



ABSTRACT

Water types and their functional role: Perception, myth and fact

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Link to DOI: [10.25220/WNJ.V04.S3.0018](https://doi.org/10.25220/WNJ.V04.S3.0018)Journal Website: www.worldnutrijournal.orgDiana Sunardi¹¹Department of Nutrition, Medical Faculty, Universitas Indonesia-Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Water is a transparent, odorless, tasteless liquid, a compound of hydrogen and oxygen, H₂O, freezing at 32⁰F or 0⁰C and boiling at 212⁰F or 100⁰C, that in a more or less in impure state constitutes rain, oceans, lakes, rivers, etc. It contains 11.188 percent hydrogen and 88.812 percent oxygen, by weight. Bottled water has been around for centuries, the last 100 years or so saw the creation of what we see today as a vital source of healthy, convenient hydration. **Types of water** that we might familiar with are **Spring Water**, is water derived from an underground formation from which water flows naturally to the surface of the earth, **Purified Water**, is water that has been produced by distillation, deionization, reverse osmosis, or other suitable processes, and of course **Mineral Water**, is natural water containing not less than 250 parts per million total dissolved solids. Mineral water is distinguished from other types of bottled water by its constant level and relative proportions of mineral and trace elements at the point of emergence from the source. No minerals can be added to this product. But then we were introduced by the term of “functional water”, we usually used the term functional food. Functional foods are foods that have a potentially positive effect on health beyond basic nutrition, promoting optimal health and help reduce the risk of disease. Functional water is “enhanced” drinking water aspiring to improve health. Some are chemically altered (i.e. by adding increased oxygen or hydrogen); some are simply infused with oils, extract, or flavors. In Indonesia, according to the National Agency of Drug and Food Control (BPOM), bottled water is processed water, without other foodstuffs, and food additives, packaged, and safe to drink. We have four types of bottled water that commonly found the market, they are Mineral water, Oxygenated water, Demineralized water and Alkaline water. Our survey in 2017 shows that, there are many perceptions in public about the functional role in health for some type of water. Such as, demineralized water is good for your health because it is free from mineral, oxygenated water can enhance physical performance, and alkaline water can neutralize the pH level of our body. The big questions were whether there is “real functional water” and whether those functional claims or perceptions are just myths or facts. According to WHO, it is not recommended to drink or use demineralized water in cooking daily meal. Demineralized water is usually artificially-produced, such as through distillation and reverse osmosis. Drinking demineralized water or water that contains little essential minerals has been associated with various health risks. And these recommendations were also supported by studies such as Gupta et al in 2015, found that drinking demineralized water vitamin B12 deficiency and Muhsin in 2019, found that drinking reverse osmosis water significantly related to lower bone density. Oxygenated water has always been claimed to increase physical performance, but studies like



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in 2007 by McNaughton et al and in 2019 by Fleming et al, did not find that oxygenated water can increased physical performance. Alkaline water company claimed the high pH water has health benefit, so far studies did not find that. Hansen et al in their study in 2018, found that a change in drinking water pH had no impact on the composition of the gut microbiota or glucose regulation in young male adults.

In conclusion, there are many overclaimed benefit of some water types in the market. There are many incorrect perceptions in public as well, and we have to educate people to be more aware about what they buy and drink for their daily fluid intake, also to believe information only from the trusted source. The results of those studies on demineralized, oxygenated and alkaline water are not surprising, since we all know that our body need minerals, take oxygen from our lung and homeostasis of pH in our body is tightly controlled. And with these finding, we can agree that drinking plain water (mineral water) is the best way to fulfill daily fluid intake.

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