Water: How much should I drink?

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As a Chiropractic physician, I find 30-50% of my patients that enter my office with back, joint, and nutritional concerns are either dehydrated or under-hydrated. Usually, they present with tight or rope-like muscles, pain or stiffness in the lower back or neck, headaches, and fatigue. Testing of the kidney meridian will be weak. A gentle tapping over the kidneys in the lower back usually does not feel uncomfortable for patients when properly hydrated but may actually be painful when they are dehydrated. Muscles will be inflexible and the range of motion is usually limited. The bottom line is that lack of good hydration either increases the risk of back pain or slows recovery time after treatment.

Water is essential for every cell in your body to function properly. Your body is made mostly of water: nearly 60% to 70%. The brain is 80% water.

Water in the body:

1. Is needed by every cell of the body to maintain function
2. Regulates body temperature
3. Protects body organs and tissues
4. Lubricates joints
5. Dissolves minerals and other nutrients to make them accessible to the body
6. Carries nutrients and oxygen to the cells
7. Flushes out waste products from the organs and blood
8. Moistens the tissues such as mouth, eyes and nose

Dehydration, the lack of proper replacement of water that is lost from the body, can lead to coma and death.
When your body is not properly hydrated, it will send signals to the brain and cause some of the following symptoms:

- Headache
- Thirst
- Muscle weakness
- Dizziness
- Lightheadedness
- Fatigue
- Inability to concentrate - especially for kids. Mental performance deteriorates progressively as the degree of dehydration increases**.**

Severe dehydration may be life-threatening. Symptoms may include:

- Confusion and irritability in adults, and sleepiness and irritability in children
- Little or no urination
- Low blood pressure with rapid heartbeat
- Fever
- Loss of consciousness

Long-term dehydration may lead to:

- Constipation
- Increased chance of urinary tract infection
- Kidney stones

Note: thirst is not an accurate indicator of water needs. Many times you may be well on the way to becoming dehydrated before thirst even signals the need for water. Thirst does not usually increase until dehydration results in 0.8 – 2 percent loss of body weight.

So how much water does the, average healthy adult living in a temperate climate like Seattle's need to drink?

It depends -- most recommendations suggest **8-9 eight-ounce** glasses per day. But there are many factors that influence how much you may need to drink each day. These include gender, age, activity level, and environment. Here are some ways for you to calculate your water needs:

- **The replacement approach**:
  The average urine output for adults is about 1.5 liters per day (about 6 cups). You lose (in a normal day) an additional liter (about 4 cups) of water a day through sweating, breathing, and bowel movements. Total = about 2.5 liters/day

  Food usually accounts for 20-30% of your daily intake of water, so if you drink 2 liters of water each day (a little more than 8 cups) along with your normal diet you will replace the water lost.

- **The 8x8 rule:**
  Another approach is to drink 8 glasses, each filled with 8 ounces of water, per day (about 1.9 liters). Easy as it is to remember, it is not backed by research.

- **By diet:**
  The Institute of Medicine advises that men consume about 3 liters (about 13 cups) per day and that women consume about 2.2 liters per day (about 9 cups)

- **Urine color: (the easiest to remember)**

  Perhaps one of the easiest ways to test if you are drinking enough water is by the color of your urine. Urine should be either clear or the color of pale straw. If it is dark-colored or amber (note that B vitamins may turn urine bright yellow), you are dehydrated. This is a great method to use in order to teach your children to drink more water each day.

Factors that influence water needs:

- **Environment**: Hot or humid weather can make you sweat and requires the intake of more water. Heated indoor air can also cause your skin to lose moisture in winter. Altitudes higher than 8,200 feet may influence water needs. Urination and more rapid breathing at these altitudes use up more body fluid.

- **Illness and disease**: When you're sick and your body temperature goes up, you lose more fluid. Fever or vomiting also adds to water loss. Diabetes and heart disease require a larger intake of fluid also.

- **Medication:** Heart medication, diabetes medications, antidepressants, allergy and cold remedies, as well as others, require a greater intake of water each day.

- **Pregnancy and breastfeeding:** Expectant mothers or those that are breastfeeding need a lot more fluid to stay hydrated. Most recommendations are for women to drink 2.3 liters (10 cups) of fluid daily. Women who breastfeed consume 3.1 liters (about 13 cups) of fluids per day.

- **Alcohol:** Alcohol may severely dehydrate the body, as well as use up needed minerals and electrolytes.

- **Children:** As their bodies grow and develop young children, need a larger amount of water in proportion to their body weight. The standard recommendation for children is at least 6-8 glasses (1.5-2 liters/day), spread out during the day, including at least 3-4 eight-ounce glasses per day at school.

During times of increased exercise you may require even more rehydration. For a 10-year-old child weighing 30kg (pounds), one to two large glasses of water weight are lost during a typical PE class or from running around the playground while on break.

By the time children feel thirsty, their mental performance may have deteriorated by 10% -- with attention, concentration and memory all being adversely affected.

The Institute of National Academies includes a separate category for **boys aged 14 and ove**r, who require a higher average fluid intake of 2.6 liters per day (about 11 large glasses).

Sweating: How Your Body Keeps Cool

All levels of dehydration reduce exercise capacity and endurance. Physical activity can raise the body temperature by as much as 3 degrees. Your body keeps cool by sweating. If the water is not replaced, dehydration occurs and serious problems arise.

Let's use a car as an analogy. When your car's cooling system is running, it transfers heat from the engine to the water surrounding it, which then goes to the radiator to be cooled by air. If there is not enough water in the system, the engine overheats and the car stops running. The car may "die" for good as the engine block seizes up melts.

Now imagine your body as the car and the cells of your body and muscles as the engine. Your skin acts as the radiator, with the blood vessels are the hoses of your body. As your body heats up with exercise, the blood shunts the excess heat to the skin and evaporation of sweat cools the skin and blood vessels down, continuing the cycle of cooling while lowering your body temperature. Additional water is lost through breathing. Just the same as with your car, if your body runs out of water, it overheats and runs into serious problems.

Did you know that swimmers lose only about 1 liter of sweat during a typical training session? The cooler water reduces the sensation of sweating and swimmers lose less due to cool water conditions.

Water loss of 4-5% causes a decline in performance of 20-35%. Even a loss of 2% body fluid will decrease performance. The bottom line is: You need to replace the same amount of water that is lost through activity. Remember that thirst is not the trigger for drinking. Scientists agree that athletes performing a hard workout lose 1-2 liters per hour. You need to drink before, during and after exercise. Drink 16 ounces (about 2 cups) one hour before exercise followed by about 1 cup ½ hour before. Then drink ½ to 1 cup every 20 minutes. Outside air temperature, body weight, and the difficulty of the exercise may require that you drink even more.

**Drinking over a set period of time is more effective for complete replacement of fluids. If you drink too rapidly, urine production is stimulated, reducing body water retention.

Can I drink too much water?

Yes, if you drink too much fluid, thereby diluting the body's sodium level, you may create a condition where electrolytes are out of balance. When we sweat, we lose salt and minerals, as well as water. Drinking beverages containing electrolytes or taking trace mineral supplements will offset the loss of salt and minerals through sweating.

In hot weather or during modest exercise, it is recommended that you add a pinch of sea salt (about ½ teaspoon) to a liter of water in the morning to make up for salt loss from sweating. Sea salt, such as Celtic sea salt, retains the natural mineral balance of salt. Otherwise, sport drinks will help to replace needed electrolytes (although most have too much sugar).

How much water should my dog drink?

A general rule of thumb is that an animal needs to consume 2.5 times the amount of water as its daily intake of food. If an animal eats 2 lbs. of dry food, it should consume 5 lbs. of water (there are 8 lbs. in a gallon). For 8 ounces of dry food, a dog should drink 20 ounces or 2½ cups. Excessive heat or exercise means much more water needs to be consumed. Our pets don't have efficient ways of cooling themselves. Body temperature can climb rapidly when pets are overheated or dehydrated.