

Magnets and the Bioavailability of Water

AQUATOMIC© and the science behind it

Note: in the follow article we refer to "magnetizing water" and "magnetized water." This does not mean that the water has acquired a magnetic charge, only that the water has been subjected to a strong magnetic field, which has changed certain properties of that water.

Many of us understand our basic need to drink clean, healthy water. But what actually is healthy water, and why do we need it?

We are 70% water. All our biological functions including circulation, digestion, absorption, and cleansing depend on water. Water is required for blood, the lymphatic system, and healthy skin and muscles. Doctors, scientists, researchers and natural healers all agree that drinking enough water on a daily basis can help maintain good health and likely help fight disease. Most experts advise drinking 8 or more glasses of water a day to assist in maintaining healthy skin and properly functioning kidneys, bowels, and circulation -- all of which are at risk when we approach dehydration.

Dehydration

Beverages such as coffee, tea, alcohol and carbonated drinks do not hydrate the body. They are diuretics and actually dry out the body by depleting cells of water. For example, many people who have experienced a hangover find they are also very thirsty in the morning.

Being well-hydrated is important to your physical and mental health. Dehydration makes a person feel tired, cranky, and stiff-jointed. It can also bring on headaches, aches, cramps, and other, more serious physical ailments. Severe dehydration actually causes toxic acidic build-up, causing the body's organs, at some point, to prematurely fail. Untreated severe dehydration may result in seizures, permanent brain damage, or death.

Because water is so vital to our health, the type and quality of water we take into our body is important.

What is Healthy Water?

Simply stated, when treating water for drinking, we should “take out the bad” and “leave in the good.” In his book, *Healthy Water for a Longer Life*, Dr. Martin Fox, after researching the relationship of Heart Disease and Cancer as they relate to drinking water, concluded that “The positive picture emerging from this research is to drink hard water (high mineral content) with an alkaline pH to reduce the risk of Heart disease and cancer mortality.”

But the true definition of healthy water may be more complex than the simple “take out the bad and leave in the good.” As it turns out, it may be possible to **actually alter water’s “structure” to create “healthier water.”**

For example, it has been discovered that:

- Drinking water with an elevated pH is beneficial.
- Declustering water (reducing its surface tension) renders the water more “bio-available,” thus improving the transfer of nutrients into cells – and the removal of waste from cells.
- North Pole water (water exposed to the north pole of a magnet) has a calming and healing effect and will help to overcome infection since it retards the growth of cells.
- South Pole water does the opposite: it’s stimulating and encourages the growth of human cells, plant cells, and even pathogenic cells, such as bacteria.
- Mixed pole water (both poles) seems to offer the best of both worlds and can be used for general health improvement.

The Structure of Water

Note: in doing research for this article I discovered that for every article/study that presented valid scientific documentation, I found at least as many unsubstantiated anecdotal articles making similar magnetic-water claims -- many of which were invariably followed up by an article “debunking” the previous unsubstantiated anecdotal article.

At its simplest level, water is H-O-H, or H₂O if you prefer. The more complete truth, however, is that water is never SIMPLY H-O-H. Liquid water can be thought of as a seething mass of molecules in which hydrogen-bonded clusters are continually forming, breaking apart, and re-forming. These electronically effervescent water molecules readily break and make bonds with chemical compounds -- some that are essential for life, and of course, some that are less than healthy.

However, all matter exhibits magnetic properties when placed in an external magnetic field. Even substances like copper and aluminum that are not normally thought of as having magnetic properties are affected by the presence of a magnetic field such as that produced by either pole of a bar magnet.

Ground water contains thousands of particles and microelements whose impurities give rise to the surrounding electron shells: cations (+) and anions (-). "Pure" water is a polar liquid, i.e. one part of the water molecule has a positive electrical charge and the other part has a negative charge; but overall, the net electrical charge is negative. Thus, the water molecule is a small magnet (dipole), whose magnetic (or electric) field can be affected by causing the molecule to turn or rotate in one direction or the other, taking on a positive or negative higher potential – depending on whether a South (positive) or North (negative) outside magnetic field has been applied.

Water is Paramagnetic ...meaning that it holds a magnetic charge.

Paramagnetism occurs primarily in substances in which some or all of the individual atoms, ions, or molecules possess a permanent magnetic dipole moment. Water has a dipole moment and is, therefore, subject to paramagnetism. (At the University of Tokyo researchers were able to make

water levitate using magnets (Source: NATURE . Ikezoe, N. Hirota, J. Nakagawa and K. Kitazawa, Making water levitate, Nature 393 (1998) 749-750).

Again, water molecules are dipolar. Since opposite electrical charges attract, water molecules tend to attract each other (Kegley and Andrews, 1998). Water in living systems naturally gathers into structures of 14, 17, 21, 196, 280, or more molecules (Mikesell, 1985; Davis, 2004). The bottom line is that structured water can be formed using magnets (Mikesell, 1985).

There is a long history of the promotion of magnets to improve the quality and health benefits of water. Researchers found that when a permanent magnet is kept in contact with water, the water gets magnetically charged and acquires magnetic properties. Such magnetically treated water affects the human body when taken internally and regularly for a considerable period of time (Lam, 2001). Also, when water is magnetically treated, more hydroxyl (OH⁻) ions are created to form alkaline molecules, and reduce acidity. Normal water has a pH level of about 7, whereas magnetized water can reach a pH of up to 9.2 following the exposure to a 7000 gauss strength magnet for a long period of time (Lam, 2001).

Many such devices consist of one or more permanent magnets affixed to either the inside or to the exterior surface of the incoming water pipe. The water is exposed to the magnetic field as it flows through the pipe between the magnets. The water and water solutions passed through these magnetic fields acquire finer and more homogeneous structures (Tkachenko and Semyonova, 1995). This increases the fluidity of the water and helps increase the water's ability to dissolve various constituents like minerals and vitamins (Kronenberg, 1985; Mikesell, 1985), and consequently improves the biological activity of solutions, positively affecting the performance of humans, animals and plants (Lin and Yotvat, 1989 and 1990; Tkachenko and Semyonova, 1995; Goldsworthy et al., 1999).

Let's further examine the various effects of water passed through a magnet

Water passed through a magnetic field will elevate pH.

What happens when we drink water that is alkaline? (elevated pH)

Dr. Michael Tierra L.A., O.M.D explains that the proclaimed healing powers of various naturally occurring baths at places such as Lourdes France, Sedona Arizona and Jesus Chahin's well in Tlacote Mexico, occurs in these areas because there is reportedly higher naturally occurring magnetic energy. One way to naturally magnetize water is to run it through 30 feet of sand where it will emerge negatively poled because of the effect of minute quartz sand crystals. This water emerges saturated with oxygen that is able to kill germs, build bodily strength and support the immune system. Water so treated will show a change of temperature, surface tension, viscosity and electrical conductivity. Just as chemicals change weight after being subjected to magnetic fields, so does water. More hydroxyl (OH⁻) ions are generated to form calcium bicarbonate and other alkaline particles. Normal water has a pH level of around 7, while magnetized water can reach 9.2 after exposure to a 7000 gauss strength magnet. This has been shown to be enough to destroy cancer cells as demonstrated in the research of Nobel Prize winner Otto Warburg, M. Von Arene, Dr. K Brewster, Dr. H. Satori, and others.

Dr. Keiji Kuwabara of Japan states...

“When you drink alkaline water, you are drinking water with excess oxygen, not in the form of O_2 , but in the form of OH^- - which is very stable because it is mated with positively ionized alkaline minerals. Two of these hydroxyl ions can form a water molecule (H_2O) and give out one oxygen atom. The alkaline mineral is used to detoxify poisonous acid compounds. When that happens, the hydroxyl ion is freed to supply excess oxygen to the cells to prevent the development of cancer. It is indeed the case of killing two birds with one stone.” Dr. Kuwabara has been clinically treating diabetes quite successfully with alkaline water. Source: Excerpts from “Reverse Aging” by Sang Whang.

Drinking Water with less “clusters”

What is a water cluster?

Three of five Nobel Prize winners during the 1990s won for their research in the field of structured water. They discovered that optimal healthy DNA is surrounded, and fully hydrated, by a matrix of water that is structurally different from tap water. Under high powered microscopes, the water, when frozen, forms six sided, hexagonal shaped, ring structures. These were determined to receive and transmit electromagnetic energy, that is, frequency vibrations that power every cell function and structure.

Magnets affect the bonding angle between the hydrogen and the oxygen atom in the water molecule. Magnetized water causes the hydrogen-oxygen bond angle within the water molecule to be reduced from 104 to 103 degrees. This in turn causes the water molecule to cluster together in groups of 6-7 rather than groupings of 10-12 and higher. The smaller cluster leads to better absorption of water across cell walls. Dr. Michael Lam, MD in his study on magnetized water, reports that there have been numerous reports from those drinking magnetized water on a daily basis of people being cured of many chronic degenerative disease such as renal stones and arthritis.

What happens when we drink water that has smaller clusters?

Jon Barron, internationally renowned health expert, reports: “Although all water consists of the same basic H_2O molecules, water nevertheless varies according to how these molecules bond together to form “water molecule groups.” To put it simply, it is in the size of these groupings that water differs.

“The smaller the groupings, the more bio-available the water is -- the more easily it is able to pass through cell walls, to transport nutrients and remove waste, to facilitate all of the communications systems in your body, and to pass through your body as a whole. The larger the groupings, the more inefficient water is at performing these same functions.

“What holds water molecules together in clusters is surface tension. This is what you see when you wash your car and the water beads up in droplets on the hood. When washing your car, you use detergent to break that surface tension -- which breaks apart the large molecular clusters,

making the water wetter and better able to clean. Obviously, you can't use detergent to "improve" the bioavailability of your drinking water. But you can use magnetics.

“Magnetizing your drinking water breaks its surface tension, making it wetter and more useable by every cell in your body. In addition, there's a strong secondary benefit. Applying a magnetic field to water can not only make it wetter, but it can also raise its pH (up to a full point, depending on the water).

“The ratio of small cluster water to large cluster water changes over time in your body. When you are born, there is a high percentage of small cluster water present. As you age, however, that percentage steadily drops -- eventually becoming almost nonexistent.

“One of the problems is that small cluster water is not stable. The electric charges inherent in water continually cause the small clusters to bind together into larger and larger clusters. And to make matters worse, the process is accelerated when water is exposed to air and light.” Jon Barron *Baseline of Health Newsletter*, June 2002.

Less is now more.... By magnetizing water we can now hydrate faster and more completely while drinking less. This is a good fit for the average person's lifestyle of not finding the time to drink enough water.

The Study

A study was conducted (and repeated several times) in April 2005 thru June 2005 to determine what effect magnetized water has vs. non magnetized water on the germination rate and growth pattern of mung beans. Prior research indicated that magnetic fields have a positive effect in the improvement in both rate of growth and in the vitality of the plants. This benefit has been attributed to the water becoming more “Bioavailable” due to the de-clustering effect magnet fields have on water. But which magnetic orientations have the most positive effects? And does this declustering have such a positive effect that it can even overcome the adverse effects of chemicals in the water? Those questions were the subject of this study.

The Experiment

For the experiment various orientations of magnetic fields were configured in the new patent pending AQUATOMIC® magnet water treatment device.

Various orientations of magnetic fields were used to treat both filtered and non-filtered tap water to determine what effect the magnet orientation itself had in germination and growth patterns. The magnet orientations were duplicated on both sets of water bottles containing filtered and also non filtered city tap water. Non-magnetically treated filtered and unfiltered city tap water bottles were also used as a control. A duplicate container of mung beans was used to validate that the results were consistent and valid.

The experiment was conducted under controlled conditions where variables pertaining to germination rate e.g. light, temperature, humidity, soil condition, etc. were constant. Ten mung

beans were placed in multiple containers, with the same orientation, at the same depth, and with the identical soil in each container. Two cups were then selected randomly for each water sample.

The results were remarkable! (And duplicated on three successive replications of the experiment.)

The study was conducted to observe and compare the difference in the germination and growth patterns of the mung beans when subjected to four basic types of water samples:

- City tap water which measured a 1.0 ppm of chlorine residual throughout the experiment.
- Filtered city tap water
- Magnetized filtered city tap water subjected to 6 various magnet orientations.
 - Note: to magnetize the water, we used AQUATOMIC water treatment devices with the magnets arranged in varying North/South configurations.



- Magnetized unfiltered city tap water also subjected to 6 various magnet orientations .

The results were interesting in that the containers of mung beans responded differently with the following results:

1. The non-magnetized city tap water fed containers averaged a 15% germination success rate and demonstrated a poor growth pattern and averaged a height of 9.355cm.
2. The non-magnetized filtered water fed containers averaged an 85% germination success rate and demonstrated a healthy growth pattern and averaged a height of 14.00cm, but took substantially longer to reach that height.
3. The magnetized water fed containers (both filtered and non) averaged a 100% germination success rate and also demonstrated a faster growth rate as compared to both the filtered and non-filtered non-magnetized water. However, even though germination and height were similar, the growth pattern and plant stability was clearly MUCH healthier in all orientations of the magnetic water than that of the City tap water. There were also observable differences in the growth patterns among the different magnetic oriented waters.
 1. The seeds that were fed the SOUTH pole only treated water germinated faster and grew at a faster rate. It was noticed, however, that the stalks did not grow strong enough to support the upper plant structure and fell over. They averaged a height of 14.425cm.
 2. The seeds that were fed the North pole only water germinated slowest but were able to stand more erect and averaged a height of 14.75cm.

3. The seeds that were fed the NNSS pole water germinated at a rate in between "1" and "2" just above and were also as tall and stood erect and averaged a height of 14.225 cm.
4. The seeds that were fed the NSNS pole water germinated at a rate in between "1" and "2", were also as tall, stood erect, and averaged a height of 13.90cm.
5. The seeds that were fed the water from a bottle that had both SSSS and NNNN pole AQUATOMIC germinated at a rate in between the "1" and "2", were also as tall, stood erect, and averaged a height of 14.325 cm.
6. The seeds that were fed with water mixed 50-50 with "1" and "2" water above germinated at a rate in between those two waters, were also as tall, stood erect, and averaged a height of 12.95cm.
4. The magnetized city tap (unfiltered) water fed containers averaged a 100% germination success rate which also demonstrated a faster growth rate as compared to non-magnetized water (both the filtered and non-filtered). Remarkably, the germination rates and growth patterns were identical to the magnetized filtered water containers:
 1. The seeds that were fed the South pole only treated water germinated faster and grew at a faster rate and averaged a height of 13.85cm. It was noticed, however, that the stalks did not grow strong enough to support the upper plant structure, and many of the plants “fell over.”
 2. The seeds that were fed the North pole only water germinated slowest (among the magnetized waters), but were able to stand fully erect. They averaged a height of 11.16cm.
 3. The seeds that were fed the NNSS pole water germinated at a rate in between examples "1" and "2" just above and stood erect and averaged a height of 13.015 cm.
 4. The seeds that were fed the NSNS pole water germinated at a rate in between "1" and "2", stood erect, and averaged a height of 10.675 cm.
 5. The seeds that were fed the water from a bottle that had both a SSSS and NNNN pole AQUATOMIC device on it germinated at a rate in between "1" and "2", stood erect, and averaged a height of 10.25cm.
 6. The seeds that were fed with water mixed 50-50 with "1" and "2" water above germinated at a rate in between those two waters, stood erect, and averaged a height of 11.025cm.

Conclusions

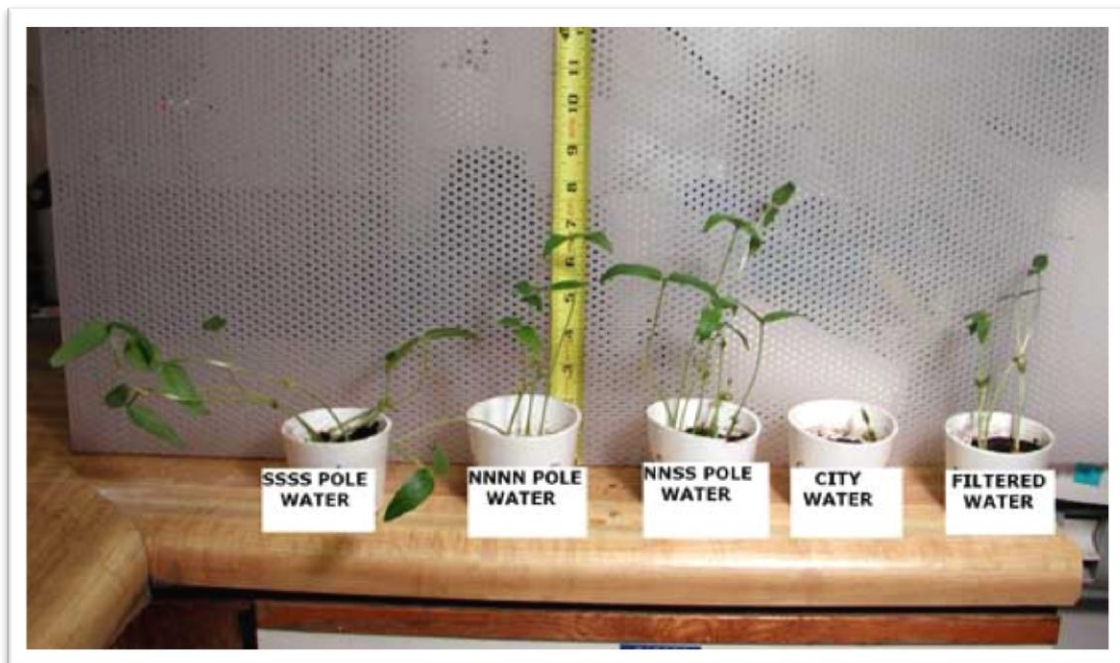
Some of the results were easily anticipated such as filtered water producing better results than unfiltered, chlorinated, city-tap water. However, a notable surprise was the fact that the seeds fed with **non-filtered magnetic water responded almost identically** to those seeds fed with the **filtered magnetic** treated water (both had a 100% germination rate).

On the other hand, the **non-filtered, non-magnetic** water fed seeds **responded very poorly** (15% germination rate), whereas the filtered, non-magnetic fed seeds had an 85% germination rate.

To summarize the key point here: the difference in germination rates between magnetized and non-magnetized unfiltered city tap water was 100% vs. 15%!

In addition, there were further results that proved interesting. In every case, as we mentioned, the magnet treated water, whether filtered or non, had a high germination rate. However, the **configuration** of the magnets **had a noticeable and measurable effect on the overall health and sturdiness of the plant.**

- It was observed that the SSSS configured AQUATOMIC promoted the fastest growth and averaged (across all repetitions of the study) 14.13 cm, but the stalks were not strong enough to support the leaves.
- On the other hand, the NNNN configured AQUATOMIC promoted slower growth and averaged 11.95 cm, but had strong stalks capable of supporting the leaves.
- It was then observed that when water from a bottle with both a NNNN configured AQUATOMIC and SSSS configured AQUATOMIC were mixed, it promoted an average growth rate and the plants reached an average 12.28 cm in height across all repetitions of the study. And the stalks were strong enough to support the leaves.
- It was also observed that the NSNS configured AQUATOMIC promoted an average growth rate and reached an average height of 12.28 cm, with stalks that were strong enough to support the leaves.
- And finally, it was observed that the NNSS configured AQUATOMIC promoted an average growth rate and reached an average height of 13.62 cm, with strong stalks capable of supporting the leaves.



The three pots on the left were fed magnetized filtered water with varying magnetic configurations. The two pots on the right were fed non-magnetized water.

Bottom line

The plants with the healthiest observed germination rate, growth rate, largest size, and best overall appearance were those watered with the NNSS configured AQUATOMIC.

AQUATOMIC®

The new patent pending AQUATOMIC water treatment device has been designed to fit in many various aqueous delivery systems and utilizes a group of ultra strong, coated Neodymium Iron Boron (NdFeB) magnets that deliver over 17,000 gauss directly into the water to be treated. The AQUATOMIC's Super-Strength Rare Earth NdFeB magnets have the characteristics of extreme strong Br resident induction and excellent demagnetization resistance capability.

This new design incorporates an adjustable elastic strap that can be utilized and easily adapted onto existing water filter housings, water bottles, sun tea jars, water pitchers, canteens, water lines, shower nozzles, and garden hoses...to name just a few possibilities.

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