PURE IONIC WATER™

The Water of Champions

PURE IONIC WATER™ SYSTEMS

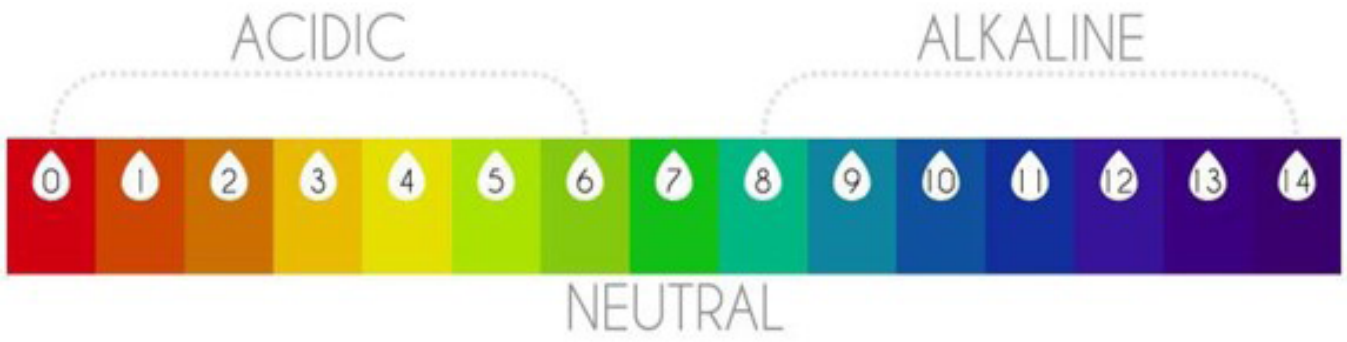
The Benefits of Drinking Akaline Water

Introduction

EAU Technology is brought to you by Pure Ionic Water™ systems (PIW) which is a novel water, produced by WET Holdings (Global) Ltd for the Water Smart Foundation. PIW systems naturally and permanently alkalise the water for drinking, at any required volume. They also remove the harmful levels of pollutants, heavy metals, chemicals, and hormones, including oestrogens; they then add all essential elements to the water.

There is growing evidence to suggest that drinking alkaline water induces beneficial effects on the human physiology and processes that mediate healing and repair. This brochure collates evidence-based findings into the benefits of alkaline water.

The pH scale ranges from 0 to 14, with 0 being highly acidic and 14 being highly basic. When something is alkaline, it means that it has a pH that is greater than 7 (neutral). Rain water is acidic, Tap water is Neutral, Pure Ionic Water is 8.5pH to 9.5pH plus.



PHYSIOLOGICAL BENEFITS OF ALKALINE MINERALS

WET's technology and method, used in PIW systems, manipulates a number of minerals and electrolytes to create alkaline water, including (but not limited to): potassium, manganese, calcium, sodium, and magnesium. These minerals and electrolytes play key roles in human physiology and the body's healing and repair processes.

Magnesium

Magnesium is an essential mineral present in all human tissues, especially in bone. It has both physiological and biochemical functions and has important interrelationships with calcium, potassium and sodium. It is needed for the activation of many enzymes (for example, enzymes concerned with the replication of DNA and the synthesis of RNA) and for parathyroid hormone secretion, which is involved in bone metabolism. It is also needed for muscle and nerve function. Nutritional deficiency of magnesium is characterised by progressive muscle weakness and neuromuscular dysfunction. Mild hypomagnesaemia (low blood magnesium) is common in severely ill patients, alcoholics and those with malabsorption disorders.

Calcium

Calcium is the most abundant mineral in the body and is essential for a number of vital functions. The body needs adequate dietary calcium (alongside vitamin D and several other nutrients, such as vitamin K), to develop and maintain healthy bones and teeth. Calcium also plays a vital role in many systems, including: intracellular signalling to enable the integration and regulation of metabolic processes, the transmission of information via the nervous system, the control of muscle contraction (including the heart), and blood clotting. Furthermore, it has been suggested that adequate calcium intake, such as from reduced fat dairy products, may help to lower high blood pressure and protect against colon cancer (although more evidence is needed to fully substantiate these functions).

The skeleton contains about 99% of the body's calcium, with approximately 1kg being present in adult bones. The major constituents of bone are calcium and phosphate, forming hydroxyapatite, which is interspersed within a meshwork of collagen fibres to form a rigid structure.

The body's requirement for calcium fluctuates with the rate of bone development. As well as protecting vital organs, theskeleton acts as a 'bank' of minerals from which calcium and phosphorus may be continuallywithdrawn or deposited, to support physiological requirement.

Calcium levels in the blood are carefully regulated and blood plasma levels are maintained within narrow limits. Calcium absorption is well controlled to match the needs of the body, meaning calcium balance can be maintained at a variety of different levels of calcium intake. For example, there is evidence from The Gambia, that even at low levels of intake, calcium balance can be achieved. Calcium status is maintained by balancing calcium absorption from the gut, excretion via the kidneys, and mobilisation and deposition in the bone. These sites are regulated by feedback mechanisms, controlled by several hormones (including parathyroid hormone) and the activated form of vitamin D. Plasma levels of calcium only become abnormal if there is a breakdown of this homeostatic mechanism, and not usually as a result of differences in dietary calcium intake. The body invests this effort because small variations in plasma calcium concentrations may have serious consequences to the functioning of vital organs and to health in general.

Manganese

Manganese is required for bone formation and for energy metabolism. It is also a constituent of an antioxidant enzyme, which helps to prevent free radical-mediated damage to cells.

Sodium

Sodium is responsible for regulating body water content and electrolyte balance. The control of blood sodium levels depends on a balance between sodium excretion and absorption at the kidneys, which is regulated by nerves and hormones. Sodium is also required for the absorption of certain nutrients and water from the gut. Sodium is a component of common salt, known as sodium chloride.

As with some other minerals, sodium levels in blood and tissues are under homeostatic control. The kidneys tightly regulate sodium concentration and can make the urine almost salt-free or excrete sodium in urine when supply is excessive. Sodium intake in the UK is considered to be too high and so deficiency of sodium is unlikely, but under some circumstances losses can occur:

- Excess sweating (e.g., due to exercise in a hot environment), may cause some sodium depletion;

- Diarrhoea can cause fluid loss and dehydration leading to some sodium depletion;
- The kidneys normally act to protect the body's stores of sodium, but in Addison's disease, failure to produce aldosterone (a hormone that allows the kidneys to retain sodium and water) leads to the kidneys inability to conserve sodium;
- Some types of renal failure;
- Diuretic drugs may remove large amounts of sodium in the urine.

Potassium

Potassium is essential for water and electrolyte balance and the normal functioning of cells, including nerves and muscle cells/tissues. Increased dietary intake of potassium has been associated with a decrease in blood pressure, as it promotes loss of sodium in the urine. It is suggested that an increase in potassium intake may offset the impact of execess sodium in the diet, therefore helping to protect cardiovascular health.

Low blood potassium levels (hypokalaemia) can result from severe diarrhoea. Symptoms include weakness, mental confusion, and (if extreme) heart failure.

Zinc

The major function of zinc in human metabolism is as a cofactor for numerous enzymes. Zinc has a key role as a catalyst in a wide range of reactions. It is either directly or indirectly involved in the major metabolic pathways concerned with protein, lipid, carbohydrate and energy metabolism, and is also essential for cell division (and resultantly, for growth and tissue repair, and for normal reproductive development). In addition, zinc is required for the functioning of the immune system and in the structure and function of the skin; hence playing a vital role in wound healing.

Some reports linked delayed puberty and small stature to zinc deficiency, though it is not certain that this is due to zinc deficiency alone.

ENHANCED HYDRATION/ REHYDRATION

hydration. In fact, drinking alkaline water has been found to improve body rehydration following physical exercise.

A recent clinical study assessed hydration/rehydration bio-markers in human participants, post-physical exercise, following the consumption of high-pH alkaline water and standard purified water. Consumption of high-alkaline water was found to significantly reduce and restore high blood viscosity (a hydration/rehydration bio-marker) by 87.50% when compared to standard purified water.

In another clinical study, 3 groups of participants consumed 3 different types of water; highly mineralised (pH 6.1) water, low mineralised (pH 8) and table water (pH 5). The three groups were subjected to the same anaerobic exercise, pre-exercise and post-exercise protocols, including re-hydration diet and testing protocols.

Data analyses of the 3 groups found out that :

Drinking alkaline water in amounts of 4.0 l per day shows a positive effect on hydration status after anaerobic exercise with a significant decrease of specific urine gravity, a clinical indicated of improved hydration.

- Intake of alkaline water also shows a positive effect on urine pH during the anaerobic test protocol, and much more efficient lactate utilization after the high-intensity interval exercise.

- The consumption of alkaline water was associated with improved acid-base balance and hydration status.

- In contrast, subjects who consumed table water showed no changes over the same period of time.

- These results indicate that the habitual consumption of alkaline water may be a valuable nutritional vector influencing both acid-base balance and hydration status in active healthy adults.

REACTION TO PATHOLOGICAL CONDITIONS

There is a body of research that suggests alkaline diet can help in the body's reaction to a number of pathological conditions, including: chronic acidosis, bone disease, and chemotherapy.

Acidosis, Bone Disease and Muscular Atrophy

Alkaline diet has been found to improve potassium/sodium ratio in the body and may benefit bone health, reduce muscle wasting, and mitigate other chronic diseases, such as hypertension and stroke.

Acid Reflux Disease

Laboratory studies found that alkaline water irreversibly inactivates and denatures human pepsin, the enzyme that is fundamental for the pathophysiological mechanism of reflux disease. Also, in vitro studies have shown that alkaline water performs acid-buffering effects in reflux disease.

Bone Metabolism

Alkaline water and alkaline diet were found to reduce bone resorption and increase bone density.

Lower Back Pain

In a clinical trial of 82 patients, it was found that supplementation with alkaline minerals reduced lower back pain. In fact, the mean "Arhus Lower Back Pain Rating Scale" score dropped significantly, by 49% after 4 weeks of supplementation.

Gastrointestinal Disorders

Laboratory studies investigated the effects of drinking alkaline water on animal experimental models for diarrhoea, constipation and colitis. It was found that drinking alkaline water:

- Enhances gastric emptying in diarrhoea;
- Prevents the reduction of gastric emptying and small intestinal/colonic transit in constipation;
  and
- Enhanced gastric emptying and normalised small intestinal/colonic transit in colitis.

Vitamin D Apocrine/Exocrine System

Alkaline diet increases intracellular magnesium, which is required for the function of many enzyme systems. Magnesium is required to activate vitamin D, which results in numerous added benefits for the Vitamin D apocrine/exocrine system.

Cardiovascular Mortality

Data on the hardness of drinking water was collected from 27 municipalities in Sweden, where the drinking water quality had remained unchanged for more than 20 years. After collection, analyses were made of the levels of lead, cadmium, calcium, and magnesium. The findings of the analyses showed that there was a significant inverse relation between water hardness and cardiovascular mortality in both sexes. Mortality caused by ischemic heart disease was inversely related to the magnesium content, particularly for the men (P less than 0.01).

The Health Damages Caused by Drinking Other Alkaline Water Systems:

WET water technology and method, used in PIW systems, does not use electrolysis or ionisation of water, a common technique used to obtain alkaline water/solutions. Water electrolysis (or ionisation) produces unstable alkaline water that causes harmful impacts on the body.

Research reports indicate that water electrolysis can cause necrosis and fibrosis of the cardiac muscles. Also, by adding Sodium Chloride salts to catalyse water electrolysis, electrolysed water contains sodium hypochlorite and hypochlorous acid (HOCL) which both are linked to serious ad-verse body reactions. For instance, sodium hypochlorite is linked to skin irritations, membrane irritation and acute toxicity.

On the other hand, hypochlorous acid (HOCl) is linked to the formation of 5-chlorocytosine which is a mutagenic agent found to cause DNA mutation commonly observed in tissues under inflammatory stress as well as in thegenomes of inflammation driven cancers.

REFERENCES

1. Burckhardt P, 'The effect of the alkali load of mineral water on bone metabolism: interventional studies', (2008) 138(2):435S-437S.

2. Chycki J, Zajac T, Maszczyk A, Kurylas A, 'The effect of mineral-based alkaline water on hydration status and the metabolic response to short-term anaerobic exercise', (2017) Biology of Sport, 2017; 34:255-261. [DOI:10.5114/biolsport.2017.66003]

3. Fornai M, Colucci R, Antonioli L, Ghisu N, Tuccori M, Gori G, Blandizzi C, Del Tacca M, 'Effects of a bicarbonate-alkaline mineral water on digestive motility in experimental models of functional and inflammatory gastrointestinal disorders', (2008) Methods Find Exp Clin Pharmacol, 30(4):261-9.

4. Huang YR, Hung YC, Hsu SY, Huang YW, Hwang DF, 'Application of electrolyzed water in the food industry', (2008) Food Control, 329–345.

5. Jehle S, Zanetti A, Muser J, Hulter H, Krapf R, 'Partial neutralization of the acidogenic western diet with potassium citrate increases bone mass in postmenopausal women with osteopenia', (2006) Journal of American Society of Nephrololgy, 17: 3213–3222, 2006. [doi: 10.1681/ASN.2006030233].

6. Jequier E and F Constant F, 'Water as an essential nutrient: the physiological basis of hydration', (2010) European Journal of Clinical Nutrition 64, 115–123. [doi:10.1038/ejcn.2009.111].

7. Koufman JA, Johnston N, 'Potential benefits of pH 8.8 alkaline drinking water as an adjunct in the treatment of reflux disease', (2012) Ann Otol Rhinol Laryngol, 121(7):431-4.

8. Marangella M, Vitale C, Petrarulo M, Rovera L, Dutto F, 'Effects of mineral composition of drinking water on risk for stone formation and bone metabolism in idiopathic calcium nephrolithiasis', (1996) Clin Sci (Lond), 91(3):313-8.

9. NHS National Health Service (UK).

10. Rylander R, Bonevik H, Rubenowitz E, 'Magnesium and calcium in drinking water and cardio-vascular mortality', (1991) Scand J Work Environ Health, 17(2):91-4.

11. Schwalfenberg GK, 'The alkaline diet: is there evidence that an alkaline pH diet benefits health?', (2012) Journal of Environmental and Public Health. [doi:10.1155/2012/727630].

12. The British Nutrition Foundation.

13. Tucker K, Hannan M, Chen H, Cupples A, Wilson P, Kiel D, 'Potassium, magnesium, and fruit and vegetable intakes are associated with greater bone mineral density in elderly men and women', (1999) American Journal of Clinical Nutrition 1999, 69:727–36.

14. Vormann J, Worlitschek M, Goedecke T, Silver B, 'Supplementation with alkaline minerals reduces symptoms in patients with chronic low back pain', (2001) J Trace Elem Med Biol, 15(2-3):179-83.

15. Watanabe T, Shirai W, Pan I, Fukuda Y, Murasugi E, Sato T, Kamata H, Uwatoko K, 'Histopatho-logical influence of alkaline activated water on myocardial muscle of mother rats', (1998) Journal of Toxicological Sciences, Dec;23(5):411-7.

16. Weidman J, Holsworth RE, Brossman B, Cho D, St.Cyr J, Fridman G, 'Effect of electrolyzed high-pH alkaline water on blood viscosity in healthy adults', (2016) Journal of the International Society of Sports Nutrition

13:45. [doi:10.1186/s12970-016-0153-8].

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