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CLEAN WATER FOR A HEALTHY WORLD

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ABSTRACT

Water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy at all levels (international down to individual aquifers and wells). It has been suggested that water pollution is the leading worldwide cause of deaths and diseases

Surface water seeps through the soil and becomes groundwater. Conversely, groundwater can also feed surface water sources. Sources of surface water pollution are generally grouped into two categories based on their origin. Point source water pollution refers to contaminants that enter a waterway from a single, identifiable source, such as a pipe or ditch. Nonpoint source pollution refers to diffuse contamination that does not originate from a single discrete source. NPS pollution is often the cumulative effect of small amounts of contaminants gathered from a large area. A common example is the leaching out of nitrogen compounds from fertilized agricultural lands. Analysis of groundwater contamination may focus on soil characteristics and site geology, hydrogeology, hydrology, and the nature of the contaminants. Declining water quality has become a global issue of concern as human populations grow, industrial and agricultural activities expand, and climate change threatens to cause major alterations to the hydrological cycle. The popularity of reverse osmosis water (R.O. water) has steadily grown since it was first introduced as a home water purification system in the 1970s. The R.O. water purification method involves forcing water through a semi-permeable membrane, which filters out a select number of water contaminants, depending on the size of the contaminants. In general, if the contaminants are larger in size than water molecules, those contaminants will be filtered out. If the contaminants are smaller in size, they will remain in the drinking water. Clean drinking water filtration has remained almost in the exclusive domain of RO systems for the past 45 years. Today, Nano filtration and Ultra filtration have been gaining market share as the filters are cost effective, are much smaller, and allow for much higher water flow rates.

The World Health Organization conducted a study that revealed some of the health risks associated with drinking demineralized water. Just a few of the risks include gastrointestinal problems, bone density issues, joint conditions, and cardiovascular disease. W.H.O. proved that R.O. water is bad for your health unless it is remineralized.

Key words: Water pollution, contaminants, surface water, ground water

INTRODUCTION

Water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy at all levels (international down to individual aquifers and wells). It has been suggested that water pollution is the leading worldwide cause of deaths and diseases, Surface water seeps through the soil

and becomes groundwater. Conversely, groundwater can also feed surface water sources. The popularity of reverse osmosis water (R.O. water) has steadily grown since it was first introduced as a home water purification system in the 1970s. The R.O. water purification method involves forcing water through a semi-permeable membrane, which filters out a select number of water contaminants, depending on the size of the contaminants. In general, if the contaminants are larger in size than water molecules, those contaminants will be filtered out. If the contaminants are smaller in size, they will remain in the drinking water. Clean drinking water filtration has remained almost in the exclusive domain of RO systems for the past 45 years. Today, Nano filtration and Ultra filtration have been gaining market share as the filters are cost effective, are much smaller, and allow for much higher water flow rates. The World Health Organization conducted a study that revealed some of the health risks associated with drinking demineralized water. **Just a few of the risks include gastrointestinal problems, bone density issues, joint conditions, and cardiovascular disease.** W.H.O. proved that R.O. water is bad for your health unless it is remineralized.

Key Health Advantage with RO Water

Many years ago I drank reverse osmosis water almost exclusively, believing that it was the best drinking water. However, since then I have discovered (through personal experience and research) that the health disadvantages outweigh the advantages. The main health advantage R.O. water has over tap water is that an R.O. system removes some unhealthy contaminants. A good R.O. system can remove contaminants such as arsenic, nitrates, sodium, copper and lead, some organic chemicals, and the municipal additive fluoride. RO water purifier removes toxin such as mercury, Fluoride, Chlorine which cause human body to be ill. Lead metal can cause brain damage and anemia.

A Few Disadvantages

You might be interested to know that reverse osmosis was actually developed as a water treatment method over 40 years ago. The process was used primarily to de-salinate water. The following are three of the main disadvantages of drinking R.O. water:

1. The water is demineralized - Removes essential minerals

Since most mineral particles (including sodium, calcium, magnesium, magnesium, and iron) are larger than water molecules, they are removed by the semi-permeable membrane of the R.O. system.

Even though you may find some contradictory information online about the health benefits of reverse osmosis water, I am convinced that drinking de-mineralized water is not healthy.

The World Health Organization conducted a study that revealed some of the health risks associated with drinking demineralized water.

Just a few of the risks include gastrointestinal problems, bone density issues, joint conditions, and cardiovascular disease. (See reference below to review the WHO study online.)

Removing the naturally occurring minerals also leaves the water tasteless. Many people thus have to add liquid minerals to their R.O. water to improve the taste.

2. The water is usually acidic.

One of the primary reasons R.O. water is unhealthy is because removing the minerals makes the water acidic (often well below 7.0 pH). Drinking acidic water will not help maintain a healthy pH balance in the blood, which should be slightly alkaline.

In the natural health and medical communities, acidosis in the body is considered an underlying cause of most degenerative diseases.

In fact, in 1931, Dr. Otto Warburg won the Nobel Prize for discovering the cause of cancer. In essence, he said it was caused by a lack of cellular oxygenation due to acidosis in the body.

Medical research has also determined that drinking acidic water (as well as other acidic beverages) will often cause a mineral imbalance in the body.

According to the WHO study, low mineral water increased diuresis (the production of urine by the kidneys) 20% on average and markedly increased the elimination of sodium, potassium, chloride, calcium and magnesium ions from the body.

3. Some critical contaminants are not removed.

While reverse osmosis is effective for removing a variety of contaminants in water, the reverse osmosis membrane alone does NOT remove volatile organic chemical (VOCs), chlorine and chloramines, pharmaceuticals, and a host of other synthetic chemicals found in municipal water.

Not kills bacteria, viruses: RO water purifier does not kill waterborne disease-causing bacteria and viruses. There is a high probability that microorganisms can pass through RO membrane (It is advisable to pass RO water through the UV water purifier to treat microorganisms)

4. Water taste altered: As natural minerals are removed water gets de-mineralized as a result water taste affected, it becomes tasteless.

5. More time to purify: RO water purifier takes too long to the purification of water.

6. Water wastage: Approximately much more water compared to filtered out water flushed down as waste water.

7. Expensive: RO water purifier costlier compared to counterpart water purifiers UV and RO water purifier consumes much more electricity.

Proof that RO water is unhealthy

Reviewing the studies related to the ability of the human body to absorb inorganic elements such as Calcium and Magnesium is that our body will absorb anywhere from 6% to 30% of its daily requirement of essential elements from tap water. In a world where our soil is virtually devoid of nutrients from too many crops and not enough recovery time, and where diets are anything but healthy, it is very important to your long term health that you ingest calcium and magnesium from drinking water.

The final report, published as an internal working document (WHO 1980), concluded that "not only does completely demineralised water (distillate) have unsatisfactory organoleptic properties, but it also has a definite adverse influence on the animal and human organism."

Other Alternatives for RO Water:

We may have to consider one of the quality home water filters that are available. A quality home water filter does a better job than **reverse osmosis**, is much less expensive and comes in many different forms. We can get a simple counter top unit, an under sink unit, or a whole house water filter that protects all the water entering our home.

Distillation

The process of distillation will vaporize water by using a heat source. The heat source will separate any pure water molecules from the contaminants that have a higher boiling point than water. This process will boil water until it begins to evaporate. The water is then left at a constant. The evaporated water is then captured and is guided through tubes and then into a container. This method is very close to reverse osmosis. It removes things such as mercury, lead and arsenic. This method is preferred in developing countries where waterborne diseases are common. One of the cons about this process is the fact that it does not remove chlorine or its byproducts. They have a lower boiling point than water so they will remain.

Filtration

There is a type of filter media that goes along with filtration. It will block the passage of the contaminants with an actual physical obstruction or a chemical adsorption. Adsorption will remove more and more contaminants with the more modern filtration technology that is around today. There are typically several stages that the water will go through to get rid of contaminants. The types of contaminants that can be removed are not limited to the type or the size with this method. This means that this method has the ability

to remove the most contaminants while leaving healthy minerals in the drinking water. This method is also inexpensive and wastes very little water, especially in comparison to the aforementioned methods. There are several different types of filters that you can use. The solid block carbon filters are by far the most effective of all of the filters that are available for this method. Certain other filters do not have the ability to remove all contaminants.

Conclusion: Reverse osmosis and distillation, two of these alternatives, are moderately successful at removing some contaminants, but they are expensive and wasteful. Bottled water, besides being expensive and highly unfeasible as a main drinking water source, is not under the same government regulations as municipal water systems and may actually contain more contaminants than tap water. The absolute best technology now available for treating water and removing undesirable contaminants is water filtration. Water filters, when compared to any other water treatment alternative, will remove more contaminants and provide safer, healthier drinking water.
