

United States  
Environmental Protection  
Agency

WATER



# DON'T DRINK THE WATER

*Until You  
Have Read  
This . . .*



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During the past few years, increasing numbers of campers, backpackers, anglers and hunters have been stricken with waterborne diseases because they drank water straight from streams, springs or lakes. Even though the water appears to be sparkling clean and pure it may contain microorganisms which cause disease.

One particular organism common in many waters is *Giardia lamblia*. This parasite has been found in many wild and domestic animals; therefore, it can be present in wilderness areas regardless of whether there are humans in the area.

The organism is transferred between animals and humans by means of excreted fecal material. If the infected animal or human defecates in or near a stream the organisms are then spread through the water. Beavers are very prevalent in the transmission of *Giardia*. Their aquatic habits insure a steady supply of the parasites to the water. Since the organisms can survive in water for at least two months, the problem is not limited to particular times of the year or sections of streams.

Drinking water containing a few of these parasites causes giardiasis, a severe gastrointestinal disorder which results in acute diarrhea, vomiting and loss of appetite. These conditions can result in serious dehydration of the body which can be a problem if you are in the wilderness.

"An ounce of prevention is worth a pound of cure," and in the case of giardiasis the best prevention is not to drink naturally occurring water regardless of how pure it looks. This means that you must either carry all your own water or disinfect the water before drinking it.



Of course, carrying your own water is not a good alternative if you plan to be out for any length of time, but several methods are available for making water safe to drink. These are boiling, homemade disinfectants and commercially prepared disinfectants. The use of commercially available filters for water purification is discouraged since most of the devices do not filter out particles small enough to eliminate *Giardia*, or other smaller organisms.

Boiling kills *Giardia*, bacteria and viruses. Research has shown that at sea level, boiling water for one minute effectively eliminates these hazards. However, at higher altitudes water boils at lower temperatures. When you are in the Rocky Mountains, for instance, longer boiling times should be observed. (i.e., 15 minutes at 10,000 feet).

The table below lists the various disinfectants available and the recommended dosage per quart of water. The use of saturated iodine (made by dissolving iodine crystals in water) is not recommended because it does not kill all of the *Giardia* organisms in cold water.

Remember, although it may be inviting to dip a cup of water from a clear, fast flowing mountain stream, you may regret it later. The best rule to follow is to disinfect all water when in the back country.



#### Water Disinfection Methods

Disinfectant	Quantity per Quart of Water	Waiting Time Before Drinking
Chlorine Tablets	5 Tablets	30 Minutes*
Household Bleach	4 Drops	30 Minutes
Iodine Tablets	2 Tablets	20 Minutes*
2% Tincture of Iodine	10 Drops	20 Minutes
Saturated Iodine	Not Recommended	

\*When using tablet, the waiting time begins after the tablets are dissolved.

