three main types of parasites can cause disease in humans. These include:

- protozoa, which are single-celled organisms that can live and multiply in your body
- helminths, which are larger, multi-celled organisms that can live inside or outside your body and are commonly known as worms
- ectoparasites, which are multi-celled organisms that live on or feed off your skin, including some insects, such as ticks and mosquitos

They can be spread several ways, including through contaminated soil, water, food, and blood, as well as through sexual contact and via insect bites.

Diseases caused by pathogens

Pathogens can cause a number of diseases that range in severity and how they're transmitted. Let's look at some of the diseases caused by the different types of pathogens

Viruses

Viruses can cause a number of infections, many of which are contagious. Examples of viral diseases include:

- common cold
- flu
- meningitis
- warts, including genital warts
- oral and genital herpes
- chickenpox/shingles
- measles
- viral gastroenteritis, including norovirus and rotavirus
- hepatitis A, B, C, D, E
- yellow fever
- dengue fever
- HIV and AIDS

Bacteria

Here are some examples of bacterial infections:

- strep throat
- urinary tract infection (UTI)
- bacterial gastroenteritis, such as salmonella food poisoning or E.coli infection
- bacterial meningitis
- Lyme disease
- tuberculosis
- gonorrhea
- cellulitis

Fungi

Some examples of common fungal infections are:

- vaginal yeast infections
- thrush
- ringworm
- athlete's foot
- jock itch
- fungal nail infections (onychomycosis)

Parasites

Some examples of diseases caused by parasites include:

- giardiasis
- trichomoniasis
- malaria
- toxoplasmosis
- intestinal worms
- pubic lice

Protecting against pathogens

The following are ways that you can protect yourself and others against pathogens.

- Wash your hands often.
- Get vaccinated and ensure vaccinations are up to date.
- Prepare, cook, and store meat and other foods properly.
- Stay home when you're sick, especially if you have a fever or diarrhea, or are vomiting.
- Don't share personal items, such as razors or toothbrushes.
- Don't share drinking glasses or utensils.
- Protect against insect bites.
- Practice safe sex.
- Travel wisely by getting informed about health risks and special vaccinations.

Takeaway

Pathogens have the ability to make us sick, but when healthy, our bodies can defend against pathogens and the illnesses they cause.

Treatments are available for many of the illnesses caused by the different types of pathogens. There is also symptom relief for those that can't be treated, such as some viral infections.