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Giardia: A Common Waterborne Disease

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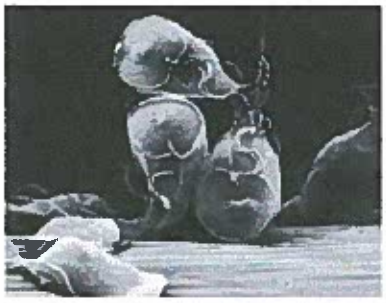
Auburn, Feb. 1 --- *Giardia*.



The name sounds disarming enough. People who don□t know better probably would confuse it with a New York airport or assume it□s the name of a popular beachside report in the Caribbean.

In fact, *Giardia* is a microscopic parasite that is considered one of the most common sources of waterborne illness.

In some cases, it even can be fatal.

Like *Cryptosporidium parvum*, a pathogen to which it is often compared, Giardia is neither a bacterium nor a virus but a protozoan with an unusually complex life cycle.

Also, like *Cryptosporidium*, it lives in the intestinal tracts of warm-blooded animals and is transmitted from host to host in the form of an oocyst, similar to a plant seed or microscopic egg.

Once the oocysts reach the intestinal tract after ingestion by the host, they excyst (or hatch) and begin subdividing and attaching to the intestinal wall.

"The result, known as giardiasis, often tends to be typical gastrointestinal symptoms, such as persistent diarrhea, weight loss, abdominal cramps, nausea and dehydration," says Dr. Jim Hairston, an Alabama Cooperative Extension System water quality scientist.

"Studies have shown it takes as few as 10 oocysts to cause giardiasis."

Symptoms associated with giardiasis typically last about two weeks, though in some cases chronic symptoms can persist for up to two months, Hairston says. Even worse, among some segments of the population, including chemotherapy and AIDS patients and others with compromised immune systems, the symptoms can last for months and even be fatal.

Surface water is especially vulnerable to *Giardia* contamination, and this explains why it is often called "beaver fever" or backpacker disease.

"Many years ago, what we now know as giaridiasis was called beaver fever, because people who drank creek water downstream from a beaver dam often got sick," Hairston says.

"Likewise, hikers and nature lovers who sample what they believe is "pure" water from a stream often end up sick because the water contains *Gardia* oocysts from grazing cattle or game animals."

Giardia also shares one other thing in common with *Cryptosporidium*: Its oocysts can survive common forms of water disinfection, such as chlorination and ultraviolet irradiation.

"The oocyst stage not only protects the organism but allows it to remain dormant for many months in stream sediments or similar moist environments," Hairston says.

That is why he and other water-quality scientists urge water treatment facilities to be especially vigilant with *Giardia*.

In fact, to safeguard against outbreaks of giardiasis, many water-treatment facilities have adopted what is known as a multiple-barrier approach.

This often involves closely managing land around surface water that supplies drinking water. Water filtration is also a key to controlling the pathogen.

"Physical removal of the organism is the only water treatment that is truly effective," Hairston says. "But as an extra precaution, this technique is often accompanied by other practices, such as chlorination and even reverse osmosis and distillation.

Unlike cryptosporidiosis, giardiasis can be treated with antibiotics.

Even so, this should not detract from the seriousness of the disease, Hairston says.

"As the old saying goes, □an ounce of prevention is worth a pound of cure,□" he says. "And that is why the best approach to controlling giardiasis is making sure you never get it in the first place."

This especially holds true for those with weakened immune systems.

People with this condition should consult with their local water treatment authority to determine the risk of giardiasis.

"In some cases, people with compromised immune systems should consider boiling their water or installing a point-of-use filter on their faucets," Hairston.

"If you choose to buy a filter, you should check the label to make sure it is equipped to treat giardiasis," he says, adding that only filters with an absolute (not minimum) pore size of one micron or smaller will ensure removal.

(Source: Dr. Jim Hairston, Extension Water Quality Scientist, 334-844-3973.)