**Parasites**

Who are you taking along for the ride today? We, like all large animals, share our bodies' resources with many smaller forms of life. We are **hosts**.

We often hear that living things are interconnected. In many cases this connection is indirect, such as our dependence on oxygen produced by plants. In some cases, however, these connections are real physical ties which link one organism to another. Some of these organisms only help themselves, and hurt their host. This is **parasitism**.

**Human parasites** are organisms that live inside us so that we become their hosts. Since these parasites are unable to produce food for themselves, they depend on us for their survival. Unfortunately, parasites harm human beings because they consume our food and nutrients, they can destroy our tissues and cells, and they produce toxic waste products that can make people very ill.

It is estimated that about 50% of the U.S. population is infected with at least one type of parasite. Not all these people have symptoms; only about 25% of these individuals have active infections that are producing symptoms. Certain parts of the United States have a higher incidence of human parasite infections. This is true for areas that tend to be warmer and more humid. Also, some occupations put people at a higher risk of infection. These include electrical workers, plumbers, animal handlers, soldiers who travel abroad, gardeners, and sanitation workers.

Human parasites are just about everywhere in our environment, so it is easy to become infected. The following is just some of the ways people can acquire parasites:

• insect bites

• animal feces

• handling or eating raw or undercooked pork, beef or fish

• drinking contaminated water

• having contact with infected persons

• inhaling contaminated dust

Human parasites consist of tiny protozoa and amoebae which can only be seen under a microscope, and parasitic worms and flukes, which are larger. The small protozoa and amoebae are spread to people by air, water, food, insects, animals, and human contact. Parasitic worms are usually acquired when one ingests contaminated meat.

It is the small human parasites that pose the greatest risk to our health. These tiny protozoa and amoebae can travel from the intestines to the bloodstream, muscles, and vital organs where they can impose considerable damage on their hosts. In their resting stage or cyst stage, these parasites are very infectious. They are very small and light, so they can float in the air and become inhaled. The parasites have been linked to cancer, rheumatoid disease, asthma, diabetes, multiple sclerosis, and other diseases.

**Fleas**: In the olden days, before frequent baths and visits to the laundromat, most people had fleas with them all the time. In fact, we humans have our very own flea, *Pulex irritans*, evolved just to live with us! Nowadays, we are more often bothered by fleas from our pet dog or cat, which are from a slightly different species. During the middle ages, it was fleas from rats which spread the plague in Europe, which killed one in three people.

Fleas are very small insects. They hatch from eggs as tiny worm-like larvae, and live in your rug or carpet, eating dirt and dander (little flakes of skin you shed.) When they have grown a bit, they spin a tiny cocoon, and transform into a flea, just like a caterpillar turning into a butterfly! Then they wait until they sense the heat or vibrations of a passing host, and they hop for it. When they bite, they inject a little saliva into us to keep the blood from clotting. This causes us to itch. Since they steal our blood and are a pain, they are parasites.

**Tapeworms** are flat worms that live in a person's digestive tract. Though upsetting to think about, they usually don't cause any serious problems. Tapeworm infections aren't common in the United States and, when they do happen, they're usually easy to treat.

Tapeworms get into the body when someone eats or drinks something that's infected with a worm or its eggs. Once inside the body, the tapeworm head attaches to the inner wall of the intestines. The tapeworm feeds off the food that the host is digesting. It uses this nutrition to grow.

Tapeworms are made up of segments, and they get longer by growing new segments. Each segment can reproduce by making thousands of eggs. Since tapeworms can have more than a thousand segments, that's a lot of opportunity to spread. They can grow to more than 33 feet (10 meters) and live as long as 25 years.

New segments grow at the head of the tapeworm, pushing older segments to the end of the line, where they break off. These segments, along with the eggs they contain, pass out of the digestive tract in the host's feces (poop). If the infected feces aren't disposed of in a sanitary way — like down a flush toilet — they can get into the soil or water.

Tapeworm segments can live for months in the environment, waiting for a host to come along. Animals like cows or pigs that eat grass or nose around in the soil can pick up tapeworm segments or eggs. When the tapeworm reaches the animal's intestine, the attach-and-grow cycle begins again.

A **tick** is part of the arachnid family, which also includes mites, spiders, and [scorpions](http://kidshealth.org/kid/ill_injure/bugs/scorpion.html). A tick attaches itself to the skin of an animal and sucks blood. There are hundreds of kinds of ticks on the planet, and they can be found almost everywhere. The two types of ticks that many people talk about are the **deer tick** and the **dog tick.**

The deer tick is about the same size as the head of a pin, and it is found in many parts of the United States. One of the diseases that deer ticks can carry is Lyme disease, especially in New England and parts of the Midwest. (Lyme disease gets its name from the place where it was discovered — Lyme, Connecticut, which is in New England.)

Dog ticks are very common and can be up to ½ inch long. If you have a dog, chances are pretty good that you've seen a dog tick on its coat. One disease that this type of tick can carry is called Rocky Mountain spotted fever.

**Parasite Reading Questions**

1. What is a host?
2. What is parasitism?

1. Why do parasites depend on their host for survival?

1. What are 3 ways that parasites harm humans?
2. What are 2 ways humans can acquire parasites?
3. Why are fleas considered parasites?

1. Describe the parasitic relationship between a tapeworm and a human (where does it live, what does it do?)

1. What are 2 diseases ticks carry?