

## Health Attributes of Alkaline Water

The current bottled water industry in North America is stagnating under the supply of unimaginative, exploitive and poor quality water products. The bottled water industry began in the 1980's with the concept of taking natural, healthy spring water and supplying it to consumers in small bottles. Initially ridiculed, this concept gained enormous public acceptance, spawning what is now a multi-billion dollar worldwide business.

The quality of bottled water has progressed little since the inception of this business. Virtually all bottled water supplied in small bottles is manufactured filtered water. Spring water is typically neutral pH with few minerals, whilst filtered water is always acidic (around pH 5.5) and is totally demineralized. Naturally occurring surface spring waters are also highly variable in quality and content across different spring sources and more frequently have been found to be contaminated with pollutants that have entered the watershed. All bulk water supplies that have been generated from reverse osmosis filtering of local municipal water are acidic and demineralized.

In the 1990's nutritionists, many naturopaths and some enlightened individuals within the medical fraternity linked acidic diets with the onset of chronic diseases that are now prevalent within the North American population. Over the last decade this concept has been strongly supported, and it is also widely accepted that processed foods, carbonated soft drinks (pop) and diets laden with animal protein and carbohydrate – that is, acid forming foods – the acidic diet – are the foundation of ill health and disease. The antithesis of this are alkaline forming foods – raw vegetables and fruit, vegetable protein, natural nuts and berries that naturally support a healthy, disease free body. This concept – alkaline health - has yet to be brought into the water industry. That is, virtually all beverages consumed in North America are acidic – filtered water, soft drinks, energy drinks, sports drinks, alcohol, coffee and tea. We must drink up to 3 liters of fluid per day to remain alive and yet the majority of this intake comes from acidic fluids. Despite water consumption being the most essential ingredient for the support of life and recognition of the health attributes of an alkaline diet, little progress has been made to introduce alkaline water into the North American culture.

Alkaline water to support healthy living cannot just be pure water with a high (alkaline pH). Alkaline pure water can be produced simply with an abundance of hydroxyl ions (OH<sup>-</sup> ions). This can be achieved by splitting the water molecule with electrolysis:  $H_2O \rightarrow H^+$  and  $OH^-$ . This is the basis of water ionisers, touted to produce healthy alkaline water. This water very rapidly recombines back to its natural state – the neutral pH water molecule, and then acidifies through the natural incorporation of carbon dioxide from the air ( $CO_2 + H_2O \rightarrow H_2CO_3$  which is carbonic acid). This happens to all water unless it is buffered. Water buffering occurs naturally through the addition of minerals, particularly carbonate and bicarbonate minerals that occur abundantly in soils and rock. Water will take on the character of the ground it filters through. Some waters become highly alkaline and rich in natural minerals and ions and are naturally buffered to remain alkaline. There are a few of these water sources around the world (eg Lourdes water, Hunza water) and they have historically been attributed with natural healing properties.

A basic understanding of human physiology indicates why mineralized alkaline water has healing properties. As we eat and drink the digestive process is triggered and specialized cells in the stomach produce strong hydrochloric acid at a pH of around 1.5 to 2 which starts to break down the food. The stomach contents mix to produce a thick, acidic liquid mass called chyme. The chyme is then passed into the small intestine (duodenum) where absorption of the food nutrients and water begins. However, this

absorption process can only take place in an alkaline environment, so the body must rapidly increase the pH of the chyme. It does this by using bicarbonate ions in the food and by releasing bicarbonate stores from the body. The bicarbonate ions also support the digestive action of enzymes secreted by the pancreas, the gall bladder and the intestine. Once your food has been converted to an alkaline liquid, the essential nutrients it contains can then be absorbed efficiently as it moves through the intestine.

So, why is alkaline water and food so beneficial to our health and acidic foods and waters so detrimental? One view is that it is not the pH value of the food and water that is important, but the mineral content. That is, foods such as oranges and other fruit which may have an acidic pH value but are highly valuable nutritionally because they contain high quantities of alkaline forming minerals such as calcium, potassium, magnesium and sodium presented as chloride or carbonate salts (eg sodium bicarbonate is highly alkaline). Most fruit and vegetables are very alkaline forming within the digestion process. Minerals such as sulphur, phosphorus and iron are very acid forming during digestion, and coincidentally are found in high concentrations in foods such as red meat, poultry, eggs, sugar, rice, grains and nuts. Most soft drinks, the bane of all health conscious people, are high in phosphorus (as phosphoric acid) and are very acid forming during digestion. Thus, at a very simple level, foods that are alkaline forming during digestion such as fruits and vegetables generate abundant nutrients, minerals and essential trace elements that are readily absorbed by the body. Acid forming diets rich in protein, highly processed carbohydrates and sugars, and soft drinks contribute to metabolic acidosis of the body, a condition that is considered to be fundamental to the generation and maintenance of chronic disease.

This concept has been clearly demonstrated by several North American studies showing that teenagers who drink large amounts of soft drinks and sports drinks are developing osteoporosis. This occurs because the body must find massive amounts of bicarbonate ions to neutralize and alkalize the highly acidic drinks to enable the body to properly absorb any nutrients found in the food. In these cases, the only adequate source of bicarbonate ions available are stored in bones as calcium carbonate. The body raids these reserves to neutralize the acidic drinks and creates osteoporosis – brittle bone disease!

Alkaline water in combination with high alkalinity (the measure of carbonate and bicarbonate ions) will always support the digestive process. High quality alkaline/mineralized water supports the proper uptake of nutrients from food. So, contrary to many myths that exist in the general public that say that alkaline water is consumed to increase the pH of the body, alkaline water is actually consumed to improve whole body nutrition. Thus, people who drink alkaline water are suddenly 'feeding' themselves properly. The body is getting the nutrient fuel it needs to look after itself that way it does naturally. Alkaline water is the most natural way to improve your overall health and vitality. People drinking quality alkaline water feel the immediate difference it makes, even without understanding why.