

OPTIMAL HEALTH UNIVERSITY™

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Hydration: Key to Spinal Health and Overall Wellness

Chances are you're familiar with the admonition to drink an adequate supply of water. But do you know the science behind this advice? What exactly does water do for our bodies?

Plenty, says your doctor at Duluth MultiCare. Among other important functions, adequate water consumption is crucial for spine health.

Why the Body Needs Water

Water is the main component of the body. It is integral to every cell, tissue and organ. Water is required for basic physiological processes like the circulation of blood, digestion of food, elimination of waste and regulation of metabolism. Water is also critical for the distribution of nutrients and removal of toxins.

Hydration and the Spine

The spine takes an especially hard hit when the body is dehydrated. The spine requires ample water to maintain and repair healthy tissue and to keep joints lubricated.

Your doctor at Duluth MultiCare ex-



plains to patients that the importance of water to spinal function is most obvious in the *intervertebral discs*. These cushion-like structures lie between spinal bones (vertebrae).

Intervertebral discs facilitate the back's range of motion. They also protect the spine by absorbing the physical impacts of daily activity. In addition, they prevent vertebrae from rubbing against each other.

Each disc has a protective outer layer made of collagen and fibrous tissue. Inside the disc is a gel-like substance comprised of a large proportion of water. The quantity of this water-based substance is a key factor in how well the disc functions.

When fluid levels in intervertebral discs are low — in other words, when the discs are dehydrated — they are less able to absorb shock. The extra stress must be borne by other parts of the back, including ligaments, joints and muscles.

This degeneration of the discs reduces spine mobility — triggering a common condition called *vertebral subluxation*. This occurs when spinal bones become slightly misaligned or movement is restricted. Vertebral subluxations are linked with a vast array of disorders.

Fortunately, regular chiropractic care prevents vertebral subluxations and



related disorders. Your doctor at Duluth MultiCare corrects and prevents vertebral subluxations with gentle and effective maneuvers called *chiropractic adjustments*.

Dehydration and Back Pain

The connection between degeneration of intervertebral discs and vertebral subluxations is one link between dehydration and back pain. In addition, dehydration leads to loss of mobility and increased stress on joints and ligaments.

While some people with disc degeneration experience little to no discomfort, for many, it leads to chronic pain (*Spine* 2000;25:487-92).

Disc degeneration can trigger or accelerate the development of osteoarthritis in the spine, a potentially disabling inflammatory condition in which cartilage and bone degrade, causing pain and stiffness (*Iowa Orthop J* 1998;18:1-11).

Another explanation scientists have posited for the pain of disc degeneration involves the actual components of the disc. It suggests that as the disc breaks down, it leaks materials that sensitize pain receptors in nerve ending within the spine (*Pain Pract* 2008;8:18-44).

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Other Effects of Dehydration

Besides being destructive to the spine and triggering vertebral subluxations, dehydration has a plethora of other foreboding health consequences.

Even short-term, mild dehydration — defined as a loss of one to two percent of the body's optimal volume of water — has several immediate detrimental effects.

Research conducted by the United States Army looked at the effect of mild dehydration on physical performance. Findings showed that in temperate climates (68 degrees Fahrenheit or 20 degrees Celsius) mild dehydration decreased physical performance by eight percent (*J Appl Physiol* 2009;107:379-88).

Mental functioning also suffers. Studies show that mildly dehydrated individuals report being less alert and prone to fatigue and headaches (*Eur J Clin Nutr* 2003;57:S19-23).

Additional research shows that mild dehydration also impairs short-term memory (*Nutr Rev* 2005;63:S6-13).

Long-term dehydration is even more serious. Researchers link it to painful conditions like kidney stones, urinary tract infections and constipation. Dehydration can also lead to asthma, hypertension, blood clots, strokes, coronary heart disease, cystic fibrosis and complications from diabetes.

During pregnancy, dehydration brings risks to both mother and child through deficiency of amniotic fluid. It may also prolong labor (*J Am Coll Nutr* 2007;26:535S-541S).

Some investigations also show a correlation between chronic dehydration and cancers of the breast, colon and urinary tract (*J Am Diet Assoc* 1999;99:200-6).

Seniors at Greatest Risk

In recent years, researchers have detected a particular epidemic of dehydration among older adults. One study of over 2,000 adults aged 65 and older revealed that water consumption de-

creases with age and that, for this age group, coffee is the major source of water intake (*J Gerontol A Biol Sci Med Sci* 2009;64:481-6).

In another investigation, 48 percent of older adults living in long-term care facilities who were admitted to emergency rooms were dehydrated (*Am J Nurs* 2006;106:40-9).

How Much Water Do You Need?

Every day, your body naturally loses water through excretion, perspiration and vapor expelled during respiration. By taking in enough water to replace what goes out, you can maintain an optimal level of hydration.

There are varied recommendations on how much water to drink daily. Eight glasses per day (64 ounces or 1.9 liters) is commonly suggested. A paper presented at the 2006 Asian Congress of Dietetics in Manila recommends a more generous 2.7 liters (91 ounces) for adult women and 3.7 liters (125 ounces) for adult men.

Athletes, people who work or live in warm environments and individuals whose work involves physical labor may require even more hydration. Ask the doctor to recommend a level of water intake for your specific needs.

A simple way to check your body's hydration level is to look at the color of your urine. A pale yellow color indicates healthy hydration, while darker yellow means that you should drink more water. (Dark urine may also be a warning sign of some diseases, including liver problems.)

It's important to remember that caffeinated and alcoholic drinks are diuretics, meaning that they force water out of the body more quickly. So, limit your consumption of caffeine and alcohol.

Also, while sports drinks and sodas may quench your thirst, they are rife with high fructose corn syrup, artificial sweeteners and other chemicals. All in all, pure water is the healthiest way to satisfy your body's hydration requirements.

What's the Best Source?

Municipal water supplies and well water may contain dangerous levels of toxins. Many bottled waters are from sources that are just as tainted, if not more so, than municipal supplies. In addition, toxic chemicals from plastics may cleave into bottled water.

Investigate the safety of your water source. Also, consider having a reputable water filter installed in your home.

Stay Hydrated, Stay Healthy

Our chiropractic office is committed to teaching patients how to achieve optimal spinal health — as well as optimal overall health. To this end, we focus on helping patients create comprehensive strategies aimed at creating wellness in their lives. Drinking adequate water is an essential part of this approach to holistic living and vitality.

Do you want to learn more about the all-natural chiropractic approach to wellness? Schedule an appointment for a chiropractic evaluation today!



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