



## Water Quality

The human body is comprised of about seventy-five percent water. Since you are mostly water, *quality* should be of the utmost importance. However, from Fresno, California and Flint, Michigan in the United States, to Cape Town, African and all over Asia, millions of people are drinking from contaminated water. In fact, globally, at least 2 billion people use a drinking water source contaminated with feces.<sup>1</sup> Harvard University researchers reported that public drinking water supplies serving more than 6 million Americans have tested for the “forever chemicals” perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) to at or above the Environmental Protection Agency’s (EPA) suggested threshold of 70 parts per trillion...which many experts argue should be even lower to safeguard public health.<sup>2</sup>

But, even the “clean” water has issues. So, let’s take a look at the three main components of water quality...

1. Contaminants
2. Minerals
3. pH

### Contaminants

A 2016 Washington Post article states “The EPA keeps a list of about 100 unregulated contaminants that have made their way into water supplies from industrial sites and other sources. Every five years, the agency updates a shorter lineup of chemicals that it thinks should be tracked and studied and requires utilities to do testing. The current inventory includes two viruses and 28 chemicals, including 1,4-dioxane. Some of the chemicals in water include gasoline, herbicides and pesticides, chlorine, fluoride and prescription medications. Additionally, water may contain heavy metals like lead, which is known to cause learning disabilities, kidney damage, hearing loss and seizures. For a full list of chemicals the EPA is monitoring, [click here](#).

There is also the issue of fluoride, which is often added to municipal water. Excess fluoride can damage the parathyroid gland; deplete calcium, leading to osteoporosis; cause reproductive issues; cause neurological problems; and contribute to cardiovascular disease by calcifying arteries and causing myocardial damage.

Sewage contamination is another issue. In fact, the *New York Times* reported that in the last three years more than 9,400 of the 25,000 U.S. sewage systems have violated the law by dumping untreated or

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<sup>1</sup> Drinking-water. February 7, 2018. The World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/drinking-water>

<sup>2</sup> Critics say EPA action plan on toxic ‘forever chemicals’ falls short. February 14, 2019. The Washington Post. [https://www.washingtonpost.com/climate-environment/2019/02/14/epa-vows-national-action-toxic-forever-chemicals/?utm\\_term=.87b915b3b277](https://www.washingtonpost.com/climate-environment/2019/02/14/epa-vows-national-action-toxic-forever-chemicals/?utm_term=.87b915b3b277)



partially treated human waste, chemicals and other hazardous materials into rivers, lakes and other waterways.<sup>3</sup>

Makes you want to go out and buy a filtration system! Unfortunately, many of the filtration systems also remove the GOOD parts of the water that make the water balanced, provide you with nutrients, and make the water more absorbable.

## Minerals

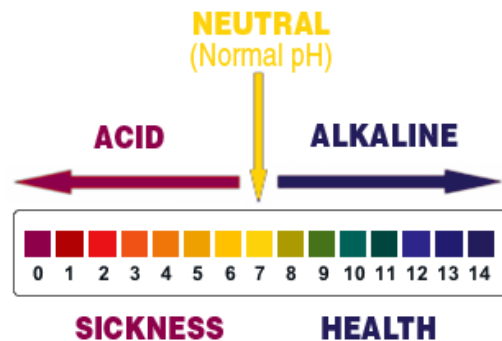
Water absorbs many minerals and *trace minerals* as it meets with soil and rock, which support many biological functions in the body. The types and amounts of minerals depend upon the source. For example, the mid-west has lots of limestone, providing an abundance of calcium and magnesium. The northwest has a lot of granite and basalt, providing iron and manganese. Generally speaking, water contains the following: copper, calcium, chloride, chromium, iodine, iron, magnesium, manganese, molybdenum, nickel, phosphorus, potassium, selenium, silicon sodium, vanadium, zinc and potentially many more.

If you drink tap water, it will likely contain many of these minerals. However, if you use a filtration system, like **Reverse Osmosis**, you may be removing all these beneficial minerals.

## pH

The pH scale goes from 0-14, with zero being total acidity (like battery acid) and fourteen being total alkalinity (like bleach). The pH of natural spring water is around 7.4, which is considered neutral and the same as human blood.

Keep in mind your body tightly regulates a blood pH of between 7.35 and 7.45. Any variation outside those parameters can cause death. It does this through the lungs by exhaling carbon dioxide and the kidneys by excreting acids or bases into the blood.



If your pH is too high, called *alkalosis*, you may become dizzy or confused, nauseous, or have muscle cramps or spasms. It is quite rare to have alkalosis and typically only happens when someone has lung issues, liver disease or a high fever. *Acidosis*, however, which when your pH is too low, is far more common. There are many things that can contribute to acidosis, like asthma, obesity, cancer, diabetes, kidney problems, too much exercise and overuse of alcohol, among others. Acidosis can also create

<sup>3</sup> As Sewers Fill, Waste Poisons Waterways. November 22, 2009. The New York Times. Water <https://www.nytimes.com/2009/11/23/us/23sewer.html?scp=1&sq=sewage%20overflows%20after%20stor ms&st=cse>



osteoporosis because calcium, magnesium and potassium, which are all used in the acid buffering process, may become depleted. The underlying issue to many of these health problems, however, is the Standard American Diet, which is laden with chemicals and refined sugar, salt and grain.

Water can also contribute to acidosis if the pH is too low. This is the case with **Distilled** and **Reverse Osmosis** (RO) water, both of which are stripped of the minerals (like calcium, magnesium, potassium and sodium) that make the water pH-balanced. If you feel you must have RO water, consider a system that has a re-mineralizing stage like [this system](#). Even with this system, however, you're not getting the abundance of minerals and trace minerals as the original source. Therefore, you may consider adding [trace minerals](#) to your water.

Here are some alternatives to RO:

1. If you already have clean water, but just want to remove chlorine, fluoride and add another layer of filtration WITHOUT removing the minerals and maintaining the pH, try the [Aquatear Water Filter Pitcher](#).
2. If you don't like the idea of a picture and would rather have a larger, counter-top-style system, the [Berkey](#) is a great option. It's what I used living in Kuala Lumpur, Malaysia. It's also portable, allowing me to take it camping or other places where water quality may be in issue. The Big Berkey system removes pathogenic bacteria, cysts and parasites entirely and extracts harmful chemicals such as herbicides, pesticides, VOCs, organic solvents, radon 222 and trihalomethanes. It also reduces nitrates, nitrites and unhealthy minerals such as lead and mercury. This system is so powerful it can remove food coloring from water WITHOUT removing the beneficial minerals your body needs. Note that if your water contains fluoride, you will need an [additional filter](#).
3. For a WHOLE-HOUSE filtration system (which is what I have in my U.S. home), I recommend the [FilterSmart Whole House Water Filter](#). This system utilizes activated coconut shell carbon, which allows for greater purity and removes chlorine, VOCs, SOCs, THMs, pesticides, herbicides and industrial solvents, yet maintains the minerals and pH. It does not, however, filter out fluoride. Luckily, where I live, they don't fluoridate water.

You can test your water with [pH drops](#) and personal pH (saliva and urine) using [pH test strips](#).

Water quality is easy to achieve if you know the right things to do. You can start by contacting your local municipality and requesting a report on your water. From there, you can decide which of the above three aspects of quality is applicable to your water and make appropriate adjustments.

Once you begin consuming quality water, notice if you feel any different. For more information about *why* you should be drinking water, see my report on "10 Benefits of Water."