



# Benefits of Alkaline Water



by Dr. Peter L. Kopko, D.C., and other contributors

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# Benefits of Alkaline Water



Today's drinking water has been treated with so many chemicals and recycled so many times that it has been rendered a lifeless, tasteless liquid. Chemically, it is still H<sub>2</sub>O but much of the good has been lost and, unfortunately, many toxic things have been added as well. This phenomenon is like the air you breathe while in an airport and more specifically in the airplane itself. You can breathe but the air is markedly stale and probably lacking in oxygen. The same happens to water. But just as you can filter and ionize the air, adding back negative electrons with an air ionizer machine, you can do the same with a water ionizer machine. What you literally can smell next to a Hawaiian waterfall is the negative ions coming off the water and mixing with the air around you. It is a beautiful experience that once had is never forgotten.

The ions created with a water ionizer machine are natural antioxidants. This water is re-created, re-vitalized and alkalized with needed minerals, such as calcium, potassium and magnesium. This process returns water to the state of its natural birthplace—glaciers.

When water is processed through this technology its surface tension is reduced. It is like the static stickiness created by water chemical plants is removed. This process is known as micro-clustering and ionized alkaline water actually becomes “wetter” than existing treated water. This goes for all tap water, bottled water and reverse osmosis water. None of these have had the natural micro-clustering effect returned to them. The applications of this wetter water can be applied in health and even cooking. Micro-clustered water is better absorbed for more efficient hydration and is used in industry for various applications.

I am most concerned with its health applications. People need to drink more water. We are clearly a dehydrated society. Next to the air we breathe nothing is more needed by the human body than water. Why not drink the best water available and at the same time embrace a technology that eliminates the ecological disaster of plastic water bottles?

Dr. Peter L. Kopko, D.C.  
Chief Science Advisor



# Benefits of Alkaline Water

## The Benefits of Alkaline Water

### Restores the pH Balance in the Body

Alkaline water can neutralize the acidity of the body caused by stress, modern diet, air pollution and many bottled waters. A higher pH in the body reduces the need for fat and cholesterol to protect the body from damaging acids.

### Weight Loss

Research by Dr. Robert O. Young, author of *The pH Miracle for Weight Loss*, shows that the epidemic of obesity in the industrialized world is result of **acidity in the body**.

**The body creates fat cells to trap and neutralize acids in the system.**

- The **modern diet** of meats, grains and beverages, such as coffee, tea, soft drinks and alcohol is **extremely acidic**.

- Some acids are voided through urination, defecation and perspiration, but many **acids remain in the system**.

- Excess acids in the body break down healthy tissue, so the body protects itself by creating a **natural buffer of fat**.



- **Fat cells bind to acids**. Some fat cells are voided from the system, but many **fat cells are stored** in the body, resulting in **weight gain**.

**Traditional weight loss methods are doomed to fail.**

- **Reducing portion size** of meals **only minimally decreases** acid intake.

- **Reducing calories will not decrease** the acidity of the body—and may increase it if large amounts of acidic beverages are included.



- **Reducing fats** in the diet **will not reduce** the acidity of the body or result in weight loss.

- **Increasing the intake of meat** will **increase the acidity** in the body.

- **Exercise increases the production of acids**, such as lactic acid. Many acids are released through perspiration, but some are retained by the system, causing **pain in muscles**.



**Drinking alkaline water releases fats and creates weight loss.**

- Alkaline water can reduce the body's acidity and **stop fat storage**.
- Micro-clusters of ionized water help **flush acid and toxins from the system**.

- Once fat cells are no longer needed, the body will eliminate them—**the fat melts away**.

**A healthy body causes weight loss, not the other way around.**

- A healthy, non-acidic body will return to its natural, **ideal weight**.

- Freed of toxins, the body's cells, tissues and organs achieve a **healthier state**.

- A detoxified, non-acidic body has **more energy and vitality**.

“Your body can-and will-let go of the excess fat,” writes Dr. Young. “If your food and drink are alkaline (meaning, in basic chemistry, the opposite of acid), all that acid-binding fat will just melt right off. There will be no need for the body to hold on to it anymore.”<sup>1</sup>

1. Young, Dr. Robert O., *The pH Miracle for Weight Loss*. New York: Grand Central Publishing, 2005, p. 15.





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## Alkaline Water Helps Slow Aging

Alkaline water is negatively charged and an “antioxidant.” Antioxidants reduce cellular and DNA damage caused by free radicals.

**Getting older and aging is not the same thing.**

- **Getting older** relates to the **passage of time**.
- Aging relates to the **breakdown of tissues** in the body.
- The outward signs of **aging** include **wrinkles, sagging and gray hair**.
- Getting older by itself **does not cause aging**.

**Aging is the result of damage to bodily tissues by organic acids and by active oxygen (free radicals).**

- **Organic acids** in the body break down tissues, causing **aging and age-related diseases**.

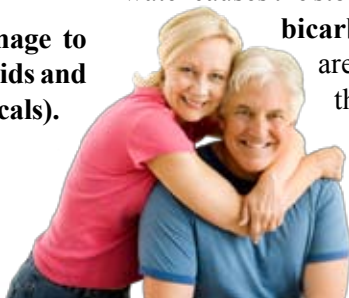
- Common **waste products** in the body include acetic acid, carbonic acid, fatty acids, lactic acid and uric acid.

- Active oxygen (**free radicals**) causes **oxidative damage** to molecules within cells of the body.

- **Free radicals** are associated with a numerous **diseases**, including arthritis, atherosclerosis, Alzheimer’s disease and diabetes.

**Drinking ionized alkaline water can help neutralize acids and scavenge free radicals in the body.**

- Drinking ionized alkaline water causes the stomach to produce **bicarbonates**, which are absorbed into the blood stream and can **neutralize acids**.







- A proven scavenger for active oxygen is **active hydrogen**.<sup>1</sup>
- Active hydrogen is produced in water using **electrolysis**, the process used to **ionize drinking water**.

“As we start to lose bicarbonates in our blood, around age 45, we begin to age physiologically,” writes Sang Whang, author of *Aging and Reverse Aging*. “All we have to do to stop aging and maintain good health is to recharge bicarbonates to the blood.”<sup>2</sup>

## **Osteoporosis and the Beneficial Effects of Alkalinization**

*By Dr. Peter L. Kopko, D.C*

Newsletter 3 | October 2007

In October 2004, the U.S. Surgeon General Richard H. Carmona, M.D. issued for the first time a report on the topic of bone health. He warned Americans that by 2020, one in two Americans over the age of 50 will be at risk for fractures from osteoporosis or low bone mass.

Osteoporosis, the Consequences of the Acidogenic Western Diet & the Beneficial Effects of Alkalinization

In October 2004, the U.S. Surgeon General Richard H. Carmona, M.D. issued for the first time a report on the topic of bone health. He warned Americans that by 2020, one in two Americans over the age of 50 will be at risk for fractures from osteoporosis or low bone mass. In the U.S. today it is estimated that 10 million people over the age of 50 have osteoporosis and another 34 million have osteopenia (low bone mass) and are at risk for developing osteoporosis. According to the National Institutes of Health (NIH), osteoporosis accounts for an estimated 1.5 million fractures annually in the U.S. In fact, it is estimated that 1 in 2 women and 1 in 8 men will suffer an osteoporosis-related fracture in their lifetime.

Other findings in the report include:

- About 20 percent of senior citizens who suffer a hip fracture die within a year of fracture.
- About 20 percent of individuals with a hip fracture end up in a nursing home within a year.



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- Hip fractures account for 300,000 hospitalizations each year.
- The direct care costs for osteoporotic fractures alone are already up to **\$18 billion each year**. The number is expected to increase if action to prevent osteoporosis is not taken now.

If this is not alarming enough, according to this report, osteoporosis is a silent condition because many Americans are unaware that their bone health is in jeopardy. In fact, four times as many men and nearly three times as many women have osteoporosis than report having the condition. One of the most dangerous myths about osteoporosis is that only women need to worry about bone health. Further, osteoporosis affects men and women of all races.



All researchers and health care providers agree that the key to this potentially life threatening and disabling condition is **prevention**. Early intervention, recognizing risk factors and modifying or eliminating them and life style changes are the agreed remedies.

Let us take a look at two of the agreed leading risk factors:

- Chronic acidemia from protein-rich, meat-based diets.
- Chronic acidemia from the over consumption of carbonated soft-drinks, coffee and alcohol.

It is my opinion that after 26-years of clinical experience that absent the side-effects of certain prescription medications, which are certainly a risk factor for osteoporosis, the underlying primary risk factor is **chronic acidemia**. It has been well





documented that the traditional Western diet of protein-rich foods and the over consumption of soft-drinks, coffee and alcohol can lead to a chronic low-grade metabolic acidosis. This diet increases the net dietary acid load, lowers the pH of the blood and acidifies the urine.

**So what can we do on a daily basis to combat this chronic acidemia?**

Both in my practice with my patients and at my own home I recommend along with dietary changes, exercise, calcium and Vitamin D supplementation, drinking ionized, micro-clustered alkaline water. Why alkaline water? Every time that the body succumbs to this low-grade metabolic acidosis, the body must regain balance and return to homeostasis. Our blood pH level must remain in a very narrow range or organ systems, enzyme functioning and basic life support become at risk at failing.

The physiological response to this acidosis is to leach calcium out of our bones and thereby buffer this systemic acidity. I call this process the “Tums effect”. It is analogous to taking Tums when your stomach is upset. Tums is primarily calcium just like your bones. When this process occurs day after day your bones are leached out, your calcium bank is depleted and you end up with osteoporosis.

The traditional Western diet is far more acidifying than you may think. According to Sang Whang, an engineer, scientist, inventor with many U.S. patents and expert on anti-aging and alkalinity, drinking one glass of cola with a pH value of 2.5 could in theory lower the blood pH to dangerous levels if it were not for this bone calcium homeostatic mechanism. In fact, without this bone calcium leaching mechanism, one would need to drink 32 glasses of alkaline water to neutralize this one cola’s acidity, according to Sang Whang.



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Researchers Remer and Manz developed a system for calculating the average **Potential Renal Acid Load (PRAL)** of specific foods. Fats and oils have a relative value of zero; they do not produce an acidic load on the kidneys. As the PRAL goes up in positive numbers, so goes up the potential acid load. Negative numbers represent an alkaline effect.

- Milk and Dairy Products: +1.0-+23.6
- Meat and Meat Products: +9.5
- Fish: +7.9
- Grain Products: +3.5-+7.0
- Vegetables: -2.8
- Fruits and Fruit Juices: -3.1



We all know that it is very important to drink good clean water every day to maintain health. Why not optimize that mandatory requirement for excellent health by ***drinking ionized, micro-clustered alkaline water*** and mitigate the ill effects of acidic foods and help reverse the progression of conditions like osteoporosis?

## **Detoxifies cells more efficiently than standard drinking water.**

Due to their smaller size, micro-clusters of ionized water molecules are expelled from the cells more efficiently, carrying damaging toxins out of the cells and flushing them out of the system.

- The negative charge of ionized alkaline water will attract the positive ions of acids and neutralize them within the body.





## How Alkalinizing the Body Promotes Detoxification

*By: Dr. Peter L. Kopko, D.C.*

Today's common diet, which is rich in proteins from meat, dairy products and processed grains, has been shown to create what is called metabolic acidosis. The physiological systems of the body are heavily taxed by this acidic load. This can be evidenced by the fact that most Americans have highly acidic urine. The majority of patients that have been tested in my office that are not vegetarians run a urine pH of 4.5-5.5 which in my opinion is overly acidic. What benefit could be achieved by making the urine more alkaline?

Let's first look at the consequences of what produced the acidic urine. Metabolic acidosis most often results from the over ingestion of the above mentioned food groups. The breakdown of these proteins creates acidic byproducts, which must be eliminated by the kidneys, thus producing acidic urine. This problem is further complicated by

the ingestion of tap water, which itself has been found to be at best neutral or a pH of 7 and often acidic or below a pH of 7. When the body is in a chronic state of metabolic acidosis our liver detoxification mechanisms are compromised. The liver enzymes which are involved in detoxification are referred to as phase I and phase II detoxification liver enzymes. These enzymes are highly pH sensitive and are responsible for the chemical biotransformation of toxins into water-soluble metabolites for excretion in the urine. These very same enzymes are enhanced by alkalinizing the urine to a pH of 7.1 to as high as 8.3. This very process is performed every day in emergency rooms to accelerate the excretion of ingested poisons.

In the acute medical setting, intravenous sodium bicarbonate is used to alkalinize the urine to a pH of 7.5 to 8.3. The method by which urine alkalinization works to enhance toxin elimination is called ion trapping, which in turn is the ability to enhance urinary

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excretion of weak acids in alkaline urine. Most poisons and toxins are acidic and weak acids. Therefore, by creating a more alkaline physiological environment, we can enhance and accelerate the detoxification process on an ongoing, daily basis. It is this chronic acidification process of metabolic acidosis that is hindering everyone's ability to detoxify. This brings us to what can we do to alkalize our bodies?

Drinking alkaline water daily would greatly enhance the physiological processes responsible for attaining and maintaining a relative blood and urine alkalinity. Everyone today is aware that we need to drink more and higher quality water. The issue of the water's pH though has not been emphasized enough. Why not enhance the body's alkalinity by drinking 6-8 glasses of alkaline water daily? How can this be accomplished?

This is simply accomplished by utilizing a home water filtration system that not only filters the water, but **adjusts the pH as well**. In addition, the unit micro-clusters the water. This means that the large, 15- molecule clusters of water are reduced to 5 molecules in size. This process actually makes water "wetter" and allows for better hydration and delivery of nutrients to the cells. There is even another positive aspect to the function of these machines: they create negative ions, which are natural anti-oxidants. That's right—your water will help neutralize free radicals and slow down the aging process. I utilize the Life Ionizer water filtration unit both at my home and my office. My patients and my dog, Roswell, love the water.





## Alkaline Water Provides Superior Hydration and Nutrition at the Cellular Level

- Negatively charged alkaline water neutralizes free radical positive ions.
- Ionization breaks clusters of water molecules into smaller micro-clusters, reducing the size of the clusters from the 11-16 molecules in standard water to just 5-6 molecules in ionized water. Smaller clusters pass through cell walls more easily and hydrate the cells more quickly.



- Faster hydration allows the body to regulate its temperature more efficiently.

- Micro-clusters of mineral-bearing ionized water also deliver nutrients more efficiently to the cells.

## The New Sports Drink: Alkaline, Ionized, Micro-clustered Water

*By: Dr. Peter L. Kopko, D.C.*

The process of drinking water before and during exercise is referred to as pre-hydration and hydration respectively. According to the American College of Sports Medicine, the purpose of pre-hydrating is to start an exercise activity in what is called a euhydrated state: Your body is normally hydrated, and plasma electrolyte levels have also reached a normal level. This pre-hydration activity should be performed several hours before exercise to enable fluid absorption and allow urine output to return to normal levels. The goal of drinking



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water during exercise is to prevent excessive water loss or dehydration through the physiological process of sweating. Individual sweat rates can be estimated by measuring body weight before and after exercise. Approximately for every one pound of body weight lost, the equivalent loss of water would be one pint or eight ounces. The goal is to prevent water loss in excess of 2 percent of the total body weight or one becomes dehydrated.

It has been known through studies that were originally performed in the 1940s that dehydration resulted in impaired physiological and performance responses. More recent studies have demonstrated performance loss at dehydration levels less than 2 percent of body weight. Specifically it has been demonstrated that even mild to moderate dehydration reduces

aerobic endurance performance resulting in increased body temperature, heart rate, perceived exertion and possibly increased reliance on carbohydrate as a fuel source.

Dr. Judelson, et al., in a study published in October, 2007, demonstrated that dehydration significantly decreased resistance exercise performance as would be performed commonly in a gym with weights or machines.



Clearly, drinking water before and during exercise is important. The composition of this fluid replacement has also gone

through many changes. Conventional wisdom for many years was that salt (sodium) needed to be added to the water to replace sweat-lost sodium. Recent thought has arrived at the conclusion that most people eating the standard Western diet have consumed *too much* salt and subsequent sodium, and that it



does not need to be immediately replaced when exercise lasts less than two hours. The issue now becomes what is the best water to replace exercise-induced water loss though sweating.

Consider that when exercising you are consuming more oxygen and metabolizing energy through muscle work. This process creates free radicals, lactic acid and a mild metabolic acidosis.

Drinking alkaline, ionized, micro-clustered water may help ameliorate all three of these exercise-induced physiological end-products. Water that has been alkalized may help neutralize the exercise-induced acidosis. Alkaline water by definition contains alkaline forming minerals like calcium, magnesium, potassium and sodium. Water that has been ionized may help act as a free-radical scavenger to address the issue of accelerated oxygen consumption. Ionized water by definition

has more negatively charged hydroxyl ions than tap or filtered water. Ionized water has the ability to give up these extra negative charges and may help act as a free-radical scavenger. Lastly, when water is micro-clustered it may be absorbed at a faster rate. This may help with general rehydration.

It is recommended that you drink 400-600 ml of water 2 hours before exercise and 150-300 ml every 15 to 20 minutes of exercise, varying the volume depending on your total body weight and sweating rate.

## **pH Balance Energy & Diet Drinks**

Originating in Japan in the early 1960s, energy drinks such as Red Bull are sold in 134 countries worldwide. Global sales have surpassed \$5 billion a year and are projected to hit \$10 billion by 2010. The popularity of diet soda continues to grow



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amid concerns about obesity, with 59 percent of Americans saying they drink diet soda and worldwide sales surpassing \$20 billion a year. Sales of sports drinks, which originally were designed to help athletes rehydrate, total \$3 billion a year. Each of these beverages offers some benefits, but all contribute to acidity in the body.

## Energy drinks cause dehydration and increase bodily acid.

- The key ingredient in most energy drinks is **caffeine**, often from guarana or yerba mate.



- **Caffeine** is the source of much the energy boost, but it also **causes dehydration**. To rehydrate, you need to drink two cups of water for every cup of energy drink consumed.

- **Energy drinks** are extremely acidic. For example, Red Bull has a pH level of 3.26, almost **10,000 times more acidic than pH neutral water.**<sup>1</sup>

## Diet soda has been linked to weight gain and acidity.

- A 2008 study at Purdue University found that rats on diets containing the artificial sweetener saccharin gained more weight than rats given sugary food,<sup>2</sup> perhaps because the body does not receive a signal to “rev up” the metabolism.<sup>3</sup>

- An eight-year study with 1,550 participants conducted at University of Texas Health Science Center, San Antonio, found that drinkers of **diet soft drinks** had a **greater risk of gaining weight** than drinkers of regular soft drinks.<sup>4</sup>



- **Diet soda** is even more acidic than energy drinks. Diet Coke has a pH level of 3.57, **more than 10,000 times more acidic than pH neutral water.** <sup>5</sup>

**Sports drinks are designed for athletes exercising more than two hours.**

- **Sports drinks** contain electrolytes, **carbohydrates** and other nutrients burned up through extended periods of exercise.

- Most sports drinks have between **13 and 19 grams of sugar** per eight ounce serving. Drinking sports drinks without working out increases caloric intake.

- **Sports drinks** are even more acidic than energy drinks and diet soda. Gatorade has a pH level of 2.95, **more than 10,000 times more acidic than pH neutral water.** <sup>6</sup>

Americans are spending billions of dollars each year on beverages that may provide a short-term boost but also increase the likelihood of gaining weight and increasing acidity in the body. A better solution is to hydrate frequently with ionized alkaline drinking water, which hydrates better than diet soda and energy drinks and helps to neutralize the acidity of the body.

1. Young, Dr. Robert O., *The pH Miracle for Weight Loss*. New York: Grand Central Publishing, 2005, p. 125.

2. "A Role for Sweet Taste: Calorie Predictive Relations in Energy Regulation by Rats," Susan E. Swithers, PhD and Terry L. Davidson, PhD, Purdue University; Behavioral Neuroscience, Vol. 122, No. 1.

3. American Psychological Association (2008, February 11). Artificial Sweeteners Linked To Weight Gain. Science Daily.



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4. Abstract 1058-P. Sharon P. Fowler, MPH, University of Texas Health Science Center School of Medicine, San Antonio.

5. Young, Dr. Robert O., *The pH Miracle for Weight Loss*. New York: Grand Central Publishing, 2005, p. 125.

6. Young, Dr. Robert O., *The pH Miracle for Weight Loss*. New York: Grand Central Publishing, 2005, p. 125.

introduced into the system through eating and digestion. Many secreted and digested acids are swept away by the blood stream, filtered out by the kidneys and released from the body in the urine. Other acids leave the body through perspiration. Your body can only process a certain amount of acids, however, so it is possible to overload the system and for the body to become acidic.

## Acidity and the American Diet

Alkaline water tastes lighter with a pleasantly sweet flavor. Using water with a higher pH level improves the taste of beverages and food. Cooking with alkaline water improves the taste and quality of foods, and using acidic water when boiling eggs improves their quality.

## Acidity in the Body

The human body creates acid, all day, every day as a by-products of metabolism. In addition, acid is

**The American diet is extremely acidic.**

- Meat, including **beef, pork, chicken** and **turkey**, is acidic.
- Dairy, such as **milk, butter** and **cheese**, is acidic.





- Grains, such as **rice** and **barley**, are acidic.
- Beverages, such as coffee, tea and **soft drinks**, are very acidic.
- Simple carbohydrates, such as **potatoes**, **pasta** and **bread**, contain large amounts of acids.

**Acidity in the body is related to disease.**

- Acid reflux is a painful condition that occurs when acidic stomach liquid backs up (refluxes) into the esophagus causing irritation, inflammation and damage to the lining of the esophagus.
- High cholesterol occurs when the body produces excessive amounts of cholesterol to neutralize large amounts of acids in the blood stream before they damage living cells.
- Heart disease is the result of cholesterol build-up in the coronary

arteries that reduces the blood flow to the heart muscle. As stated above, cholesterol forms to protect the arterial wall from acidity in the blood.

- **Fat** is produced by the body to trap and neutralize acidic waste in the body. As Dr. Robert O. Young, author of *The pH Miracle for Weight Loss*, puts it, “The body retains fat as a protection against the overproduction of acids produced by the typical American diet....Your fat is actually saving your life.”

- **Inflammatory** related diseases, such as allergies, arthritis, fibromyalgia, psoriasis and even stroke, are related to low-grade metabolic acidosis.

**Drinking alkaline water can help restore the body’s pH balance and reduce its acidity.**





# Benefits of Alkaline Water

## Alkalinization and the PRAL Score of Food

By: *Dr. Peter L. Kopko, D.C.*

Measuring the pH (alkalinity or acidity) of water is easy: you simply place 2-3 reagent drops in an ounce of water and look at the color of the water. Measuring the pH of solid foods is much more difficult. Today, there are two basic methods for calculating the pH of foods.

The first method is known as ash analysis. This method requires food stuff to be incinerated at a high temperature. The ashes are analyzed for mineral content. **Acidic anions** in food include chloride, phosphorous, sulfates and other organic acids. **Basic/alkaline cations** in food include sodium, potassium, calcium and magnesium. The problem with this method is that it did not take



into account the bioavailability of the food's constituents. It was in a sense an in vitro (in a laboratory) test as opposed to an in vivo (in life) analysis.

In 1995, two researchers, Dr. Thomas Remer and Dr. F. Manz, developed a new way to measure the acid/base effect of specific foods on the human body. This pH measuring tool is referred to

as the **Potential Renal Acid Load (PRAL)**. The PRAL of an ingested specific food is determined by measuring the acidity and ammonium appearing in the urine and then subtracting out the measured urinary

bicarbonate. This method yields a net acid excretion score based on direct measurements of the urine. Previous to the implementation of the PRAL score method, ash analysis was utilized.





The PRAL method is far superior to ash analysis in that it takes into effect the digestion and absorption of a food and its direct effect on the kidneys and urine. However, in my opinion, the PRAL method has some limitations as well in that a specific food may elicit a pH homeostatic balancing mechanism and that would influence the end result in the urine. This may be evidenced by the PRAL score of coffee. Nevertheless, the PRAL method remains the best method to date.

Let's calculate a total PRAL score for an average Western diet meal. Take 250g (about ½ lb.) of chicken. The PRAL value for chicken is 8.7 per 100 grams. We have 250 grams which is 2.5 times 100, so we multiply 8.7 by 2.5 which equals +21.75. Add ½ pound of potatoes, that would be -4 times 2.5 which equals -10. Add 8 oz. whole milk, so multiply 1.1 by 2.5(8 oz. equals about 250g), which equals +2.75. The total for the meal would be +14.50. That is a highly acidic load



and typical of the average American diet. Using other typical foods yields the same acidic story. It is not until you incorporate several servings of vegetables and fruits and limit the amount of meat, poultry and fish before you reach a net alkaline PRAL score. Go back to the PRAL table above and look at the food group averages. The whole story is there. Meats, grains and dairy products are all highly acidic. Vegetables, fruits and nuts are all alkaline. Interesting isn't it? All the foods you have always been told to eat because they are healthy are alkaline forming!



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Here is an example of a PRAL food chart:  
 (Each score is based on a 100g portion of food)

Food Group and Food (*blue is alkaline and red is acidic*)

-21.0 (highly alkaline forming)  0 (neutral forming)  +34.2 (highly acid forming)


| FOOD GROUP AND CATEGORY                | PRAL Score  |
|--|-------------|
| <b>MEAT , MEAT PRODUCTS &amp; FISH</b> |             |
| <b>MEAT AND MEAT PRODUCTS AVERAGE</b>  | <b>9.5</b>  |
| Lean Beef                              | 7.8         |
| Chicken                                | 8.7         |
| Canned, Corned Beef                    | 13.2        |
| Frankfurters                           | 6.7         |
| Liver Sausage                          | 10.6        |
| Lunch Meat                             | 10.2        |
| Lean Pork                              | 7.9         |
| Rump Steak                             | 8.8         |
| Salami                                 | 11.6        |
| Turkey Meat                            | 9.9         |
| Veal Fillet                            | 9.0         |
|  |             |
| <b>FISH AVERAGE</b>                    | <b>7.9</b>  |
| Cod Fillet                             | 7.1         |
| Haddock                                | 6.8         |
| Herring                                | 7.0         |
| Trout                                  | 10.8        |
|  |             |
| <b>MILK, DAIRY &amp; EGGS</b>          |             |
| <b>MILK AND NON-CHEESE AVERAGE</b>     | <b>1.0</b>  |
| <b>LOW PROTEIN CHEESE AVERAGE</b>      | <b>8.0</b>  |
| <b>HIGH PROTEIN CHEESE AVERAGE</b>     | <b>23.6</b> |
| Buttermilk                             | 0.5         |
| Low Fat Cheddar                        | 26.4        |
| Gouda Cheese                           | 18.6        |
| Cottage Cheese                         | 8.7         |
| Sour Cream                             | 1.2         |
| Whole Egg                              | 8.2         |
| Egg White                              | 1.1         |



|                                 |             |
|---------------------------------|-------------|
| Egg Yolk                        | 23.4        |
| Hard Cheese                     | 19.2        |
| Ice Cream                       | 0.6         |
| Whole Milk                      | 1.1         |
| Whole Milk Pasteurized          | 0.7         |
| Parmesan Cheese                 | 34.2        |
| Processed Cheese                | 28.7        |
| Whole Milk Yogurt w/Fruit       | 1.2         |
| Whole Milk Yogurt Plain         | 1.5         |
|                                 |             |
| <b>SUGAR AND SWEETS</b>         |             |
| <b>SUGAR AND SWEETS AVERAGE</b> | <b>4.3</b>  |
| Milk Chocolates                 | 2.4         |
| Honey                           | -0,3        |
| Cake                            | 3.7         |
| Marmalade                       | -1.5        |
| White Sugar                     | -0.1        |
|                                 |             |
| <b>VEGETABLES</b>               |             |
| <b>VEGETABLES AVERAGE</b>       | <b>-2.8</b> |
| Asparagus                       | -0.4        |
| Broccoli                        | -1.2        |
| Carrots                         | -4.9        |
| Cauliflower                     | -4.0        |
| Celery                          | -5.2        |
| Chicory                         | -2.0        |
| Cucumber                        | - 0.8       |
| Eggplant                        | -3.4        |
| Leeks                           | -1.8        |
| Lettuce                         | -2.5        |
| Mushrooms                       | -1.4        |
| Onions                          | -1.5        |
| Peppers                         | -1.4        |
| Potatoes                        | -4.0        |
| Radishes                        | -3.7        |
| Spinach                         | -14.0       |
| Tomato Juice                    | -2.8        |
| Tomatoes                        | -3.1        |
| Zucchini                        | -2.6        |

# Benefits of Alkaline Water

| FRUITS, NUTS, AND JUICES                 |             |
|--|-------------|
| <b>FRUITS, NUTS, AND JUICES AVERAGES</b> | <b>-3.1</b> |
| Apple Juice                              | -2.2        |
| Apples                                   | -2.2        |
| Apricots                                 | -4.8        |
| Bananas                                  | -5.5        |
| Black Currants                           | -6.5        |
| Cherries                                 | -3.6        |
| Grape Juice                              | -1.0        |
| Hazelnuts                                | -2.8        |
| Kiwi Fruit                               | -4.1        |
| Lemon Juice                              | -2.5        |
| Orange Juice                             | -2.9        |
| Oranges                                  | -2.7        |
| Peaches                                  | -2.4        |
| <b>Peanuts</b>                           | <b>8.3</b>  |
| Pears                                    | -2.9        |
| Pineapple                                | -2.7        |
| Raisins                                  | -21.0       |
| Strawberries                             | -2.2        |
| <b>Walnuts</b>                           | <b>6.8</b>  |
| Watermelon                               | -1.9        |
|  |             |
| GRAIN PRODUCTS                           |             |
| <b>BREAD AVERAGE</b>                     | <b>3.5</b>  |
| <b>FLOUR AVERAGE</b>                     | <b>7.0</b>  |
| <b>NOODLES AVERAGE</b>                   | <b>6.7</b>  |
| Mixed Grain Rye Bread                    | 4.0         |
| Rye Bread                                | 4.1         |
| Mixed Grain Wheat Bread                  | 3.8         |
| Wheat Bread                              | 1.8         |
| White Bread                              | 3.7         |
| Cornflakes                               | 6.0         |
| Rye Crackers                             | 3.3         |
| Egg Noodles                              | 6.4         |
| Oats                                     | 10.7        |
| Brown Rice                               | 12.5        |



|                              |             |
|------------------------------|-------------|
| White Rice                   | 1.7         |
| Rye Flour                    | 5.9         |
| White Spaghetti              | 6.5         |
| Whole Grain Spaghetti        | 7.3         |
| Wheat Flour                  | 8.2         |
|                              |             |
| <b>LEGUMES</b>               |             |
| <b>LEGUMES AVERAGE</b>       | <b>1.2</b>  |
| Green Beans                  | -3.1        |
| Lentils                      | 3.5         |
| Peas                         | 1.2         |
|                              |             |
| <b>FATS AND OILS</b>         |             |
| <b>FATS AND OILS AVERAGE</b> | <b>0</b>    |
| Butter                       | 0.6         |
| Margarine                    | -0.5        |
| Olive Oil                    | 0.0         |
| Sunflower Oil                | 0.0         |
|                              |             |
| <b>BEVERAGES</b>             |             |
| <b>ALKALI RICH AVERAGE</b>   | <b>-1.7</b> |
| <b>ALKALI POOR AVERAGE</b>   | <b>0</b>    |
| Draft Beer                   | -0.2        |
| Pale Beer                    | 0.9         |
| Stout Beer                   | -0.1        |
| Coco-Cola                    | 0.4         |
| Cocoa                        | -0.4        |
| Coffee                       | -1.4        |
| Mineral Water                | -1.8        |
| Red Wine                     | -2.4        |
| Tea                          | -0.3        |
| White Wine                   | -1.2        |

Eat healthy alkaline foods and drink 3-4 quarts of ionized alkaline water every day!

#### References

1) Remer and Manz, J. Am Diet Assoc. 95: 791-797, 1995.

# Benefits of Alkaline Water

## **A Paleo-Biological View of the Oxidation-Reduction Potential (ORP) and How it Relates to Alkaline, Ionized, Microclustered Water**

*By Dr. Peter L. Kopko, D.C.*

A very simple and at the same time complex event took place approximately 2.5 billion years ago. This is when a special form of bacteria called blue-green algae learned how to use sunlight to strip hydrogen off of water and combine it with carbon dioxide to make sugars—the origin of photosynthesis. But what does this have to do with oxidation-reduction potentials? The answer is the creation of oxygen.



A by-product of photosynthesis is the formation of free oxygen or  $O_2$ . As the predominant blue-green algae utilized photosynthesis and stripped hydrogen off water, the “waste gas” produced was oxygen. At this stage of the planet’s development, oxygen was a new comer. At first, it was bound to oxygen-hungry minerals like iron and silicon and then absorbed into solution in the oceans. Once these reservoirs were full it began to accumulate in the atmosphere, fundamentally changing the chemistry of the planet forever. And it is this chemistry that we are interested in.

Chemistry is essentially the science of moving electrons around. A chemical bond between two atoms is actually a pair of electrons shared by two atoms and a chemical reaction is the movement of electrons from some bonds to others. In any chemical reaction, bonds between certain atoms, those in the reactants are broken and at the same time new bonds



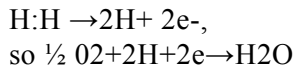


are formed in the products. This is a coupled oxidation and reduction reaction. The bond that gives up its electrons is oxidized and the bond that received the electrons is reduced. When it comes to human physiology and life itself it appears it is better to receive electrons than to give them. Aging itself may be a process of losing electrons and becoming oxidized. So-called free radicals strip away electrons from cells causing a myriad of problems. The rusting of metal, the browning of a cut apple and the aging of human cells whether they be skin cells or heart cells are all at the mercy of free radicals. What to do?

When electrons from atoms or molecules are put together the available electrons will move toward bonds that are more positive or lacking electrons. How does this work?

Lets look at water,  $O_2 + 2H_2 \rightarrow 2H_2O$  or if we balance it to make one molecule of  $H_2O$  (the number

of atoms must be the same on each side of the equation) so when you combine oxygen and hydrogen to the water, the electrons of the hydrogen move toward the oxygen. In the process hydrogen is oxidized and oxygen is reduced.



So, what does this have to do with human physiology, drinking water and health? Let me explain:

The game of survival is to not get oxidized to death, literally. So we can take anti-oxidants like Vitamin C, Vitamin E, etc., free-radical scavengers. These





# Benefits of Alkaline Water

substances give up electrons and help restore the cells and molecules to a healthy state. What if I told you that your drinking water could do the same thing?

How?

Ionized, alkalinized, microclustered water has free electrons available to do free radical scavenging. This is referred to as the negative ORP or oxidation-reduction potential. We have come full circle now.

## **Water on the Global Level**

*By Dr. Peter L. Kopko, D.C.*

Our planet's drinkable water is quickly disappearing. The mismanagement of our natural water reserves through its misplacement and displacement is contributing to climate change as well. Industrialized nations have polluted the surface water to the point that we are now taking water from the ground, the wilderness and watersheds, and moving it to where we need it. It is moved to big cities and then dumped into the ocean. Furthermore,

we pave over water retentive lands, frustrating the hydrologic cycle to fulfill its responsibility and bring the water back.

This global water problem is further complicated by what is termed the "virtual water trade." The virtual water trade is the process where one country uses vast amounts of water to produce commodities that are exported to other countries. Everyday in the U.S., 1/3 of all domestic water use is for the production of exportable commodities. This is taxing our drinkable water reserves. In fact, Australia, another country involved in the virtual water trade, has hit the "water wall." They are running out of drinkable water.

It was believed until recently that the hydrologic cycle could not be interrupted but we now know that it can and has been dramatically and deeply affected by our abuse and displacement of water.

A global water cartel is forming throughout the world. The future



may be more about water and less about oil. Corporations are actively engaging in the water business. Further proof of this is the privatization of municipal water supplies. Large corporations now survey the globe looking for aquifers much like they did in the past looking for oil or mineral reserves. There are huge aquifers in Latin America that are being surveyed.

As with global warming, the global water crisis is often written off as a cyclical event in nature. Global warming is not the result of cyclical temperature changes and the global water issue is not a result of cyclical draught.

Some startling facts:

- Lake Meade at its present rate of drying up will be gone in 13 years.
- 50 billion bottles of water are sold each year and 95 percent of the plastic bottles are not recycled.
- The average American uses about 150 gallons of water a day, this includes private and domestic use.

- The average British citizen uses 30 gallons per day, private and domestic.
- Kenyans use 3 gallons per day period.
- It takes 74 gallons of water from planting the seed, processing the beans, to produce one cup of coffee.
- It takes 600 gallons of water to produce the corn that is then fed to the cow to produce 1/3 of a pound of hamburger.

In conclusion, geophysicists have recently determined that from damming up water in huge dams and redirecting streams, rivers and lakes, the speed of the earth's orbit has been altered and has shifted the tilt of axis and the shape of the gravitational field.



# Benefits of Alkaline Water

## Organic Water

*By Dr. Peter L. Kopko, D.C.*

Drinking water in its most natural state; glacial, ionized, microclustered and alkaline, is as important as eating fruits and vegetables in their natural state, organic. Organic foods, primarily promoted by health food advocates, and the drinking of restructured water should go hand-in-hand. Glacial and restructured water is the “organic” form of water. Tap water and even most bottled water would be the processed, commercial and “inorganic” form of water. Why make an effort to consume organic foods and not “organic water.” Water is critical to life and incredibly abundant on earth. But how available is natural, clean water?

There are an estimated 1.4 billion cubic kilometers of water on this planet. Not all of this water is potential fresh drinkable water. 97 percent of all this water covers 2/3 of the surface of the earth and is oceanic water, salt water. That leaves only 3 percent of all the water on the planet as fresh

water and in fact 90 percent of this fresh water is locked up in polar ice-caps and glaciers. Only about 0.3 percent of all water on earth is currently available fresh water and almost all of this is located in natural underground aquifers. Less than 1 of every 5,000 liters of water on earth can be found as either surface or atmospheric fresh water. However, this seemingly minute fraction still represents an estimated total volume of more than 200,000 cubic kilometers. That’s enough water to cover all of Canada to a depth of 17 meters!



Yet, we pollute this precious water and make it even more scarce. We need to change our attitude and philosophy about the importance of keeping our



water clean and pure, as we have done with the quality of our food, vis-à-vis, organic farming.

In the mean time, we must optimize the drinkable water that we have available. One such technology is the use of water ionization, which restructures water and returns it to its natural state.

## **Snowflakes and Restructured Water The Hexagonal Connection**

*By Dr. Peter L. Kopko, D.C.*

Everyone knows that a snowflake has six arms or six sides, which by definition makes it hexagonal. While pentagonal patterns (five sided) abound in living forms, the mineral world favors twofold, threefold, fourfold, and sixfold symmetry. The hexagon is a “close-packing” shape that allows for maximum structural efficiency. It is very common in the realm of molecules and crystals, in

which pentagonal forms are almost never found. Steroids, cholesterol, benzene, TNT, vitamins C and D, aspirin, sugar, graphite – all show sixfold symmetry. The most famous hexagonal architecture is built by bees, wasps and hornets. So what does this have to do with restructured water?

Restructured water is water that has been ionized, microclustered and alkalized. The hexagonal connection lies in the fact that microclustered water is water that has become “wetter.” In other words, when the surface tension of a liquid is reduced, the liquid becomes more “liquid.” In the case of restructured water, ordinary tap or processed bottled water, which has 13-16 molecules of water,  $H_2O$ , per cluster is reduced to 6 molecules per cluster. What makes water bead-up on a surface is high surface tension. The ability of a water spider to “walk on water” is due to the high surface tension of the water. Restructured microclustered water is just the opposite. It has tiny



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clusters and less surface tension which makes it ideal for drinking and optimal absorption. It is believed that natural glacial water has the optimal cluster size at six. Why?

It is a fact of physical science that as a liquid or gas cools, the molecules contract and become more organized, as in a crystal or solid. Conversely, as you heat a liquid or solid, the molecules expand and become more disorganized, (a gas). As water chills and approaches freezing, it contracts and forms ice crystals, which are composed of six water molecules. This appears to be nature's way of best organizing water into ice crystals. It is my opinion that nature's chosen hexagonal pattern must be the most efficient geometric pattern for receiving, storing and transmitting energy from water molecules to other molecules, specifically living tissues. Remember: Nature is already utilizing this pattern in bio-chemicals like

steroids, cholesterol, sugar, vitamin C, etc., why not water? As I mentioned in a previous article, computer scientists are experimenting with water molecules as memory devices for computers. Water molecules apparently can retain information. It is my opinion that many homeopathic remedies work on this premise and that their "information" is stored and transmitted via water molecules. Furthermore, as glacial six-sided water crystals melt, they produce, in my opinion, naturally microclustered hexagonal water. There is probably an equilibrium between ice and water with both being hexagonal. But how can we get this water at home?





The technology of ionization through electrolysis creates micro-clustered water with a predominance of clusters with six molecules. Experiments have been done on this water with NMR(nuclear magnetic resonance) instrumentation and in fact the hexagonal water has been verified.

So, if you are unable to catch a fresh drop of water from the edge of a glacier, consider utilizing an ionizing, microclustering, alkalizing water machine.

### **Is Ionized, Microclustered, Alkaline Water ‘Natural’?**

*By Dr. Peter L. Kopko, D.C.*

The basic issue of what is natural and what is not is a complicated one in view of our planet’s present state of ecology. Competitors of water ionizing machines that use chemicals, crystals and other additives to restructure water, claim that their “additive” restores water to its “perfect, natural” state. And that it

is more natural than running water through a “machine.” They further claim that they possess a technology and a “proprietary substance” that they add to the water to accomplish this means. I do not believe that you will find their equipment in nature yet they criticize all other water technologies as being unnatural and therefore potentially harmful or just wrong. They also claim that alkaline water would be harmful to someone who is already physiologically overly alkaline. We at LifeIonizers do not disagree with this supposition, however the medical literature is replete with references that allude to the consequences of the Western Acidogenic Diet as being overly acidic, producing a low-grade, chronic metabolic acidosis. By far the average meat-based diet eating person is overly acidic. There is no real argument here. This is an attempt to discredit a concept by finding the single subclass that would not benefit. A weak argument at best. Furthermore, our product has several different settings to fine tune the level of pH





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required based on their present state of health, diet and other factors like urine and saliva pH.

People today are not in a perfect state of health. They are in an “unnatural” state of health. Cardiovascular disease, cancer, diabetes, osteoporosis, do I need to go on? What is “natural” about defibrillating a dying heart? Nothing, but please defibrillate mine if it stops! Or supplementing an 81 year old on fifteen different medications including blood thinners to the point of horrible spontaneous bruising, with bioflavanoid and vitamin C pills which halted the bruising. As a doctor of chiropractic, darkfield microscopist and nutritionist for over 25 years, I can tell you with authority that eating some oranges, the natural way, would not have remotely addressed this unnatural drug side-effect. If drinking this “unnatural” water brings them back to a natural state of health, so be it!



According to the naturalists, to purify, alkalinize, ionize and microcluster water with a machine is to render it harmful or useless. Quite the contrary. History is on our side. The Japanese have used this technology and water for decades with great success. Medical and veterinarian peer reviewed literature is replete with evidence of its beneficial uses.

The naturalists claim that by ionizing water you are trying to turn it into a “food.” This is the weakest of all arguments. A similar argument could be made that when adding more fruits and vegetables to one’s diet, thus increasing antioxidants,







you are using food as a medicine. What's wrong with that? Let food be your medicine. If ionizing and alkalizing water adds beneficial alkaline minerals (calcium, magnesium, potassium) and increases its antioxidant potential, which it does, if that makes it a "food," so be it. They further claim that when water becomes a "food" it takes longer to be absorbed. Taken literally, this is true. Tap water is more quickly absorbed than soup broth. However, through darkfield microscopy we have objectively demonstrated repeatedly that in a person with objective evidence of red blood cell hypercoagulation (blood sludge), in as little as 30 minutes with the ingestion of 3/4 of a liter of ionized, alkalized, microclustered water, the hypercoagulation is reversed. This is objective evidence of the water being rapidly absorbed. This supposed issue of water being or not being a food is one of semantics not science.

## **The Truth About Alkaline, Ionized, Microclustered Water**

*By Dr. Peter L. Kopko, D.C.*

The quickest way to discredit the facts about anything is to manipulate the premises that said facts are based on. Thus creating a "house of cards" predetermined to fall. Let me be perfectly clear: I am NOT saying that "pure water" is being alkalized or passed through electrolysis. Pure water by definition is mineral-less or de-ionized. In fact the "purest" of pure water is distilled water. Distilled water is the correct chemical name. "Pure water" does not exist in nature. Minerals are always present in water in nature, e.g., rain water, glacial water, lake water, etc. "Pure water" is really a misnomer and a creation of marketing by bottled water companies.

This convenient misunderstanding for the nay-sayers comes about from changing the word **purified** to pure. Top ionizers PURIFY



# Benefits of Alkaline Water

the water first to remove chemicals like chlorine, fluoride, heavy metals, etc. At no time are the beneficial alkaline minerals (calcium, magnesium, potassium, sodium) ever removed. In fact, when people have reverse osmosis units which do remove 95 percent of everything in water, good and bad, they must add a “Remineralization filter” BEFORE the water enters the electrolysis process. Ionizers are not applying electrolysis to pure, de-ionized distilled-like water.

Let’s talk about ionization. When water has minerals in it, say calcium, magnesium, potassium, sodium, the water acting as a solvent combines with these molecules creating a net charge on them, they have become “polarized”. Now, when this water is passed by negative and positively charged electrodes, it can be split up per say, into positive hydrogen and negatively charged hydroxyl ions,  $H^+$  and  $(OH)^-$ . This process creates a net negative charge to the  $(OH)$  water or negative ORP,

ox-redoxpotential. When a substance has a positive ORP it will oxidize another substance. Air oxidizes metal, creating rust. When a substance has a negative ORP, it will **reduce** the oxidation of another substance. In other words, help preserve it. It is true that this dissociation is not permanent and that the hydrogen and hydroxyl ions will recombine at a predictable rate. But while they are dissociated, the water has great antioxidant activity because of the negative ORP. The time frame is several hours. It would be analogous to drinking fresh carrot juice or some juice that has been left out for several hours. It goes without saying that the fresher juice has greater potential health benefits. The juice overtime will be **oxidized** much like when a cut apple starts to turn brown. When you make fresh carrot juice, you drink it within minutes to hours, don’t you? In that sense, the same needs to be applied to alkaline, ionized, microclustered water. The “chi” or inherent energy in the juice and



water will be lost over time. The antioxidant (negative ORP) benefits of ionized water doesn't last forever. That is why the nay-sayers continue to test "old water" and do not find a negative ORP. This water is to be consumed the day it is made.



Alkaline or acidic ionized water was not recently invented, contrary to the nay-sayers. It is referred to in the medical literature as "alkaline reduced water" or electrolyzed water produced by electrolysis. Here is one example of many articles that can be found easily at any medical literature data base search engine. This article talks about how reduced water, i.e., negative ORP water helps protect against superoxide radicals. Superoxide free

radicals are extremely harmful to the human body. That is why they are called **superoxide radicals**.

**The mechanism of the enhanced antioxidant effects against superoxide anion radicals of reduced water produced by electrolysis.**

**Biophys Chem. 2004**

Jan 1;107(1):71-82.

Hanaoka K, Sun D, Lawrence R, Kamitani Y, Fernandes G.

Bio-REDOX Laboratory Inc. 1187-4, Oaza-Ueda, Ueda-shi, Nagano-ken 386-0001, Japan.

hanak@rapid.ocn.ne.jp

**We reported that reduced water produced by electrolysis enhanced the antioxidant effects** of proton donors such as ascorbic acid (ASA) in a previous paper. We also demonstrated that reduced water produced by electrolysis of 2 mM NaCl solutions did not show antioxidant effects by itself. **We reasoned that the enhancement of antioxidant effects may be due to the increase of the ionic product of water as solvent.** The ionic product of water (pK<sub>w</sub>) was estimated by measurements of pH and by a neutralization titration method. As an indicator of oxidative damage, Reactive Oxygen Species- (ROS) mediated DNA strand breaks were measured by the con-



# Benefits of Alkaline Water

version of supercoiled phiX-174 RF I double-strand DNA to open and linear forms. Reduced water had a tendency to suppress single-strand breakage of DNA induced by reactive oxygen species produced by H<sub>2</sub>O<sub>2</sub>/Cu (II) and HQ/Cu (II) systems. The enhancement of superoxide anion radical dismutation activity can be explained by changes in the ionic product.

The article below references the use of **acidic**, ionized water, known in the medical literature as EO-A, electrolyzed **oxidizing** water. It too has a purpose. This research elucidates the use of what is referred to as EO-A water which stands for acidic electrolyzed water which has a pH of 2.6 and an ORP of positive +1,150. This water is a cost effective and environmentally safe because there is no chemical residue.

## **Comparison of electrolyzed oxidizing water with various antimicrobial interventions to reduce Salmonella species on poultry.**

### **Poult Sci.**

2002 Oct;81(10):1598-605.

Fabrizio KA, Sharma RR, Demirci A, Cutter CN.

Department of Food Science, The Pennsylvania State University, University Park 16802, USA.

Foodborne pathogens in cell suspensions or attached to surfaces can be reduced by electrolyzed oxidizing (EO) water; however, the use of EO water against pathogens associated with poultry has not been explored. In this study, **acidic EO water [EO-A; pH 2.6, chlorine (CL) 20 to 50 ppm, and oxidation-reduction potential (ORP) of 1,150 mV]**, basic EO water (EO-B; pH 11.6, **ORP of -795 mV**), CL, ozonated water (OZ), acetic acid (AA), or trisodium phosphate (TSP) was applied to broiler carcasses inoculated with Salmonella Typhimurium (ST) and submerged (4 C, 45 min), spray-washed (85 psi, 25 C, 15 s), or subjected to multiple interventions (EO-B spray, immersed in EO-A; AA or TSP spray, immersed in CL). Remaining bacterial populations were determined and compared at Day 0 and 7 of aerobic, refrigerated storage. At ST 1.41 log<sub>10</sub>, whereas EO-A water reduced ST approximately 0.86 log<sub>10</sub>. After 7 d of storage, EO-A water, OZ, TSP, and AA reduced ST, with detection only after selective enrichment. Spray-washing treatments with any of the compounds did not reduce ST at Day 0. After 7 d of storage, TSP, AA, and EO-A water reduced ST 2.17, 2.31, and 1.06 log<sub>10</sub>, respectively. ST was reduced 2.11 log<sub>10</sub> immediately following the multiple interventions, 3.81 log<sub>10</sub> after 7 d of storage. Although effective against ST, TSP and AA are costly and adversely affect the environment. This study demonstrates that EO water can reduce ST on poultry surfaces following extended refrigerated storage. PMID: 12412930

[PubMed - indexed for MEDLINE]



The nay-sayers continue to claim ORP is an esoteric concept and that it is “chemically impossible” to create. However Pennsylvania State University thinks it can be created. They did the published research on the above article. There are dozens of articles that I have read referencing the use of alkaline and acidic ionized water. Go to the medical literature search engine Pub-Med and check it out. This water has been in use for decades. And last, but not least, yes you can ionize **purified** water. Purified water not “pure,” de-ionized or distilled water!

### **Alkaline and Acidic Water Uses**

Ionized, alkaline mineral water delivers nutrients to our cells more efficiently; it hydrates our bodies better; it cleanses our systems; and it energizes us far more than tap or spring water. It contains natural antioxidants that neutralize free radicals and gives us more energy.

The use of alkaline water is not new. Many Eastern cultures have been using it for over a half century. There are numerous health benefits to drinking alkaline water, but what many people might not realize is how many other uses ionized water can provide. The scientific process of Ionization splits the water into two streams, Alkaline and Acidic. Both streams can be used in different ways. Alkaline, ionized water is great to drink, but it can also be used to prepare and cook food. Experiment with these suggestions on preparing food, let them give you inspiration and let me know how they turn out.





# Benefits of Alkaline Water

As you read over the following suggestions keep in mind that when first approaching someone about an ionizer, it is important that you find out exactly in what way the person will benefit from the water and what applications will be key for them.

## **Ionized alkaline water for food preparation:**

- Soaking & Sprouting seeds, nuts, legumes, grains & more (activates enzymes).
- Smoothies (neutralizes acidity in fruit and delivers nutrients more efficiently).
- Add to acidic fruit juices to make them alkaline. (Many people's stomachs react poorly to acidic fruit juices.)
- Acidic juices and adding alkaline water will allow them to then drink fruit juices.

- Soups (contents of soup taste better, broccoli).
- Storage of fruits & vegetables—they last much longer.
- Removes pesticides, herbicides, waxes & more from fruits & vegetables.
- Any recipe that calls for water.

## **Cooking with Ionized Water**

- Use alkaline water when cooking to get the best tasting food. Acidic tap water breaks down the food, so you tend not to get the real flavor. The taste comes out full, food is tender, and not as much seasoning is required.
- Fresh meat and astringent-tasting vegetables can be soaked in alkaline water for 20-30 minutes before they are cooked. This will create a wonderful taste with less odor and more taste.
- Red meats and liver soaked in alkaline water for 20-30 minutes will draw the blood out and eliminate odors.







- Marinate meats to tenderize them. Tough meats can turn out really nice using this method.

- Fish turns firm and juicy with less odor when soaking and then cooking it with alkaline water.

- Rice turns softer and fluffier. First, wash the rice in level one alkaline water. Next, soak the rice in level four alkaline water for 20-30 minutes. Cook the rice in the high alkaline water that it was soaking in and you will create moist, soft rice.

- Boil your eggs in acidic water and the yolks turn-out bright yellow not gray, and are perfectly symmetrical and taste better. The shells come off with such ease too!

- Vegetables will be a brighter green since the chlorophyll isn't broken down. Acids are also neutralized, so any harsh tastes will be removed.

- Noodles cooked in alkaline water will prevent the noodles from becoming soggy.

### **Alkalize your body with beverages**

- Tea with alkaline water will make the color of the tea vivid, lessen the astringency, and make it mellow and delicious.



- Coffee with alkaline water allows you to use less grounds with the same flavor and strength. Bitterness will be replaced by a smooth, aromatic experience.

- Alcohol: imparts a mellow and delicious taste and prevents the negative physical reactions associated with drinking alcohol as it will neutralize the acid. When drinking alcohol, drink three to four cups of level two alkaline water before and after drinking to prevent effects. You can also add it to cocktails to soften and smooth the taste.



# Benefits of Alkaline Water

## Physical Uses of Alkaline Water:

Alkaline Water helps to regulate your physical condition. Here are some examples of conditions alkaline water can help with:

- **Gastrointestinal Fermentation:** If you drink alkaline water on an empty stomach, it will ease your discomfort.
- **Constipation:** Drink alkaline water before you eat and it will hydrate your bowels and improve this condition.
- **Diarrhea:** Since you quickly become dehydrated with diarrhea, alkaline water, with three times the concentration of water molecules, will help keep you hydrated and reduce discomfort.
- **High or Low Blood Pressure:** Alkaline water will help regulate your blood pressure if you drink it one hour before eating.
- **Blood Sugar Levels:** Drink three cups or more on an empty stomach.

## Household Uses of Alkaline Water:

### Animals and pets:

- Can be used in their drinking water to maintain their health & less odor in feces.

### Dying Garments:

- Results in vivid colors.

### Plants and Flowers:

- Healthier
- Live Longer
- Need Less Water
- Won't need pesticides
- Extends the life of cut flowers





### **Uses for Acidic Ionized Water:**

- Acidic ionized water has an astringent and constricting effect on what it comes in contact with. For this reason, it will tighten and smooth your skin. It is particularly effective in the treatment and prevention of pimples and rashes.
- Your Face: improves the health of your face, makes it smoother, and more compatible with makeup.
- Shampooing: Use acidic water before and after shampooing. This will protect your hair by preventing hair loss, itching, and dandruff. It leaves your hair soft and non-sticky.
- Bathing: Mix in six to ten liters of acidic water in your bath, it will improve the overall health and beauty of your skin.

### **Home Remedies with Acidic Water:**

Natural acidic water has a slight disinfecting and sterilizing ability, which makes it effective in treating minor skin wounds. It even kills the bacteria that cause bad breath.

#### **Here are some other benefits:**

- Gargling: Prevents infection of germs by killing the microbes that cause colds and tonsillitis.
- Burns: Alleviates the pain of burns and hastens recovery.
- Chapped Hands: Accelerates recovery from chapped hands.
- Sunburn: relieves inflammation and accelerates recovery.
- Abrasions and Cuts: disinfects and accelerates recovery.
- Eczema and Acne: kills bacteria, keeps skin clean, improves its' condition.



# Benefits of Alkaline Water

## Other Uses for Acidic Water

**Natural acidic water has a slight bleaching effect. Here are some useful cleaning applications:**

- House cleaning: dirt and grime are removed.
- Polishing: effectively cleans mirrors, glass, knives and eyeglasses.
- Washing Vehicles: dirt is removed easily.
- Baths: the bath water is quickly heated, scale won't adhere to tub. Great for use in your hot tub.
- Cutting Board: quickly washes and sanitizes.
- Pots and pans with baked food: when soaked overnight, stains and burns are removed.
- Sponges: Fungal and bacterial growth is stopped, preventing bad smells and contamination.
- Odors on your hands: smell is removed and the itching is eliminated.

- Pets: Acid water is great for bathing your pets as it helps address skin disease and itching and leads to an overall healthier coat of fur.

## Brushing Teeth and Shaving:

- Both brushing your teeth and rinsing with **alkaline** water will help maintain healthy teeth and gums. Also, the natural healthy bacteria of the oral mucosa will be maintained, limiting bad breath.



- Rinsing and soaking your toothbrush in **acidic** water will help keep it sanitary.

## Sanitizing Effect:

- Acidic water is an effective agent for sanitizing bug bites, and through its skin toning effects, it will ease itching.

## Flower Arrangement:

- Use acidic water in vases to keep cut flowers fresher for a longer time. You will see the difference!



## The Alkaline Diet Recipes

Katy Joy Freeman

*Raw Food Chef*

These two soups are Live soups. What does that really mean? It means we are preserving the enzymes and good nutrients by not heating the soup over 105 degrees. You'll reap many more benefits from your foods by eating them raw or slightly heated.

### Creamy Cucumber Soup

- 1 cucumber, peeled and cubed
- 1 medium ripe avocado
- 1/2 lemon, juiced (or just squeeze, but be careful to omit the seeds)
- 1/2 cup *ionized water*
- 2 tablespoons of fresh Dill / can use dry but use less
- sea salt to taste / be sure not to good salt!

Blend all ingredients and slightly heat if you want or enjoy at room temperature.

Top with any or all of the following: micro greens (sprout mixture), spouted sunflower seeds, diced celery, small avocado chunks.

### Live Cream of Tomato Soup

*(Serves 4)*

This has become an all time comfort food in our house! The *ionized water* used in this soup really gives it an energy boost! Play around with the ingredients and have fun adding what sounds good to you.

- 3-4 medium tomatoes
- handful of fresh basil
- tsp fresh oregano (can use dried as well; but use less)
- 1-2 cloves minced garlic
- 1 medium avocado
- 1/4 cup soaked sun-dried tomatoes
- 3/4 to 1 cup *ionized water*
- mineralized salt to taste

Blend all ingredients in Vitamix or any powerful blender.

Transfer to soup pan and slightly heat.

Suggestions for toppings: pine nuts, chopped sprouts, chopped celery, chopped mushrooms, chopped olives, chopped onions, chopped sun-dried tomatoes

# Benefits of Alkaline Water

## Master Cleanse Detox Program

This drink is a great way to start your day! It's mostly *ionized water* with lemon and cayenne pepper give a nice boost to your immune system. We regularly enjoy this cleansing elicitor in our house first thing in the morning or sometimes all day for a mild detox and cleanse.

- 16 oz *ionized water*
- 2 tablespoons fresh squeezed organic lemon juice
- 1/8 tsp cayenne pepper
- 1 tablespoon organic grade B maple syrup



## Seasonal Green Smoothie

A great way to maintain an alkaline lifestyle is getting enough leafy greens and ionized water in your diet. What better way to do this than starting your day with a delicious green smoothie. Try to drink a green smoothie a couple times a week and see if you notice a difference! They just may become your newest healthy addiction!

- 1 ripe banana
- 2 persimmons - diced
- 2 dates/ pitted and soaked in 3/4 cup *ionized water* - may add more water if you want it thinner
- 2 handfuls of greens of your choice - try one or more of the following: romaine lettuce, kale- de-stemmed, spinach, cilantro, parsley, etc...

Mix all ingredients including the date soaking water in a high speed blender, pour, and, enjoy!





## Alkaline Comfort Soup

I was recently healing from a cold and had not gone out to the grocery store for almost a week. I wanted to make something soothing and warm to comfort myself and got real creative with some ingredients I had on hand. This wonderful soup was the result. I hope you enjoy it as much as I did!

- 1 zucchini – chopped
- 1 ripe avocado
- 1 cup *ionized Water*
- 1 tbsp cold pressed extra virgin olive oil
- 1 tbsp lime juice
- ¼ cup fresh salsa – I used one that had fresh garlic, tomato, onion, and cilantro in it!
- ¼ cup diced red bell pepper
- 2 tbsp raw pumpkin seeds
- Handful of fresh parsley
- Handful of fresh cilantro
- 1 tbsp of fresh basil
- 1 tsp dried cumin
- Salt to taste

Put all ingredients in a high speed blender and mix until smooth and creamy. Transfer to a medium

sauce pan and slightly heat – best not to get it over 110 degrees to preserve all the enzymes.

Suggested toppings: raw pumpkin seeds, chopped celery, fresh cilantro, diced tomatoes.

## The Perfect Egg

If you have an ionizer in your house, chances are you are mostly using the alkaline water function more frequently than the *acid water* option. One reason might be because you are not quite sure how to get the most use from it. Today I have a great tip for your getting the most out of your *acid water* and will continue to provide practical applications for you over time.

Our son is home visiting for the holidays. He is a Vegetarian and into bodybuilding. He likes to consume a lot of egg whites because they are one of the highest non-vegan biological protein sources available. My husband and I suggested he boil the eggs in *acid water* as we heard that it makes the perfect egg (by this we mean a perfectly

# Benefits of Alkaline Water

centered yellow egg yolk and the shell brakes off very easily!) I don't personally eat eggs anymore, so I had not tried this before and was very curious if the acid water really made a difference. I was blown away at the results. The eggs cooked perfectly and were so easy for our son to peel and eat. The center was perfectly round and yellow – not gray at all.

Directions: Press the acid water function on your ionizer or use the drain off from the alkaline function and fill a saucepan about half way full. Place eggs in the water and heat on high. Once the water boils let the eggs boil for one minute. Turn off heat and cover. Let the eggs sit in the covered hot water for 15 minutes.

Enjoy your Perfect Egg!

## Successfully Storing Celery and Carrots

How many times have you bought fresh veggies to snack on, use in salads, or other recipes only to find that you don't use them before they become limp and wilted? Do you throw away veggies because of this? This tip will decrease waste and keep your veggies crisp and crunchy!

Cut up celery and carrots into desired sizes. Use container of choice and place veggies inside. Fill up the container with Ionized water and store in refrigerator for up to two weeks.

You will be amazed how fresh the *ionized water* will keep your veggies! The water can be changed after one week if you prefer, but it's not really necessary.





## Sundried Tomato and Garlic Spread

- 10-12 sundried tomatoes soaked in *ionized water*
- 3 tbsp Water from the tomato soak—really helps make this creamy and spreadable!
- 2 tbsp Fresh basil
- 3 tbsp organic olive oil
- 1-2 cloves garlic
- Pinch of sea salt (optional)

Soak sundried tomatoes in *ionized water* for 30 minutes

Mix all ingredients in high-speed blender or food processor until smooth. I use the magic bullet for spreads like this. Also works great for salad dressings!

I spread this on manna bread (found in the refrigerated section of your health food store—contains no flour) then dehydrate for a couple hours to make a wonderful healthy version of

garlic bread. Manna bread is as close to a raw bread that you will find. The bread consists of sprouted grains and is cooked at a low temperature. By dehydrating the spread you are still preserving the integrity of the enzymes, but this spread is delicious just as it is and can be eaten at room temp on any bread or cracker. Get creative and enjoy!

## Date Delights

Makes 10 large date balls  
or 20 small ones

If you are looking for something easy and tasty to make for your next social gathering this is a great choice. It's sure to be a crowd pleaser! Enjoy.



# Benefits of Alkaline Water

- 15 dates – soaked in *ionized water* and pitted (I soak for 20-30 minutes to soften)
- 3 tbsp shredded raw coconut
- 1 tbsp coconut oil
- 1 vanilla bean- cut open and scrape out insides
- 1 tsp non-alcohol vanilla extract
- Pinch of cinnamon
- Pinch of sea salt – optional
- $\frac{3}{4}$  cup chopped nuts – I prefer walnuts, almonds, or pecans

Mix all ingredients except nuts in food processor with S blade until smooth. Roll into balls and then roll in the nuts. Refrigerate.



## **Alkalize your Juice**

Many of us like a fresh glass of fruit juice but sometimes find this does not settle too well. That may be because most fruit juices are acidic. A friend of mine recently shared that he takes Ionized water and dilutes his juice and has noticed a big difference. He says that he can now enjoy his juices without the discomfort he experienced in the past. I tried this and boy is he on to something! The added *ionized water* creates a smooth alkaline treat.

Try it yourself and see what you think.



## Our Version of a Chocolate Shake!

Some people really want to make sure they are getting a lot of calories during the day. Body builders and other athletes as well as those wanting to increase their weight may enjoy this delicious chocolate shake! It can also be enjoyed as a satisfying meal replacement!



## Chocolate Shake

- 1/2 ripe avocado - remove the skin
- 2 tbsp raw cocoa powder
- 1/2 tbsp greens powder or a big handful of fresh greens (kale, romaine or spinach)
- 2 soft dates - pitted
- 1 ripe banana- can use a pear if you prefer
- 1 tbsp raw almond butter or any other nut butter- or 8 raw almonds
- 8 oz *ionized alkaline water*
- 8 oz almond milk or any other nut milk

Blend all ingredients and enjoy!

# Benefits of Alkaline Water

## How Ionizers Work

Developed in the 1950s, the Japanese invented water ionizers. By adding a strong electrical current to ordinary tap water, ionized, alkaline and acidic water are produced. This electrical process is known as electrolysis, which separates the water into two streams: alkaline mineral water for drinking and acidic mineral water for the skin, cleaning and sanitizing. The process also breaks large clusters of water molecules into “micro-clusters” that are readily absorbed by tissues and cells, leading to better hydration at the cellular level.

Before the electrolysis process begins, the water is filtered to reduce a wide variety of chemicals, heavy metals, and other contaminants. The highest quality ionizers use a nine-stage, dual filter system to clean the source water. The best ionizer companies

actually review water reports from the customer’s local water authority to customize the water filters being used with the consumer’s ionizer. This improves the quality and health of the source water being consumed.

The higher quality water ionizers are manufactured with seven platinum-coated titanium plates to deliver a more efficient electrical charge to the water. These water ionizers come in counter top and under the counter models. The newest ionizers are powered with a Switched-Mode Power Supply (SMPS) to more efficiently deliver amperage to the plates. The combination of mesh technology and SMPS boosts the pH and Oxidation-Reduction Potential (ORP) of the hexagonal water by five to ten percent.

A water ionizer has a chamber system with a series of platinum coated titanium plates that have posi-





tive and negative electrodes. The negative electrodes attract positively charged minerals such as calcium, magnesium, manganese and potassium, to its chamber; these are alkaline minerals. The positive electrodes attract negatively charged minerals, such as chlorine, fluoride, sulfur, phosphorus, bromine, silicon and copper to its chamber; these are acidic minerals. A porous membrane separates the two chambers and allows the alkaline and acidic water to move towards the positive and negative electrodes. The membrane separates and creates two different types of water; alkaline and acidic. The water ionizer then pumps a stream of alkaline water out of one outlet and a stream of acidic water out of another outlet. About 70 percent of the water produced by the ionizer is alkaline; about 30 percent of the water is acidic. In addition to creating two different types of water, ionization also creates “micro-cluster” water molecules.

Two factors determine the ability of a water ionizer to produce “micro-cluster” water: 1. The number and type of electrodes; and 2. The wattage being delivered directly to the water. Quality electrodes are designed to maximize contact time with the water. Utilizing mesh plate technology increases the flow of the water over and through the electrodes. Being that there is more contact time between the water and the mesh electrodes, a more consistent quality of ionized water is produced. Standard water molecules tend to cluster together in groups of 13 to 16 molecules. The ionization process breaks these larger clusters of water molecules apart, creating smaller clusters of five to six molecules known as “micro-cluster” water. These “micro-clusters” are more easily absorbed at the cellular level. This improves the delivery of nutrients and hydration at the cellular level. It also facilitates the flushing of toxins and acids out of the cells.



# Benefits of Alkaline Water

Water ionizers produce both acidic and alkaline water. Both alkaline and acidic water have benefits. Alkaline water is ideal for drinking, cleaning vegetables, and cooking. Its antioxidant properties (ORP) promote good health and slow the aging process. You should not drink acidic water. The astringent properties of acidic water in the 4.0 to 6.0 pH range are ideal for cleaning and toning the skin. Used as a rinse when washing your hair, acidic water helps the scalp, reduces tangles, and gives the hair a radiant shine. It also improves the appearance and quality of your pet's hair. Strong acidic water has excellent sanitizing properties and can be used for cleaning hard surfaces around the house, cleaning toothbrushes, hands and even as a mouthwash.



*Preventative Measures for a Healthy Future™*





**Dr. Peter L. Kopko, D.C.**

Dr. Kopko is a board certified doctor of Chiropractic with a sub-specialty in Sports Medicine. He became the first Certified Chiropractic Sports Physician in San Diego County and 90th in the world. He is a nutritionist and dark field microscopist with over 28 years experience. Dr. Kopko has been consulting for LIFE Ionizers where he performs literature research, science laboratory research and has served as their Chief Science Advisor for ten years now.