

**IS THE
WATER SAFE?**

**READ THIS
BEFORE
YOU DRINK.**



IS THE WATER SAFE?

THINK BEFORE YOU DRINK.

THE HIDDEN HAZARD.

We hope your visit to your National Parks will be enjoyable. . .and it will be if you avoid hazards encountered in the great out of doors. One hidden hazard you should know about is a disease obtained from drinking untreated "natural" water. It is an intestinal disorder called Giardiasis (Gee-ar-DYE-asis), and its effects on you can be quite severe. The disease is caused by a microscopic organism, Giardia lamblia.

Giardia are carried in the feces of humans and some domestic and wild animals. The cysts of *Giardia* may contaminate surface water supplies like lakes, streams, and rivers. These natural waters may be clear, cold, and free-running. They can look, smell, and taste good. You may see wildlife drinking without hesitation from these sources. All of these indicators sometimes mistakenly lead people to assume that natural water is safe to drink. In spite of all that, *Giardia* may **STILL** be present; so for your own protection, all natural waters should be suspected of harboring this organism. 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.

THE DISEASE—SYMPTOMS AND TREATMENT.

While Giardiasis can be incapacitating, it is not, as a rule, life threatening. Following ingestion by humans *Giardia* attaches to the wall of the small intestine. Disease symptoms usually include diarrhea, increased gas, loss of appetite, abdominal cramps, and bloating. Weight loss may occur from nausea and loss of appetite. These discomforts may first appear a few days to a few weeks after ingestion, and may last up to six weeks. Most people are unknowingly infected and have often returned home from vacations before the onset of symptoms. If not treated, the symptoms may resolve on their own, only to recur intermittently over a period of many months. Other diseases can

have similar symptoms, but if you drank untreated water you should suspect Giardiasis and so inform your doctor. With proper diagnosis, the disease is curable with medication prescribed by a physician.

PROTECT YOURSELF.

There are several ways for you to treat raw water to make it safe to drink. The most certain treatment to destroy Giardia is to boil water for at least one minute. While Giardia is killed at temperatures below boiling, even at high altitudes, heating water to a full boil for one minute avoids the need for a thermometer to measure water temperature. Boiling will also destroy other organisms causing waterborne

disease, although at high altitudes you should maintain the boil 3 to 5 minutes for an additional margin of safety.

Chemical disinfectants such as iodine or chlorine tablets or drops are not yet considered as reliable as heat in killing *Giardia*, although these products work well against most water-borne bacteria and viruses that cause disease. Until current research determines the optimal amount of chemical and duration of contact time at various temperatures that will kill *Giardia* certainly, chemicals cannot be recommended for routine disinfection of water for *Giardia*. In an emergency where chemical disinfection is necessary, use an iodine-based product, since it is more effective than chlorine under certain water conditions. If possible, filter or strain the water first,

and then allow the iodine to work at least 30 minutes before drinking. If the water is cold or cloudy, wait at least an hour, or use additional iodine.

For short trips, take a supply of water from home or from other treated domestic sources. 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 small organisms.

PROTECT OTHERS.

Giardia can be readily transmitted between humans and animals. Dogs, like people, can become infected with *Giardia*. Unless they are carefully controlled, dogs can contaminate the

water and continue the chain of infection from animals to humans. Feces (human or animal waste) can contain the organism. Waste should be buried 8 inches deep and at least 100 feet away from natural waters.

When you no longer need this brochure, please give it to someone else who can use the information. They will thank you.

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