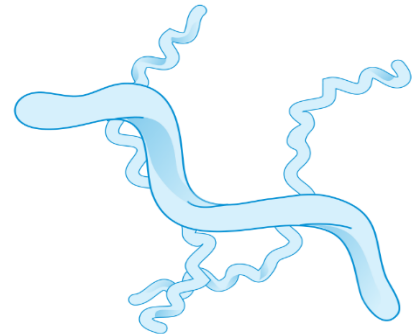
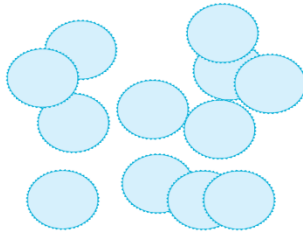
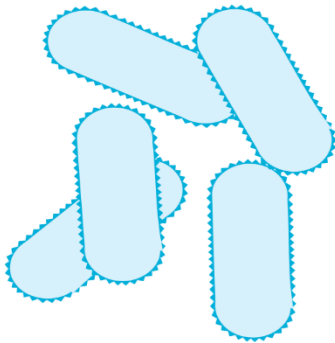


# BACTERIA



Bacteria are living, single-celled organisms that are slightly larger than a virus. They come in 3 different shapes: rods, spheres, and spirals.

Bacterial pathogens can cause many infections, food poisoning, strep throat, and tuberculosis.

Strep throat is caused by highly contagious bacteria that can be spread through the air and on surfaces. Several types of bacteria cause food poisoning, including *Salmonella* and *E. coli*, found in poultry (bird/chicken), fish, meat, and eggs.

The body hosts thousands of bacteria that play a major role in maintaining your health. A bacterial infection is eminent when these bacteria reproduce out of control and invade other parts of your body or when harmful bacteria are introduced to your system. Bacterial infections can be mild or severe. You need to know the type of bacteria present in your body to successfully treat a bacterial infection. A number of tests can be done to determine the type of bacterial infection.

*Antibiotics* are often the medicine of choice used to treat bacterial infections.

- *Broad-spectrum antibiotics* fight many types of bacteria. Tetracycline and Ciprofloxacin are examples of broad spectrum antibiotics.
- *Medium-spectrum antibiotics* target a group of bacteria; penicillin and bacitracin are popular medium-spectrum antibiotics.
- *Narrow-spectrum antibiotics* are made to treat one specific kind of bacteria. Polymyxins fall into this small category of antibiotics.

Bacteria can spread through contaminated surfaces, people, air, and more. To prevent bacterial infections, it is important to do the following:

- Maintain healthy hygiene practices (properly cleaning yourself).
- Follow directions when you prepare raw foods to ensure you cook them properly.
- Wash raw fruits and vegetables and the surfaces that come into contact with raw food or any type.
- Wash your hands clean with soap and warm water for 20 seconds or use an antibacterial cleanser after coming into contact with persons who are ill or public places.
- Clean cuts & other skin wounds with soap & water and apply an antibacterial ointment.

# FUNGI

Fungi can be found in soil, on plants, trees, and other vegetation, and on our skin, mucous membranes, and intestinal tracts. Most fungi are not dangerous, and some can even be helpful — for example, penicillin, bread, wine, and beer use ingredients made from fungi. However, some types of fungi can be harmful to health (like bacteria and viruses are) and can act as pathogens or toxins.

Fungi are living organisms that can be either single-celled yeasts or multicellular. They are slightly larger than bacteria. Often they are long, threadlike structures, but can also occur in forms like mushrooms. Fungi pathogens can cause disease such as athlete's foot, ringworm, and thrush. The symptoms of fungal diseases depend on the type of infection and location within the body. Some types of fungal infections can be mild, such as a rash or a mild respiratory illness. However, other fungal infections can be severe, such as fungal pneumonia or bloodstream infection, and can lead to serious complications such as meningitis or death. Fungi spread using agents such as wind, water, or animals through its spore's tiny reproductive cells. Some common fungal infections include tinea, athlete's foot, jock itch and Candida which can be cured (treated) using antifungal creams, shampoos and medicine.

Fungi thrive in warm, dark, and humid places. To prevent fungal infections it is best to

- make sure you thoroughly wash your hands
- practice good hygiene,
- do not share shoes,
- wear dry socks (or take off sweaty socks)
- NOT walk barefoot on locker room floors.

Athlete's foot — fungal infection



Ringworm / fungal infection



# PARASITES



Parasites are living organisms that derive nutrients from other organisms, often causing harm in the process. Think of a tick and a dog, or a mosquito biting a human.

Two serious illnesses/diseases are caused by parasites — malaria and amebic dysentery. Malaria is caused by certain protozoa, which are passed to humans through the bites of mosquitoes. Amebic dysentery is caused by a microscopic parasite called *Entamoeba histolytica*. The disease, in which the patient has nausea and diarrhea, can be contracted from contaminated food or water or from direct contact with an infected person. Because parasites are living organisms, they can generally move on their own. Once they are done feeding on one host (perhaps because that host has died) they move to the next.

Besides the obvious - avoiding direct contact with an infected person or contaminated items - there are some effective weapons for keeping parasitic diseases out of range.

## Water Guns

- Don't drink water or use ice made from lakes, rivers, springs, streams or poorly monitored or maintained wells
- Avoid swallowing recreational water in swimming pools, water parks, hot tubs, spas and fountains
- Do not swim if you are infected or are experiencing diarrhea to protect others
- Pay attention to public health department water advisories and do not drink untreated tap water during community-wide outbreaks of disease
- Heat water to a rolling boil for at least 1 minute or use a NSF-rated filter that has an absolute pore size of 1 micron or smaller if water potability is uncertain

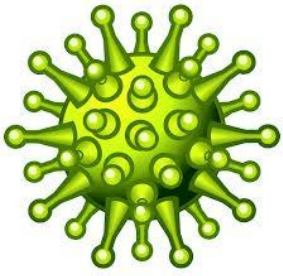
## Food Fighters

- Use uncontaminated water to wash all food that is to be eaten raw, or peel them
- Avoid drinking unpasteurized milk or dairy products
- Avoid eating food from street vendors
- Cook beef, lamb, veal roasts and steaks to 145degF; pork, ground meat, and wild game to 160degF, and poultry to 180degF in the thigh (can also freeze meat for a few weeks)
- Do not taste meat until it is fully cooked

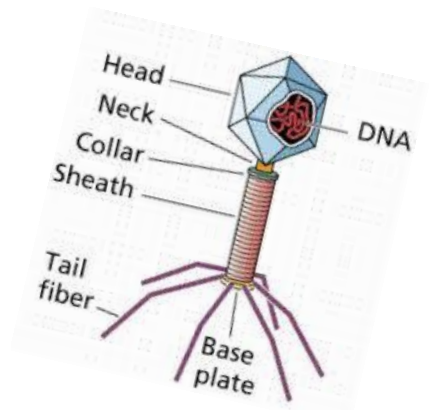
## Body Blockers

- Wash hands thoroughly and frequently with soap and water especially after using the toilet, before handling or eating food and before and after every diaper change
- Wear gloves when doing gardening or working in soil and sand
- Keep fingernails clean and short and avoid biting nails
- Avoid scratching the skin in the anal area





# VIRUS



Viruses are nonliving capsules that have no cells and store genetic material inside the capsule. They are extremely small (they are very tiny, much smaller than bacteria) visible only with electron microscopes. They are often shaped like helices, spheres and other similar shapes. Diseases commonly caused by viruses include colds, influenza (the flu), polio, AIDS, West Nile virus, STDs (sexually transmitted diseases) and more.

The most common viral diseases are transmitted (spread) through the air, on surfaces, and by contact with infected persons. Influenza is a dangerous disease that kills thousands of people worldwide every year. Other serious viral diseases include AIDS and West Nile virus. Today, more than 40 million people live with AIDS; 3 million die from the disease each year. The HIV virus that causes AIDS is spread when infected blood or body fluids enter another person's body. The West Nile virus is carried by mosquitoes and infects birds as well as humans. The disease can cause inflammation to the brain and spinal cord.

Viruses are like hijackers. They invade living, normal cells and use those cells to multiply and produce other viruses like themselves. This eventually kills the cells, which can make you sick.

Viral infections are hard to treat because viruses live inside your body's cells. They are "protected" from medicines, which usually move through your bloodstream. Antibiotics do not work for viral infections. There are a few antiviral medicines available. The best method for prevention of viruses is *vaccines*. Keep these tips (that apply to MORE than the flu) in mind:

## FLU PREVENTION TIPS





# PATHOGENS 101

