

# Giardia - What you can't see might hurt you

Shasta-Trinity National Forest



Almost everybody, at one time or another, has reached into an ice-cold, crystal-clear mountain stream, dipped a cupful of the water and taken a long drink. If they haven't actually done it, they probably wished they could. Water from those beautiful mountain streams appears so inviting... such a delightful alternative to the stuff that comes out of the tap at home. Not only is it beautiful to look at, but it tastes good too! It seems to be an unbeatable combination. And, herein lies the problem: it's what you CAN'T SEE in that cup of water that can hurt you.

One drink of that water might expose you to **GIARDIASES** (gee-ar-DYE-a-sis). When ingested, this water-borne, microscopic protozoan parasite called *Giardia lamblia* can cause severe discomfort. Using human beings as a host, it attaches itself to the upper small intestine of the carrier, with symptoms developing in ten to thirty percent of those infected. Symptoms range from diarrhea (the most common), fatigue, high levels of intestinal gas, cramps, nausea and loss of appetite. These discomforts may first appear a few days to a few weeks after ingestion of giardia and may last up to six weeks. Most people are unaware that they have been infected and have often returned home from vacations before the onset of symptoms. If not treated, the symptoms may disappear on their own, only to recur intermittently over a period of many months. Other diseases can have similar symptoms, but if you have drunk untreated water and suspect giardiasis, please see your physician for treatment.

## Proliferation

It is estimated that three to seven percent of the adult population of the United States harbor this parasite. In the late 1970s, giardia began appearing in California, predominantly in the southern and central Sierra region. The parasite is transferred from region to region by forest visitors and to a lesser extent, by domestic pets

and livestock. The major mechanism of contamination of streams and lakes is deposition of contaminated fecal matter adjacent to water sources. Some believe that bottles and canteens filled from contaminated streams are emptied into other streams when freshening the contents of the utensils.

Once a stream is contaminated, humans, pets, livestock, and wildlife, especially beavers, act as hosts to facilitate the spread of the parasite. The protozoa will survive in cold water (below 40° F) for up to three months. When a water source has been contaminated, the cycle from water to host, and back to water, can go on indefinitely. The protozoan seems to reproduce only within the host animal.

## Prevention

There are several ways to treat water to make it safe to drink. The most effective treatment is to boil it for at least five minutes at a rolling boil, longer at higher altitudes. Boiling also destroys other water-borne organisms that cause diseases. Chemical treatment with iodine or chlorine effectively kills bacterial organisms, but will not reliably kill the protozoan giardia. Halogen agents offer a degree of protection with extended treatments. Filters designed to eliminate giardia are available, but exercise care in storing filters to prevent the contaminated parts from contact with the clean water outlet. Containers can also be contaminated by rinsing prior to holding filtered water.

Protecting others is very important. Anyone can be a carrier without knowing it or showing significant symptoms. Feces and toilet paper should be buried 8 inches deep and at least 200 feet away from water, campsites and trails. The protozoa can be readily transmitted between humans and animals, Dogs, like people, can be infected, and unless they are carefully controlled, they can contaminate the water and continue the chain of infection. Their inclusion in your travel plans should be carefully considered for this reason.



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