

most common waterborne problems in the United States are Giardia, Cryptosporidium, and E Coli. Salmonella, Hepatitis A, and a dozen more threats abound in other countries. Developing countries also battle minute waterborne viruses such as polio. Virus control requires filter purification, boiling or chemical treatment.

- Chemically disinfecting water destroys most viruses, bacteria, Giardia, amoeba cysts and protozoa. Just a few drops of iodine, for example, can purify gallons of water. But chemical treatments such as iodine can leave a strong, metallic taste in water. Their effectiveness also depends on water temperature and the amount you are purifying. To avoid chemicals like these building up in your body, using them as infrequently as possible is a good rule.<sup>11</sup>

- Nature distills water through evaporation and then condenses it into rain. Contamination can occur, however, as rain passes through our polluted atmosphere. Distilling water removes inorganic minerals as well as microorganisms, chemicals and toxins. Water high in inorganic minerals (labeled “hard” water) becomes “soft” as these minerals are removed. Buildup of minerals in the body can eventually cause health problems.<sup>12</sup> Solar distillation has been used in warmer climates, while slow freezing is standard practice in colder latitudes to produce fresh water from salt water. Reportedly, the ice crystals from slow freezing will have very little contamination.

Purifying water is not a black and white issue. So learn what types of contamination are likely where you live, what decontaminating options are available, and the pros and cons of these methods.

## Irrigate

**W**e must do our best to ensure the best quality of water, and then drink! In most cases the health hazards we face from not drinking enough water are greater than those from possible contaminants in our water supply.

Heart disease, for example, kills many more people than water pollution, at least in developed areas. Research has shown that “drinking high amounts of plain water is as important as exercise, diet, and not smoking in preventing coronary heart disease.”<sup>13</sup> Jacqueline Chan, DrPH, and Synnove Knutsen, MD, PhD, discovered in their studies that those who drank five or more glasses of plain water a day had a much lower risk of fatal coronary heart disease compared to those who drank less than two glasses a day. Chan states, “Basically, not drinking enough water can be as harmful to your heart as smoking.”<sup>14</sup> Their study, “Water, Other Fluids, and Fatal Coronary Heart Disease,” indicates that whole-blood viscosity (thickness), plasma viscosity, hematocrit, and fibrinogen (which are considered independent risk factors for coronary heart disease) can be elevated by dehydration. Neither total fluid intake nor other fluids combined showed any reduction in this risk. Instead, for women especially, high intake (five or more glasses a day) of other fluids showed a greatly increased risk of coronary heart disease.

The initial effect of drinks other than water is to draw water from the blood. They cannot be digested until their concentration is reduced to that of blood, causing a temporary increase in blood thickening, which increases the risk of blood clots. Water, however, is absorbed immediately, thereby hydrating the circulatory system. Drinking an adequate amount of water thins the blood and

reduces the risk of blood clots that can lead to heart attacks. “People need to be made aware that there is a difference, at least for heart health, whether they get their fluids from plain water or from sodas,” says Chan.<sup>15</sup>

We tend to think that any liquid qualifies to hydrate the body. There’s water in it, right? But when it comes to hydrating your body, these beverages may be counterproductive. Caffeinated drinks (such as coffee) act as diuretics and stimulate fluid loss through urination. Alcohol is a toxin that draws water from your cells, increasing blood toxicity. These drinks only increase the amount of water you need. Sodas contain an abundance of sugar and chemicals that the body must process. Even fruit juices contain too much sugar to meet your body’s demands for fluid. There’s no substitute for water!

## Soul Thirst

**K**ing David in the Old Testament wrote about a depth of thirst that every human knows: “My soul thirsts for You, my body longs for You, in a dry and weary land, where there is no water.”<sup>16</sup> We are thirsty. Not only are our bodies in want, but our souls are crying out to be satisfied. Christianity is a message for those who long to be quenched from an indestructible, unpolluted, inexhaustible stream. Jesus’ invitation is for you. “If any man thirst, let him come to Me, and drink.”<sup>17</sup> “I will give unto him that is athirst of the fountain of the water of life freely.”<sup>18</sup> All substitutes for this fountain will eventually vaporize. Disappointment will follow. Only Christ’s pure stream will flow on. On its current we will arrive to our final destination safely. “There the majestic Lord will be for us a place of broad rivers and streams.”<sup>19</sup>

1. *Your Body’s Many Cries for Water*, F. Batmanghelidj, M.D., p. 19.
2. *Ibid.*, p. 48.
3. *Principles of Anatomy*, Gerard J. Tortora, p. 74; *Drinking Water*, George Grant, [www.academyofwellness.com](http://www.academyofwellness.com).
4. *Your Body’s Many Cries for Water*, F. Batmanghelidj, M.D., p. 18.
5. “Good Hydration Is Key to Good Health,” Elizabeth Todd Bartholemew: Ty Tims, Medical Exercise Specialist, Baptist Rehabilitation, National Institutes of Health.
6. “Is Eight Enough? Researcher Says Drink Up and Tells Why,” [www.water.com](http://www.water.com).
7. “Water Is Cheap Insurance,” Tim Neunschwander, [www.cris.com/~compaid/hydrato.htm](http://www.cris.com/~compaid/hydrato.htm).
8. *Prescription for Natural Healing*, James F. Balch, M.D. & Phyllis A. Balch, C.N.C., p. 35.
9. *How to Live*, Ellen G. White, p. 60.
10. *Prescription for Natural Healing*, James F. Balch, M.D. & Phyllis A. Balch, C.N.C., p. 36.
11. “An Overview of Water Purification,” Tim Sprinkle, [www.paddling.net/guidelines/showArticle.html](http://www.paddling.net/guidelines/showArticle.html); and “Drinking Water,” Dr. George Grant, [www.academyofwellness.com](http://www.academyofwellness.com).
12. *Water*, Paul Bragg, ND, PhD and Patricia Bragg, ND, PhD; pp. 33, 65.
13. “Save Your Life With Water,” [www.adventistreview.com/2002-1542/story3.html](http://www.adventistreview.com/2002-1542/story3.html), *American Journal of Epidemiology* (vol. 155, no. 9).
14. *Ibid.*
15. *Ibid.*
16. Psalm 63:1, NIV.
17. John 7:37, KJV.
18. Revelation 21:6, KJV.
19. Isaiah 33:21, NKJV.



# WATER

## Quenching Streams



# WATER Quenching Streams

We have sailed too close to shore; having fallen in love with life, we have lost our thirst for the waters of life.

~Sir Francis Drake

**Y**ou can boil it, throw it away, drink it, even flush it down the toilet, but you will never destroy it. In a sense, water is indestructible. Fresh water accounts for only 3% of the water on Planet Earth—from ice caps and glaciers to 180-degree hot springs, from deep-lying ground water hidden up to three miles below the earth's crust or in clouds of vapor floating at altitudes as high as seven miles. This same water has been recycling for thousands of years and is a key to life and health.

Since our bodies are approximately 70% water, it plays an enormous role in how well we function. Only oxygen is more important to human survival. From brain to bone, water is a vital ingredient.

To fully understand the value of water, let's quickly look at how you and I were made. We all began as two cells united (an egg and a sperm). Together they set off, dividing rapidly, and new life grew cell by cell. Those cells, of course, assumed different forms and became specialized—developing organs, tissues, muscles, bones, nerves and blood. Your body is composed of some 100 trillion cells, and water is an essential component to every one of them—internally as well as flowing through the microscopic spaces between them.

## Soggy Cells

**E**very enzymatic and chemical reaction of the body occurs in the presence of water. Digestion and metabolism are water-based processes. "Water regulates all functions of the body, including the activity of all the solutes it carries around."<sup>1</sup> These suspended substances include hormones, nutrients, oxygen and antibodies.

Water helps regulate the body's core temperature. Through the blood, it carries heat from warmer body parts to equalize cooler areas. Perspiration, largely water, cools the skin as it evaporates. The breathing process requires moisture from the lungs in order to transfer oxygen in and carbon dioxide out of the blood and body.

We live in a polluted environment. Our bodies are continually fending off unwanted contaminants that would produce disease if not eliminated efficiently. Our own metabolism produces toxins that must be removed. Water forms the medium through which pollutants are dissolved, diluted and expelled from the body through our waste, breath, sweat and urine.

## Hydraulic Support

**Y**our joint health is dependent on water because water cushions and lubricates the joints. The spinal joints, for example, "are dependent on different hydraulic properties of water stored in the disc core and surfaces."<sup>2</sup> This fluid supports approximately 75% of the compression weight of the upper body. Proper exercise draws water from the body's fluid level into the disc spaces, reducing muscle spasms and back pain. Our internal fluids protect tissues, organs, joints and the spinal cord from shock and damage.

The water contained in cartilage, a special connective tissue between joints, ensures lubrication during movement. When the cartilage is well hydrated, friction damage is minimized, allowing the two opposing surfaces to glide freely. Conversely, dehydrated cartilage increases friction, resulting in deterioration and pain in the joints.<sup>3</sup>

## Hydroelectric Energy

**T**ypically we think of food as fuel. But when it comes to providing energy, water is just as important. Athletes know that performance drops off with as little as a 2% water loss. Your own low energy could be from inadequate water intake. According to some researchers, "the osmotic flow of water through the [cell] membrane can generate 'hydroelectric' energy that is converted and stored in the energy pools."<sup>4</sup>

Since the brain is largely composed of water, adequate hydration is required for effective brain function. For years it was mistakenly believed that the brain simply cooled the body machine. But now we know that the brain, including the water within and surrounding the nerve cells, is essential to the chemical and electrical communication among neurons.

## Biological Thirst

**A**ccording to research, most people function within mild dehydration, which affects us physically and mentally at the cellular level. We don't drink enough water. "If fluid levels aren't up to par in a cell, it's not going to be able to carry out its function, whether it's a neuron or a musculoskeletal cell," says Medical Exercise Specialist Ty Tims. "Each cell has a special function and its efficiency level will increase or decrease depending on the hydration level."<sup>5</sup>

Eldon Askew, PhD, professor and director of the Division of Foods and Nutrition at the University of Utah College of Health, says this is because the body's cells shrink or expand depending on the amount of fluid they contain, which in turn changes the spatial relationship of the organelles (structures within a cell that assume specific roles). Askew continues, "We think these changes in cellular size act as a signal for the regulation of cellular metabolism."<sup>6</sup>

His research suggests that drinking eight glasses of water each day may actually bolster metabolic rate and burn calories more efficiently. "Research subjects

were given four, eight or twelve 8-oz. glasses of water a day. On the morning of the fifth day before arising, they were hooked up to a machine that measured how many calories they burned per minute in a true resting state. The concentration of their urine was also monitored, as well as blood indicators of hydration levels." Askew reports that the subjects "showed definite indications of dehydration with only four glasses a day as opposed to eight, where hydration was sufficient. Subjects also reported feeling better on eight glasses of water a day than on four—they had more energy, they were more inclined to study, and their concentration was better."<sup>7</sup>

Insufficient intake of water can induce negative side effects. Headaches and asthma can be triggered. Brain, muscle, kidneys, colon and joints all have to operate below par. "Without adequate water, we would poison ourselves with our own metabolic wastes."<sup>8</sup>

Long-term health maintenance can only be achieved through efficient hydration. "If those who are afflicted would assist nature in her efforts by the use of pure soft water, much suffering would be prevented."<sup>9</sup> If you're not drinking enough water to maintain a healthy fluid balance, you risk altering and harming every physiological function of your body.

## Water Purification

**W**hile water may be indestructible, unfortunately it is easily polluted. Global deaths from water-related diseases for today alone are 13,698—not including the sickness and compromised health caused by drinking contaminated water. The U.S. Environmental Protection Agency reports that 90% of the world's water is contaminated, with the potential of causing serious and fatal illnesses.

Contamination is not always visible to the eye. Radon, iron and arsenic can occur naturally in water. Biologically contaminated water contains microorganisms such as viruses, bacteria and parasites. Toxic contamination from fertilizers, pesticides, herbicides and industrial chemicals leach into water sources. And there are the substances that we add to city water such as fluoride.<sup>10</sup> Because much of this earth's water has been contaminated, any questionable sources must be purified to kill and remove bacteria and harmful microbes.

- Boiling is the surest way to destroy all microorganisms. (To be extra safe, boil the water rapidly, especially at higher altitudes where water boils at a lower temperature.) Boiling means applying enough heat to bring big bubbles to the surface. Heat kills microorganisms and virtually all intestinal pathogens, such as Giardia and Cryptosporidium.

- Filters work by physically removing infectious agents by forcing the water through material of a certain pore size that screens contaminants. Organisms vary in size, from large parasitic cysts (Giardia), to smaller bacteria (E. coli, Campylobacter) and the smallest viruses. Thus, how well filters work depends on the physical pore size in the filter medium.

- Water purifiers move the water through both a filter and an iodine compound that kills any smaller organisms that have passed through the filter. The