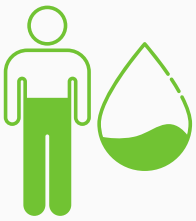

Superior Hydration

Aava's magnesium content helps with constipation and it's alkaline pH of 8+ provides relief from heartburn and acid reflux.

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1. The Journal of Nutrition, Volume 138, Issue 2: *Dietary, Metabolic, Physiologic, and Disease-Related Aspects of Acid-Base Balance: Foreword to the Contributions of the Second International Acid-Base Symposium*

Acid-base metabolism is influenced not only by intakes of protein, alkalizing food constituents, or metabolically noncombustible dietary organic acid; drinking water must also be taken into consideration. The probable impact of differences in drinking water acidity is reviewed in the article from Ragnar Rylander (13). **Not only the usual drinking water but also the choice of mineral water influences acid-base balance**. Peter Burkhardt et al. (14) actually showed that in several studies in humans, alkali mineral waters decreased bone resorption markers.

https://pubmed.ncbi.nlm.nih.gov/18203912/

2. Food and Nutrition Research 2019: *Effects of Mineral Waters on Acid-base Status in Healthy Adults: Results of a Randomized Trial*

Objective: The aim of this study was to investigate whether the diet-dependent net acid load can be reduced by the daily consumption of mineral waters with different bicarbonate content and different potential renal acid load (PRAL).

Methods: A single-centered, randomized trial including 129 healthy men and women aged from 18 to 75 years was conducted. Participants consumed 1,500-2,000 mL of one of four mineral waters with different bicarbonate content and different PRAL values daily for 4 weeks.

Conclusion: Daily consumption of at least 1,500-2,000 mL of mineral water rich in bicarbonate (>1800.0 mg/L) with medium or low PRAL (<-11 mEq/L) can effectively reduce the NAE level by reducing the dietary acid load under free-living conditions in healthy adults.

https://pubmed.ncbi.nlm.nih.gov/31839789/

3.NCBI: *Physiology, Acid-Base Balance 2020*

The renal system affects pH by reabsorbing bicarbonate and excreting fixed acids. Whether due to pathology or necessary compensation, the kidney excretes or reabsorbs these substances which affect pH.

The nephron is the functional unit of the kidney. Blood vessels called glomeruli transport substances found in the blood to the renal tubules so that some can be filtered out while others are reabsorbed into the blood and recycled. This is true for hydrogen ions and bicarbonate.

If bicarbonate is reabsorbed and/or acid is secreted into the urine, the pH becomes more alkaline (increases). When bicarbonate is not reabsorbed or acid is not excreted into the urine, pH becomes more acidic (decreases). The metabolic compensation from the renal system takes longer to occur: days rather than minutes or hours.

https://www.ncbi.nlm.nih.gov/books/NBK507807/

4. MDPI Nutrients 2018: *Dietary Treatment of Metabolic Acidosis in Chronic Kidney Disease*

The ingestion of bicarbonate increases the buffering capacity of the organism and has a strong alkalizing effect. Bicarbonate is a natural component of mineral water. A study in healthy subjects under controlled, standardized conditions revealed a significant increase in 24-h urinary pH from 6.10 to 6.59 after the intake of 1.4 L/day of a mineral water containing 3388 mg/L bicarbonate [36]. **A persistent increase in the diurnal urinary pH was achieved through the evenly distribution of the fluid intake over the day**

Bicarbonate in mineral water can increase urinary pH as effectively as a medical therapy with alkali citrate. A randomized, cross-over study in healthy subjects compared the effect of a bicarbonate-rich mineral water and a commercial alkali citrate preparation on urinary pH [37].

The alkalizing effect of bicarbonate-rich mineral water was found to be similar to that of potassium citrate, which was administered in equimolar concentration with respect to the alkali load. **The effect of water corresponds to that of alkali citrate or sodium bicarbonate in galenic form**

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5946297/

5. The British Journal of Nutrition (The Nutrition Society 2000): *Cross-over study of the Influence of Bicarbonate-rich Mineral water on Urinary Composition in Comparison with Sodium Potassium Citrate in Healthy Male Subjects*

Urine volume is the greatest risk factor for nephrolithiasis. High fluid intake is the first general advice given to stone-forming patients for the prevention of their recurrence. The aim of the present study was to evaluate the influence of bicarbonate-rich mineral water (1715 mg bicarbonate/l) on urinary-stone risk factors in comparison with sodium potassium citrate, a well-established treatment for urinary stones. The mineral water and sodium potassium citrate were administered in equimolar concentrations, with respect to the alkali load. All investigations were carried out in healthy male subjects aged 23–38 years.

During the cross-over phase, there was a significant increase in urinary pH ($P<0{\cdot}001$). There was also a significant increase in the excretion of citric acid ($P<0{\cdot}01$), a decrease in the excretion of oxalic acid, and therefore a decrease in the relative supersaturations for calcium oxalate and uric acid. In the follow-up phase also, the relative supersaturations decreased and there were beneficial effects on the other urinary variables.

The effect of the bicarbonate-rich mineral water was similar to that of the sodium potassium citrate, which suggests that it could be useful in the prevention of the recurrence of calcium oxalate and uric acid stones.

https://www.cambridge.org/core/journals/british-journal-of-nutrition/article/crossover-study-of-the-influence-of-bicarbonaterich-mineral-water-on-urinary-composition-in-comparison-with-sodium-potassium-citrate-in-healthy-male-subjects/76B549E3CF4D917BFB7806E779C32343

6. The Journal Of Biology of Sport: *The Effect of Mineral-based Alkaline water on Hydration Status and the Metabolic Response to Short-term Anaerobic Exercise, 2017*

Previously it was demonstrated that mineralization and alkalization properties of mineral water are important factors influencing acid-base balance and hydration in athletes. The purpose of this study was to investigate the effects of drinking different types of water on urine pH, specific urine gravity, and post-exercise lactate utilization in response to strenuous exercise. Thirty-six male soccer players were divided into three intervention groups, consuming around 4.0 l/day of different types of water for 7 days: HM (n=12; highly mineralized water), LM (n=12; low mineralized water), and CON (n=12; table water).

In the post-hydration state we found a significant decrease of specific urine gravity in HM (1021±4.2 vs 1015±3.8 g/L) and LM (1022±3.1 vs 1008±4.2 g/L). We also found a significant increase of pH and lactate utilization rate in LM.

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.

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.These preliminary data demonstrated that consumption of alkaline water can improve anaerobic performance and post-exercise recovery.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5676322/

7. European Journal Of Clinical Nutrition: *Influence of a Mineral Water Rich in Calcium, Magnesium and Bicarbonate on Urine Composition and the Risk of Calcium Oxalate Crystallization, 2004*

Objective: To evaluate the effect of a mineral water rich in magnesium (337mg/l), calcium (232mg/l) and bicarbonate (3388mg/l) on urine composition and the risk of calcium oxalate crystallization.

Results: During the intake of mineral water, urinary pH, magnesium and citrate excretion increased significantly on both standardized and normal dietary conditions. The mineral water led to a significant increase in urinary calcium excretion only on the standardized diet, and to a significantly higher urinary volume and decreased supersaturation with calcium oxalate only on the usual diet.

Conclusions: The magnesium and bicarbonate content of the mineral water resulted in favorable changes in urinary pH, magnesium and citrate excretion, inhibitors of calcium oxalate stone formation, counterbalancing increased calcium excretion

https://pubmed.ncbi.nlm.nih.gov/14749747/#

8. PLOS One Journal 2018: *Alkaline Water Improves Exercise-Induced Metabolic Acidosis and Enhances Anaerobic Exercise Performance In Combat Sport Athletes*

Hydration is one of the most significant issues for combat sports as athletes often use water restriction for quick weight loss before competition. **It appears that alkaline water can be an effective alternative to sodium bicarbonate in preventing the effects of exercise-induced metabolic acidosis.** Therefore, the main aim of the present study was to investigate, in a double blind, placebo controlled randomized study, the impact of mineral-based highly alkaline water on acid-base balance, hydration status, and anaerobic capacity.

Sixteen well trained combat sport athletes (n = 16), were randomly divided into two groups; the experimental group (EG; n = 8), which ingested highly alkaline water for three weeks, and the control group (CG; n = 8), which received regular table water. Anaerobic performance was evaluated by two double 30 s Wingate tests for lower and upper limbs, respectively, with a passive rest interval of 3 minutes between the bouts of exercise.

In addition, acid-base equilibrium and electrolyte status were evaluated. Urine samples were evaluated for specific gravity and pH. **The results indicate that drinking alkalized water enhances hydration, improves acid-base balance and anaerobic exercise performance.**

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6242303/

9.Actas Urologicas Españolas 1999: *[Relationships between diuresis, urine pH and lithogenesis]*

Objective: Although an increased water intake is suitable in the pathophysiology and treatment of renal lithiasis, less attention is given to changes caused by water diuresis on urinary pH. **The objective of this study was to show the relationship between urinary flow and pH**

Result: Urinary pH changes were different based on baseline values. Baseline urine pH values lower than or equal to 5.8 resulted in increased values, while baseline values greater than or equal to 6.5 gave decreased values. **Mean increase in pH as a result of greater water intake was 0.57 units.**

https://pubmed.ncbi.nlm.nih.gov/10363376/#

Superior Hydration

Aava's natural electrolytes and bicarbonates alkalize the body and rehydrate you faster. They enhance mineral absorption and prevent mineral loss in the body.

10. Journal of Nutrition 2006: *Acid-Base Status Affects Renal Magnesium Losses in Healthy, Elderly Persons*

The divalent cations magnesium and calcium are important minerals for the normal functioning of the organism and a deficiency increases the risk for health effects such as cardiovascular disease (1), osteoporosis (2), and migraine (3). The public health impact is important; **in one study it was calculated that optimizing the intake of magnesium and other minerals through drinking water would lead to a yearly reduction in heart infarction death rates by 23 persons per 100,000 in females and 65 persons per 100,000 in males (4).**

Regarding acid-base regulation, the elderly have a decreased renal function (9) that affects the capacity of the kidneys to excrete acid, leading to a lower blood pH and a reduced plasma bicarbonate concentration (15). In view of their generally lower intake of fruit and vegetables (9,16) they thus constitute **a risk group for acid conditions and hence an increased secretion of calcium and possibly magnesium.**

In this study, **we investigated whether the urinary excretion of magnesium was related to acid conditions in terms of net endogenous acid production (NEAP) in healthy, elderly subjects.**

Magnesium and calcium deficiency in humans is related to a number of pathological phenomena such as arrhythmia, osteoporosis, migraine, and fatal myocardial infarction. Clinically established metabolic acidosis induces renal losses of calcium. **The significant association between potassium-adjusted magnesiuria and NAE suggests that the acid-base status affects renal magnesium losses, irrespectively of magnesium intake. Magnesium deficiency could thus, apart from an insufficient intake, partly be caused by the acid load in the body.**

https://academic.oup.com/jn/article/136/9/2374/4664936