



DEMINERALISED WATER : ADVANTAGES VS DISADVANTAGES

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“together we can and we will make a difference”

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ABSTRACT

Clean drinking water is difficult to come by. In places like India, water is scarce. There's a lack of infrastructure to provide potable water. And even in our own homes, tap water toxicity is a real concern for the sake of our health. If we incorporate practice of drinking only purified water in our lifestyle, we can safely remove toxin particulates and microbes from tap water and get adequate amounts of purified water to decrease allergy symptoms and restore our health. It's just one of the reasons that reverse osmosis water is the way to ensure safe drinking water. The final report of WHO (1980) provides that "not only completely demineralised water (distillate) have unsatisfactorily organoleptic properties, but it also has a definite adverse influence on the animals and human organism". Scientific testing and best "unbiased brains" in the world have repeatedly demonstrated that long term consumption of demineralised water (RO water) is bad for our health[1].

Keywords: *Demineralised water (RO water), contaminants, semipermeable membrane, reverse osmosis process, minerals like Calcium, Magnesium, Iron and Manganese.*

INTRODUCTION

Water is a prime component of our diets. Naturally, its quality influences our health. Poor quality leads to a poor well-being. And no matter what other changes in diet we make, unless the water we drink is not pure, nothing may seem to favor our health.

Drinking water, like every other substance, contains small amounts of bacteria. Most of these bacteria are common ones and they generally are harmful. These countless micro organisms and toxins in tap water can contribute to several diseases. Removing these chemicals from our drinking water will significantly reduce our internal toxic load and may improve our natural ability to lead healthy life[3].

If we incorporate practice of drinking only purified water in our lifestyle, we can safely remove toxin particulates and microbes from tap water and get adequate amounts of purified water to decrease allergy

symptoms and restore our health. It's just one of the reasons that demineralised water (reverse osmosis water) is the way to ensure safe drinking water.

What is reverse osmosis water?

Though reverse osmosis sounds like a biology class, but in reality it's just a type of filtration process. In reverse osmosis process, untreated water flow through a semipermeable membrane and Carbon filter. The size of the membrane lets the water flow through the filter leaving behind various chemicals, minerals and impurities. The result is the pure water that freed from bacteria and minerals.

In general, if the contaminants are larger in size than water molecule, these will be filtered out. But if the contaminant's are smaller in size they will remain in drinking water. Since most of the minerals like Calcium, Magnesium, Iron and Manganese are larger than water molecule they are removed by the semipermeable membrane[8]

REVIEW OF LITERATURE

The various scientific studies provide irrefutable evidence that human body can 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 for it. Or in other words, if we are already not getting enough vitamins and minerals from our diets, then we have to extract them from our water supply only.

Additionally, cooking our food with demineralised water like reverse osmosis water, we are actually reducing the amount of vitamin and minerals found in the whole food. For example, when using demineralised water like reverse osmosis water we can lose up to 60% of Mg. and 70% of Mn. from our food[9].

The final report of WHO (1980) provides that "not only completely demineralised water (distillate) have unsatisfactorily organoleptic properties, but it also has a definite adverse influence on the animals and human organism.

The WHO provided recommendations in 2004 as to what they believe should be included in drinking water and in what concentrations.

- For Magnesium- a minimum of 10mg/l and an optimum of about 20-30mg/l.
- For Calcium- a minimum of 20mg/l and an optimum of about 40-80mg/l.
- For total hardness (sum of Ca. and Mg. hardness)-it should be 2-4 mg/l.

At these concentrations minimum or no adverse effects were observed. The recommended Mg. level were based on cardiovascular effects while changes in Ca. metabolism and ossification were used as a basis for the recommended Ca. levels.

Many Scientific testing and best "unbiased brains" in the world have repeatedly demonstrated that long term consumption of demineralised water (RO water) is bad for our health.

In WHO study, demineralised water is defined as water that contains little or no dissolved minerals in it.

In 1993, the German society for the nutrition came to the same conclusion and warned against drinking distilled water[7].

The summary of all the reports and several other studies can be best understood by knowing its various advantages and disadvantages.

- If we live in an area that's plagued with water issues and concerns. This can be a good way for us to feel safe about the water that we are drinking.

There are however some disadvantages to reverse osmosis water (RO water) too.

- With the harmful contaminants, that the trace minerals are also removed that our body needs to perform several metabolic reactions like Ca., Mg., Fe. and Mn. which can further lead to various other health issues like-
 - a) Mn. deficiency can throw our entire body out of whack as it is a critical balancing hormone.
 - b) Almost 40% of women for example are Iron (Fe.) deficient which can further lead to anaemia.
 - c) Calcium deficiency can lead to low bone density issues, teeth problems, joint conditions and cardiovascular diseases.
 - d) Due to Magnesium deficiency we can have high risks of gastro intestinal and muscular pains.[4]
- One of the primary reasons RO water is unhealthy because removing of the minerals makes the water acidic (often below pH 7). Drinking acidic water will not maintain a healthy pH balance in our blood, which should be slightly alkaline. Medical research also determined that drinking acidic water as well as other acidic beverages will often cause severe mineral imbalance in our body[6]
- Removing all the naturally occurring minerals also leaves the water tasteless. Many people add liquid minerals to their RO water to improve the taste of their drinking water.
- While RO water is effective in removing a variety of contaminants from water, the semipermeable membrane in RO process does not remove only volatile organic chemicals (VOC's), chlorine, and chloramines, pharmaceuticals but also a host of other synthetic chemicals found in municipal water[2]
- When demineralised water is consumed, our intestine has to add electrolyte to this water first, pulling them from our body reserves. This leads to the dilution of electrolyte and insufficient body water redistribution which may compromise the functions of our vital organs.

According to WHO, "Demineralised water that has not been remineralised is not considered safe for drinking water. Its regular consumption may not be

Ro water is considered to be safe for drinking and no doubt it is safe also. But during RO process there are so many vital minerals that get seperated out. So, one should be beware of remineralising the RO water.

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Whats should we do, if we are drinking demineralised wamter?

We don't need to disconnect our RO system and throw it away (unless it is operating ineffectively which often happens if the system is not properly maintained). RO system do a great job of removing impurities/contaminants from the water and that is a good thing . The problem with RO system is that they don't discriminate between good stuff and bad stuff as they remove everything. what we need to do is remineralize the water once it has passed through the RO membrane adding back magnesium and calcium in the proper concentration fixes the problem.