



Rogers Law: After a diligent search in the gathering dusk, you finally find the water source listed in the guidebook. It is, of course, quite dry.

The moral - Be self sufficient ! Be safe !

An adult's body is 62% water. A 140-lb person is 84-lbs water !

The average person loses 3 to 6 liters per day. Your weight divided by 16 = the minimum number of glasses of water to be drunk each day. Strenuous activity, heat, or cold will increase this dramatically !

As the Camelback™ advertisement says "Hydrate or die."

90% of the surface water in the US carries such protozoa as Giardia and Cryptosporidium.

When you first notice you are thirsty, you are already at least 1-liter low; the thirst mechanism kicks in late.

Early symptoms of needing water may include mild headache and being tired. As you become more dehydrated you may experience disorientation, irritability, rapid pulse, and feeling completely pooped. Cramps may be a warning sign of low fluid stores.

Remember that a clear hiker is a healthy hiker. The yellower and darker your urine, the more you need to replace expelled water. You should "go find a tree" not less than five times daily.

NOTE: Taking a B-vitamin supplement may also cause yellow urine.

Adequate water intake reduces the risk of frostbite.

Cold water is absorbed into your system more quickly than lukewarm or warm water.

All backcountry water should be considered unfit for consumption. **When it doubt - boil, treat, or filter your water. Always be in doubt.**

Boiling. Old literature usually stated to boil your water for 5-10 minutes. Most current literature says to bring water to a rolling boil. Some articles say just to get it 'good and hot' - how do you measure 'good and hot ?' Boiled water may taste flat. To refresh it, leave some air room at the top of your water bottle and shake vigorously to get some air back into the water.

Treating. The most common form of water treatment is some form of iodine treatment. Remember, those who are pregnant, are nursing an infant, or have a thyroid problem, should consult their doctor before using iodine to treat water. Those allergic to

iodine or seafood should, of course, not use iodine. Read labels carefully. If you use tablets for water treatment, ensure the tablets kill giardia, the nasty cyst that can really make you sick. Time required for tablets to do their work varies with water temperature and clarity. Tablets are hygroscopic; i.e., they absorb moisture. Once opened, the bottle should be replaced before the next hiking season. Keep bottles tightly capped ! Read and follow directions ! Other iodine treatment systems are available. Thoroughly read specifications, directions, and warnings. Potable Aqua™ uses a type of iodine, as do many purifiers. Potable Aqua™ offers P.A. Plus Neutralizing Tablets to remove the iodine taste and coloration. A tea bag or bit of lemon juice help take away that iodine taste.

Filters/Purifiers: Filters filter out all but viruses and cryptosporidium. Some filters will filter cryptosporidium. Purifiers kill viruses with iodine. Boiling kills cryptosporidium and everything else and is the most effective way to purify water. Be careful of what you buy - read everything !!!

A myriad of water filters and purifiers are on the market. One of your best sources of comparison data is the annual March issue of Backpacker Magazine™, known as the 'Gear Guide,' on newsstands in February. Comparison tables are sometimes available at outfitter stores, and in other periodicals. A filter must filter to one micron absolute, and should really filter down to 0.2 microns to remove bacteria. Most filters will remove giardia cysts, bacteria and protozoa, none will remove viruses. Only purifiers, with iodine, can do that. Know the equipment, read the specifications, and compare, compare, compare. Buy the best you can afford - it's your health. Some can be cleaned, some have replaceable cartridges. After a trip, flush your equipment with a solution of ½ teaspoon chlorine bleach to 1 gallon of water. This prevents growing things when it is in storage in a nice warm, dark, drawer or closet. **Make sure to thoroughly rinse the equipment before its next use.** Some have outlets tubes or fittings that connect directly to your water bottle, others require four hands to use. When putting your gear back in your pack, make sure that the inlet tube (contaminated) is not packed right alongside the outlet tube (that goes into your water bottle). Gross filters are available for the inlet end of the system, and a pre-filter can be installed between the gross filter and the main cartridge. Both help to prolong the life of the main cartridge. Read specifications and directions before you buy. Know what you are buying - it's your money and your health. Once you buy it - carry it !

Water Bottles. Anything that held a food product may be used as a water bottle (soda bottles, peanut butter bottles, etc.). Use plastic - not glass. When you decide to buy a water bottle, make it a wide mouth bottle. That way, after you make chocolate pudding or a powdered sport drink, it can be easily washed. Also, you can hang a tea bag inside a wide mouth bottle and make slosh tea while you hike.

Bladder. A bladder system like a Camelback™ or Platypus™, with a tube and mouthpiece, is convenient to use while hiking, biking, and canoeing/kayaking, and well worthwhile. But, remember that the tube and mouthpiece will freeze first. Dry the tube and bladder thoroughly after you arrive back home.

Camel Up. Many hikers "camel up" during breakfast to ensure adequate water in the system after a night of sleep. To "camel up" is to simply drink a liter or so of water during breakfast, and before starting out on the trail.

Caffeine. Caffeine is a diuretic, causing the body to excrete, not retain fluids. When drinking tea or coffee on the trail, drink extra water to make up for what caffeine will do.

Vasoconstrictors. Coffee and tobacco are vasoconstrictors. They temporarily narrow blood vessels, causing reduced blood flow and a quicker chill.

Alcohol. Alcohol dehydrates the system, fast forwards dehydration, and promotes heat exhaustion.

Food. Drinking too much water without eating can also be dangerous and can lead to hyponatremia (water intoxication). When hikers do not eat enough, they lose electrolytes and sodium. So stay balanced; drink that water, and eat those snacks.

Planning. Plan your trip around known, dependable water sources. But don't get caught short if a planned water source turns out to be quite dry. Guide books are not always correct - times, climatology, and the environment do change.

Make sure water being carried is carried conveniently. If the water bottle, or bladder tube, cannot be easily reached, or is tucked way inside the pack, it won't be used except at major breaks when the pack comes off. Then you will drink too much, too fast. You should start sipping water right after breakfast, and continue sipping all day long. Drinking a half or a full canteen along with lunch puts a lead basketball in your stomach.

Your Responsibilities. Now, go find some good backpacking and hiking books and do some serious reading about water, water containers, and water treatment in the backcountry. The March edition of Backpacker Magazine is the "Gear Guide." Check it for water purification data.

Leader Responsibilities. Ensure folks carry the required amount of water and water treatment equipment. Know where agricultural runoff may feed into the stream or river carrying pesticides, fertilizer, and animal waste with the runoff.

Depending upon weather, trip duration, and the ruggedness of the trip, decide how much water each person must carry - and enforce your decision. It's much better to have a bit extra than to come up a bit short.

Be observant. Know who is or is not sipping at their water. Set the example by sipping often; encourage others to do the same. At breaks, make sure all tap that water bottle.

Know the signs, symptoms, and treatment for dehydration, heat stroke, and heat exhaustion.

Refer to the TATC Education Handouts titled: "ACTIVITY LEADER POCKET GUIDE," and "LEADERSHIP STYLES."

Urination. You should tinkle 4-5 times daily. Tinkle on rocks or mineral dirt where possible. This prevents animals from digging for excreted salts. *Remember the Konnarock Crew motto - clear and copious.*

Summary. This little data sheet is only a starter. It cannot possibly contain all the information a activity leader, or participant, should know. This is just a quick reference and reminder sheet to get you started. Refer to the TATC Education Handout titled: "WATER TREATMENT EQUIPMENT DATA."

*Of all the problems I've seen on the trail,
not carrying and drinking enough water is right at the very top of the list.*

It's much easier to haul an extra liter of water than to carry out an ill hiker.