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DRINKING WATER SCAMS

Rip-offs, Deceptions, & Outright Lies!

By Jack Barber

EVERYONE IS SUSCEPTIBLE TO BEING scammed, but many people are deceived simply because they want to believe. This makes them easy prey for snake oil merchants. Nowhere is this more obvious than in the booming business of drinking water scams. It is truly alarming to see the explosion in mail order blitzes, the internet and TV infomercials offering products claiming to infuse water with magical properties to cure all your ills. This specially “altered” water claims to be superior because it’s wetter, oxygenated, clustered, enhanced, magnetized, energized, alkalized, vitalized, or some other pseudoscientific term. These empty promises simply “don’t hold water!”

Then there is the battle among the more conventional drinking water options. How do bottled, tap, filtered, reverse osmosis and distilled water compare and what can you really believe? Feeling overwhelmed yet? There are so many choices—just sorting them out can be a nightmare! There is a virtual quagmire of baseless, fraudulent claims! That’s why I’ve decided to confront and expose the rip-offs, deceptions and outright lies.

For over thirty years, I’ve been committed to helping people improve the quality of their drinking water and have continually worked to keep up with the latest news and information. I diligently investigate the different types of water treatment methods and equipment...and have a junk pile of gadgets, devices and magic potions to prove it! I’ve read thousands of articles and reports about the water quality of rivers, lakes and springs, as well as studies about emerging pollutants and their health hazards. I read the books, water treatment trade publications, university studies and alternative and mainstream health newsletters.

I am always looking for real data from reliable sources that can provide the proven facts about the various treatment technologies and how pure water works to support good health.

In other words, I haven’t had my head stuck in the sand for the last thirty years! I don’t pretend to have all the answers, but I strive to separate the known facts from pure fiction. Something new is exciting and creates a buzz, but that doesn’t make it valid or true! Education is the only way to battle the bogus claims. I am constantly evaluating and comparing products and technologies and stand firm in my commitment to bring

you the very best possible drinking water purification systems based on the best information available.

Buyer Be Wise

Americans are spending billions of dollars a year on dubious water products. Most are finding out the hard way that many enticing marketing claims are deceptive, if not outright lies! According to both wisdom and experience...if something sounds too good to be true, it probably is! You can avoid giving these “pickpockets” your hard-earned money by understanding a few simple rules about how frauds operate.

First, some companies are simply fly-by-night cons, hiding behind a P.O. box or an e-mail address. It's always wise to do business with an established, reputable company that has a verifiable physical address and toll free phone number with live operators. An honest, legitimate business will have nothing to hide.

Always ask if the company offers a solid money-back guarantee, what hoops you have to jump through, and get it in writing. Never, ever do business with a company that won't refund your money! Some companies just won't refund your money...period! Some will, but only if your purchase is returned unused in the original package. And some will charge an outrageous restocking fee as well as shipping and handling fees both ways, all deducted from your “refund.” Shouldn't you expect any reputable company to express confidence in their product with an unconditional 100% money-back guarantee?

A wise consumer should also be on guard against companies that are abusing and misusing scientific language to create a false impression that their claims are backed by scientific evidence. These spinmeisters will spout meaningless terms that sound scientific and technical in an attempt to cloak themselves in scientific respectability. For example, a cosmic “water doctor” who writes a book based more on superstition than science or old Russian research based on flawed observational studies, simply don't qualify as adequate proof to support legitimate scientific claims.

While it is against the law for a business to deliberately mislead you, the Federal Trade Commission has limited resources. Inundated with so many cases of false and misleading advertising, the FTC can only afford to take limited action. Some companies will state that scientific evidence is available, but just try to get your hands on it! In the absence of valid scientific evidence, these companies will rely on customer testimonials to support their fraudulent claims since these are not subject to FTC regulations. Though customer testimonials can be helpful to consumers, it is prudent to also expect valid test data and documentation to support all product claims.

Some companies secure “junk” patents as a marketing tool to lend credibility to their invention. They may imply that they have a comprehensive patent when the patent may really apply to only a particular internal part or the design. Be aware that a patent only grants exclusive rights to a novel invention and is no guarantee that the product will

even work. Neither does the Federal Drug Administration (FDA) approval provide any assurance of performance. It only determines if it's harmful.

Be especially skeptical of what you find on the World Wide Web, keeping in mind that the internet is basically an electronic free-for-all with no controlling authority. It's like the Wild, Wild, West...but there's no sheriff in cyberspace! Absolutely anybody anywhere can throw up a website and appear to be a reputable professional while seeking to further their own agenda with pseudoscientific poppycock.

Science and pseudoscience are completely divergent paths that lead in opposite directions, even though they exist side-by-side on the internet. Keep in mind that science relies on testing and analytical thinking based on verifiable facts. Pseudoscience, on the other hand, encourages people to believe anything they want and then supplies fanciful arguments for thinking that any and all beliefs are equally valid. The problem with this philosophy is you can't think clearly if your mind is so open your brains fall out!

The internet is permeated with lies masquerading as "information." Websites spread the lies by copying each other using the same corrupt information to promote their own products. In fact, one particular filter company has its tentacles stretched across the internet universe. They operate under the guise of numerous independent "educational" websites, but they are dispensing pure propaganda that ultimately leads right back to their sales site. This kind of academic deception makes it appear that there is an endless stream of research in ardent support of water filters. In reality there is this one, dominant source feeding the lies being propagated on so many other websites. A word to the wise...just because you hear something repeated over and over (even if it seems plausible), doesn't make it true!

Some would consider this savvy marketing...simply harmless hucksters making a living on people's ignorance. I believe, however, they are an example of all the irresponsible media merchants preying on legitimate health concerns of unwary consumers. Remember Mark Twain's truism, "A lie can travel halfway around the world while the truth is putting on its shoes." That is especially true in this electronic age where a claim can be accepted as truth around the world with the click of a button, while scientists must labor over the proof for years in the laboratory.

In this information age, we can be too eager to embrace new ideas before they are scientifically proven. I have seen this happen repeatedly, for instance, with the conflicting information concerning dietary claims. Reliable scientific data can take decades to gather. By the time science can validate a claim, it seems the truth has lost its relevance...the damage has already been done...money and health have been squandered! To the people promoting water scams, I say, "Extraordinary claims require extraordinary evidence. Show us the evidence!"

Unfortunately, we can become confused when bombarded with so much misinformation. Sometimes we just have to let go of the mouse and step away from the

computer! Now, let's take a deep breath and resolve to protect ourselves from "rip-offs, deceptions and outright lies" by asking the right questions and maintaining a healthy skepticism.

Toxins on Tap?

There was a time when water was a simple choice. You could drink it straight from the kitchen faucet, the backyard hose or fresh dipped from the spring house. Now, after so many "boil water" alerts, chemical spills, and broken water mains, there are real concerns about the safety of our tap water.

In the latest crisis, an analysis of tap water supplies by the Associated Press released March 7, 2008, revealed that the water supply in 24 major U.S. cities serving over 40 million people are contaminated with trace amounts of pharmaceuticals like antibiotics, anti-inflammatories and psychotropics. Though the U.S. Environmental Protection Agency (EPA) says it poses no threat, the long-term health effects are unknown. The EPA has not set any safety limits for drugs in drinking water and does not require any testing.

Municipal water treatment systems really do a lot to improve water quality, considering the complex problem and limited technology. Countless lives have been saved since chlorine was first used to chemically disinfect the public water supply in Jersey City and Chicago in 1908. This innovation has made it possible to prevent epidemics of waterborne diseases like typhoid fever and cholera. Though chlorine has effectively controlled most biological contaminants, water experts estimate that 63% of waterborne illnesses in the U.S. are directly caused by giardia and cryptosporidia. Municipal plants are unable to effectively treat these cysts which are chlorine resistant.

The use of chlorine to control microbial contaminants has prevented epidemics, but it has created another complex problem. It seemed like a good idea, but in this case, solving one problem has caused another—disinfection byproducts. Cancer-causing compounds called trihalomethanes (THMs) are created when chemical disinfectants react with organic matter in the water. The EPA has identified a total of 600 disinfection by-products with no legal limits and unknown long-range health effects.

Fluoride, another common additive long promoted to fight tooth decay, has come under scrutiny by Congress as new scientific evidence has shown that it is ineffective and has serious health risks. Over 600 professionals are urging a stop to water fluoridation until Congressional hearings are conducted. The American Dental Association is now warning parents not to use fluoridated water in the preparation of infant formula.

In 1974 the Safe Drinking Water Act was signed into law. About 220,000 municipal water systems are now regulated by the EPA under this legislation. The EPA reports that since 1974 over 2,100 contaminants have been found in U.S. drinking water supplies though they have established safe standards for only about 90 contaminants.

The standards that have been set include maximum levels for particles, bacteria, organic chemicals, etc. in your water. As long as those standards are not exceeded, the water is considered “safe.” If those maximums are exceeded, the water is labeled contaminated. There is a fine line between safe and polluted, and we believe even a minimum amount of contamination is still contamination. What is considered “safe” for a healthy young adult could differ from a small child or a fragile senior adult.

From time to time, the EPA realizes that the amount of a toxin previously considered “safe” was way too high. In January 2006, for example, the EPA lowered the maximum level of arsenic permitted in drinking water from 50 ppb to 10 ppb. That means the previous standard was 500 percent higher than the current standard. Who knows how many other toxins currently in our water at levels considered “safe” may later be found to be much too high? While concentration of many contaminants is not high enough to cause immediate discomforts or sickness, it is proven that even low-level exposure will, over time, cause severe illness including liver damage, cancer, cardiovascular disease and other serious ailments.

Though more than 273 million Americans depend on the local water utility to provide a safe water supply, testing and monitoring is not as routine as most people think. Many U.S. water systems rarely test for all of the 90 listed water contaminants because it is extremely cost prohibitive. For this reason, the EPA routinely grants waivers for many of these contaminants.

There is further concern that many municipalities are using the same treatment technology that has been in use for the last 100 years. These antiquated treatment plants simply weren’t designed to cope with complex twenty-first century industrial, pharmaceutical and agricultural pollution. It seems that the technology to remove toxins lags woefully behind the technology to create them!

But that’s not all! There’s yet another threat lurking inside the approximately one million miles of underground water pipes in the United States. Most distribution pipes are coated with dangerous layers of mineral, biological and chemical deposits that re-contaminate the water as it travels from the treatment plant to your tap. And some pipes are very old, including lead leaching cast iron pipes from the late 1800’s as well as thousands of miles of asbestos water pipes laid in the 1950’s. More than 30 million American are drinking water with lead levels in excess of the Maximum Contaminant Level set by the EPA.

Experts warn that as iron pipes corrode and break, not only does water escape, but outside contaminants get in. It is estimated that there are approximately 237,000 water main breaks each year in the U.S. “Investigations conducted in the last five years suggest that a substantial proportion of waterborne disease outbreaks, both microbial and chemical, is attributable to problems with distribution systems,” the National Research Council said in a study for the EPA released in 2006.

Over the next 30 years, all of our municipal systems will reach or exceed their expected life spans. The American Water Works Association estimates they will have to invest

\$240 to \$340 billion in taxpayer revenue just to replace the underground pipes. “If you clean up water and then put it into a dirty pipe, there’s not much point,” said Timothy Ford, a microbiologist and water research scientist with Montana State University. “I consider the distribution system to be the highest risk and the greatest problem we are going to be facing in the future,” Ford said.

Communities around the country are struggling to maintain and upgrade aging water systems while the federal government contribution to total clean water spending has shrunk dramatically. States spend approximately \$63 billion annually just to keep pace with current needs, let alone future ones. Based on EPA estimates, there is a gap of nearly \$22 billion per year between needed and available funds for water infrastructure.

So many concerns, so little time! The national distribution of quality water is a colossal challenge to modern technology, but there is a simple individual solution. You can wait for the federal government to address the problem, or you can take control of your water quality and start enjoying the benefits of clean, healthy homemade water right now.

Bottled Water Bunk

Concern over the safety of our public water supplies and a trend toward a healthier option to sugary beverages, has led to an explosion in bottled water consumption, driving the U.S. bottled water market to nearly \$15 billion in 2006. According to the Natural Resources Defense Council (NRDC), “more than half of all Americans drink bottled water; about one-third of the public consume it regularly.” But unfortunately, you’re often paying outrageous prices for “designer” water that may not be any better than your tap.

Because bottled water is considered a food, it is regulated by the U.S. Food and Drug Administration (FDA). Tap water is regulated by the U.S. Environmental Agency Protection (EPA). Even though both types are subject to testing, FDA standards for bottled water are more loosely regulated than EPA standards for tap. The FDA usually follows the EPA’s recommendations, although the EPA standard for lead is three times higher than the FDA’s.

Though the FDA sets standards for bottled, only water transported across state lines falls under FDA jurisdiction. That makes 60 to 70 percent of it exempt from federal regulations. State regulations may apply, but it is largely a self-regulated industry. Even where state laws apply, bottled water regulation is low priority and programs at all levels are often under funded, under staffed and seldom enforced.

The lack of strict regulatory oversight was revealed in a four year study by the National Resources Defense Council. Tests on more than 1,000 bottles of 103 brands showed 33% of the bottled waters contained significant bacterial contamination, and 20% contained organic chemicals. A study conducted by the U.S. House and Energy Commission showed that most contaminants found in tap water may also be found in many brands of bottled water.

If the questionable quality of bottled water isn't enough to raise your concern, how about those cheap, low-grade plastic containers? Not only can the unpleasant plastic taste make you gag, but the methyl chlorides, phthalates and antimony that may leach into the water are carcinogenic.

Some bottled water labels are very misleading, implying the water bubbles up from a natural spring somewhere in the French Alps. While this may evoke a pristine image, it may have actually been drawn from a well in a large city. A loophole in the FDA labeling rules allows bottlers to deceptively classify well water as natural spring water. Far from being pristine, it may contain contaminants found in nature or introduced during bottling such as bacteria, chemicals, dissolved solids, heavy metals, etc.

Consumers should also be wary of words like "pure," "pristine," "glacial," "premium," "natural" or "healthy." They're basically meaningless words added to labels to emphasize the alleged purity of bottled water over ordinary tap. It could actually be water straight from the tap... and that would be perfectly legal. Though it is not legal to mislabel water as far as its source or method of treatment, there are no laws to prohibit bottling ordinary tap water from any municipal source. In fact, according to government and industry estimates, as much as 40 percent of bottled is just tap water in a bottle, sometimes with additional treatment, sometimes not.

Municipal tap water is the source for the two biggest selling bottled waters in the world, Aquafina and Dasani. They are further processed by reverse osmosis which produces an extremely low mineral water comparable to distilled. Though the TDS (total dissolved solids) is not published, Aquafina would be expected to have <5 ppm (parts per million) and Dasani about 20 ppm because it is slightly mineral "enhanced." Many other bottled drinking water brands have a naturally low mineral content or have removed the minerals in processing through distillation or reverse osmosis.

Recently, PepsiCo, Inc. bowed to mounting environmental and political pressure to change the labels of Aquafina to clarify that the water comes from a public water source. Previously, the bottles were labeled "P.W.S." and now the words must be spelled out. The labels have never claimed to be spring water, but the snow-capped mountain logo has perpetuated this misconception. Meanwhile, Coca-Cola, maker of Dasani, has agreed to post information online about quality control testing by fall 2007. A search of the Dasani website in March 2008, however, did not show any such data.

And bottled water, like it or not, is a pending environmental debacle. Americans bought about 50 billion plastic bottles of water in 2006 and the cost in energy and pollution is staggering! It takes enough crude oil to fuel 100,000 cars for a year to make a year's supply of these empty bottles. The Pacific Institute calculates this to be more than 17 million barrels of oil annually, which is equivalent to 2.5 million tons of carbon dioxide released into the atmosphere. Then more oil is used for fuel to haul bottled water to consumers all over the world.

Disposal of plastic waste is another problem. According to the Container Recycling Institute, each day in the U.S. more than 60 million water bottles are thrown away. Only about 12% are recycled. About 40 billion bottles a year end up in landfills where they take about 1,000 years to biodegrade. Some are incinerated, releasing toxic by-products into the air. The rest end up as litter on the roads and beaches or in streams and other waterways.

There is an area of floating plastic trash in the Northern Pacific Ocean that's twice the size of the continental United States. Described as the "biggest trash dump in the world," much of it consists of old plastic bottles. Experts say that dangerous chemicals from industrial waste stick to the plastics and enter the food chain as it is ingested by birds and marine life. "There is no technology to get rid of the plastic," says Marcus Eriksen of the nonprofit Algalita Marine Research Foundation. "The only solution: stop adding it to the ocean."

In mid 2007, San Francisco's Mayor Gavin Newsom banned the use of tax dollars to purchase bottled when tap water is available. Other cities, including Los Angeles, Salt Lake City and New York, have joined in the crusade against bottled water on the basis of environmental issues. Salt Lake City Mayor Ross (Rocky) Anderson says, "For a long time, I've viewed bottled water as a huge marketing scam!" Some cities have even considered selling bottled water themselves and using the profits for recycling programs and system upgrades.

There are certainly some very reputable bottlers providing high quality water. Sometimes bottled water may be just a necessary convenience, but always read the labels carefully for the source or processing method and check the expiration date (2 years from manufacturing). Consumers need to be aware that the quality of bottled water varies greatly, depending on quality of the original source water as well as the treatment process. If it's a brand you purchase frequently, it would be wise to request a complete water analysis from the company.

Besides the questionable quality and environmental concerns, bottled water is also expensive. It ranges in price from \$.79 to more than \$15.00 a gallon for the grossly overpriced Penta Water scam found in many health food stores. Of course, you can bypass the "bottled water bunk" by taking personal responsibility for the quality of your drinking water. This is a crucial step to safeguard your health and protect the environment.

Outrageous Oxygenated

Oxygenated bottled water is typically hyped as a sports drink to enhance performance and post-workout recovery. Infused with 35-40% more oxygen than ordinary water, it is marketed on the premise that the body can actually absorb oxygen directly into the bloodstream via the digestive system.

According to Dr. Stephen Lower, retired chemistry professor and founder of the popular website chem1.com, the only way to get oxygen into the blood is the respiratory

system... your lungs. Trying to get oxygen into your body from water is called “drowning.” “Unless you have gills,” he notes, “there is no need to search out water with extra oxygen.”

In studies performed at Duke University Medical Center by Dr. Claude Piantadosi, blood oxygen levels were no more affected by the oxygen water than regular bottled water. “The only thing I can say is that oxygenated water won’t hurt anything except your pocketbook,” Piantadosi said. “Put this idea in the waste bin with Ponce de Leon’s fountain of youth.”

“This is a case of pure fraud without a physiologic foundation,” says Howard G. Knuttgen, PhD., Editor-in-Chief of the Penn State Sports Medicine Newsletter and Professor Emeritus of Kinesiology at Penn State. He explains that very little oxygen can be forced into water under pressure. Then most of the added oxygen escapes when you open the container. Additional oxygen would be absorbed into the cells of the intestinal walls. All of this would happen before any oxygen could reach your blood, much less the muscles. “Thus any intake of so-called super-oxygenated water would be of no use in improving athletic prowess,” he says.

Fitness enthusiast, natural health advocate and author, Mike Adams, said he tested the effects of oxygen water using a medical-grade blood oxygen sensor. He reported no correlation between drinking oxygenated water and greater levels of oxygen in the blood. “In fact,” Adams said, “I found that breathing deeply for 30 seconds produced a measurable increase in blood oxygen, as did a short burst of jumping rope, but oxygenated water produced no such increases.”

Separate studies conducted by John Porcari, PhD at the University of Wisconsin; Craig Horswill, PhD at the Gatorade Sports Institute; and the American Council on Exercise all looked at how oxygenated water can affect athletic performance and all came to the same conclusion. It can’t! Drinking this water has no effect on resting heart rate or blood pressure before exercise and no effect on recovery after exercise.

Richard Pechey, sales manager for Netherlands-based OGO brand oxygenated water which recently signed its first U.S. distribution deal, said, “We would not begin to make any medical claims because we haven’t done that kind of research.” Pechey said that the “remarkably high” oxygen content in OGO water might improve the consumer’s general sense of well being, “which could be a psychological response, but if that can make you feel or perform better, then that’s a pretty good thing.” That candid confession is simply oxy-rageous! Need we say more?

Kooky Clustered

There is an unfounded belief that “clustered” water is the fountain of youth! These mystical molecules, typically in a concentrated “potion” added to your drinking water, promise to restore health, youth and vitality. Each year, university researchers on human aging bestow their annual “Silver Fleece” award on anti-aging quackery.

The 2002 recipient was “clustered” water.

Scientists view water as a loosely-connected network. There are about a billion molecules in a drop of water that tend to associate with one another, forming short-lived and ever-changing groupings that are sometimes described as “clusters.” These clusters are constantly rearranging themselves—billions of times every second. Science does not recognize any force that might cause these clusters to maintain stability for any length of time.

Interest in “hexagonal” clusters has been promoted by Dr. Mu Shik Jhon, in his book and on his website. Dr. Jhon theorized the existence of these hexagonal (six-sided) clusters in the shape of rings that do not change shape or composition over a significant period of time. He claims that such forms of water improve hydration and are more beneficial to our bodies than other forms like the pentagonal (five-sided) or randomly associated larger clusters found under common conditions.

Dr. Jhon supposedly verified his theory of stable “hexagonal” clusters using Nuclear Magnetic Resonance (NMR) technology. However, Dr. Paul Shin, who has over 18 years experience with NMR instrumentation, was unable to validate Dr. Jhon’s conclusions, casting a less than credible light on his claims of the therapeutic effects of hexagonal water. According to Dr. Shin, “There is no ‘solid’ data to support the proposed hexagonal structure for water in the liquid state. Yes, there are a dozen different physical forms of water, but they are found in water’s solid form which can’t exist in ambient or physiological conditions!”

“Doctor” Masuro Emoto, a “visionary” researcher from Japan and author of two books on the mystery of water, has used an electron microscope at 20,000x magnification to capture what he describes as “molecules” of water in various states of purity. He photographed the crystal formations produced by water as it passed from liquid to the frozen state. Other photos supposedly show how water “molecules” are changed by exposure to various external influences like music, words and thoughts.

Emoto openly admits that he is not a scientist and believes that “fantasy is the best way to get a clear picture of reality.” Even though there is no scientific or logical explanation for his work, Emoto is revered as an authority on water on some websites, usually to attack mineral free water and peddle kooky water products. This is yet another lame attempt by competitor’s to demonize a superior product.

“Be skeptical,” cautions Dr. Michael Bergeron, an expert in hydration, exercise and heat stress at the Medical College of Georgia, referring to claims about “enhanced waters.” “Clustered molecules? That’s just silly!” says Bergeron.

The “kooky clustered” hucksters operate in the mystical realm, outside the boundaries of traditional science. There is no valid scientific research to support the existence of clusters, much less any beneficial effect on improved hydration. Any health claims about “clustered” water can likely be the result of the placebo effect, or simply drinking more

water. Significant research does exist to show that improved hydration plays a fundamental and critical role in health and wellness. Aside from all the ridiculous health claims about “clustered” water, there is no doubt that it does absolutely nothing to improve the purity of your water.

Magnetic Magic

Another branch of the “structured” altered family is “magnetized” water that is touted to treat or prevent practically every ailment that has befallen mankind. The claim that water can be magnetized has no scientific evidence to support it. Furthermore, there is even less evidence that “magnetized” water has any beneficial effect on human health. In the absence of evidence, promoters of this fraud simply counter that conventional science just hasn’t caught up with the “mysteries of magnetism.” They shamelessly promote a scam that is at odds with the fundamental laws of physics.

Alignment of the magnetic fields makes matter magnetic. In solids, molecules or structural elements can be permanently aligned by the influence of an external magnetic field. This is called ferromagnetism. In a liquid or gas, paramagnetism occurs when molecules with an odd number of electrons are temporarily aligned with a magnetic field. Most molecules are diamagnetic, containing an even number of paired electrons that are not attracted to or repelled by a magnet. All water contains 10 electrons so it is diamagnetic, therefore, non-magnetic.

There is no evidence that magnetically treated water has any health benefits nor is there any measurable change in the properties or behavior of water from exposure to a magnet. The properties of water, including surface tension, density and internal structure, as well as the biological or chemical behavior are simply not measurably altered by any form of magnetic treatment. More importantly, it has not been shown that “magic magnets” in any way can purify or improve the quality of drinking water.

Energized Exploitation

The “energized” altered water category includes “wonky” water concepts like vitalized, living, hexagonal, activated, clustered, ionized and restructured. This water hoax is purported to do everything from slow the aging process and restore cellular balance to raise consciousness and promote world peace.

The promoters of these products typically rely on pseudoscientific jargon and dubious customer testimonials to support their fallacious claims in the complete absence of valid performance data. Anecdotes may be interesting, but they are not scientific evidence. Be wary of companies that rely solely on testimonials to support their claims. They operate with the full knowledge that the Federal Trade Commission can prosecute false claims, but testimonials are not regulated.

Since most of these products originate in Asia, the Korean Consumer Council has been inundated with inquiries and complaints about the myriad health claims made by these

water treatment devices. The Consumer Council released an investigative report concluding there is clearly no scientific validity to these health claims. According to council spokesman, Larry Kwok Lam-kwong, “such claims that these treatment devices could turn plain drinking water into something magical that will bring special health benefits or even improvement to chronic serious diseases, are unfounded and misleading.”

If a “water doctor” is offering you a magical device—maybe a glorified blender with a flashing digital display and magnet in a carafe to alter the water’s “vibrations,” change its “spin,” or alter its “structure,”...beware! There is absolutely no proof that the outlandish claims made about these water energizers, ionizers or vitalizers have any basis in fact. These charlatans are exploiting a fraud at your expense...buyer beware!

One thing they do have going for them, like all of the other wonky waters, is the placebo effect. Testimonials from people who have used these altered waters make it sound miraculous. Studies have shown that placebos can relieve symptoms in about 40 percent of those who suffer from chronic ailments. The Journal of the American Medical Association reported the results of a study in March '08 confirming the placebo effect is about expectations. The pricier the drug, the higher the expectation of efficacy, and the stronger the placebo effect. In other words, if you “believe” that something might help, it may well do so, and the more people are made to pay for it, the more eager they will be to have their beliefs confirmed. This expectant mindset can also lead to simply drinking much more water than usual, actually resulting in improved health from better hydration.

Filter Falter

Even if you have never used any kind of water filter, you probably know someone who has. It is estimated that 40% of the households in America use some type of treatment device to improve the quality of their drinking water. Most filters, like faucet-mounted, countertop and pour-through pitchers, pass water through a fine strainer and carbon to reduce taste and odor. They typically reduce chlorine, trihalomethanes (THMs) and some other volatile organic compounds (VOCs) like benzene.

The most common filters are Granulated Activated Carbon (GAC). In this type of filter, water flows through the GAC which binds up (adsorbs) certain organic chemical contaminants. Carbon filters, however, are NOT “purifiers” because they simply cannot make water biologically safe. GAC filters do not reduce biological contaminants like parasites, bacteria and viruses, nor do they effectively remove (or even reduce) dissolved solids and other contaminants like aluminum, arsenic, asbestos, copper, fluoride, lead, manganese, mercury, nitrates, phosphates, sodium, sulfates, and the list goes on and on.

There are several problems with simple GAC filters. First, a saturated filter can experience a “breakthrough” when built-up contaminants break free and pass into the drinking water. Secondly, water flowing through loose carbon granules can naturally

create a “channel” where it passes through the filtration medium without being effectively treated. The third problem is “dumping” which occurs when the pockets of contaminated water that have formed in the loose bed of carbon granules collapse due to changes in water pressure and flow rates, dumping trapped contaminants into the drinking water.

These problems can lead to higher contaminant levels than if there was no filter used at all. Furthermore, unless there is a noticeable decrease in flow rate or a detected odor in the treated water, it is difficult to know when the filter has become saturated with contaminants and ineffective. Some manufacturers suggest replacing filters when bad taste or odor return. In reality, a filter may be able to control taste and odor long after it has lost its ability to reduce some VOCs and other contaminants which have no taste or odor.

Another type of filter is a solid carbon block which has fewer limitations than GAC because very fine pulverized carbon, fused into a solid block, creates an intricate maze to trap contaminants. However, carbon block filters can plug up because of the tiny porous nature. If not replaced on schedule, the carbon block can crack, dumping contaminants into the drinking water without warning. Though solid block filters will reduce certain organic chemical contaminants, it still will not reduce the levels of soluble salts, dissolved solids, and other contaminants like fluoride, arsenic, cadmium, nitrates, copper, lead and many more.

A dark, wet carbon filter with trapped decaying organic matter is also a perfect breeding ground for bacteria. When this occurs, the filtered water can become even worse than the original water. Some carbon filters are impregnated with silver designed to inhibit growth of bacteria in the carbon, however, this is not confirmed by EPA testing. The EPA says that such filters are “neither effective nor dependable in meeting their claims.” Since carbon filters cannot effectively remove biological contaminants, they should be used only on chlorinated water.

It is also important to note that hot water should NEVER be run through a carbon filter. Hot water will release trapped contaminants, potentially making the filtered water more contaminated than the water going in. This is the reason carbon should NEVER be used in a shower filter.

Filters falter because of the fatal flaw in the technology... a medium that collects impurities. Not only are there limitations to what a filter can reduce initially, but all carbon filters will become saturated with contaminants over time and produce a declining quality of water. This is true of even the most advanced filtration systems.

These “advanced” systems have erected more multi-stage barriers between you and the contaminants by adding things like magnets, resin, far-infrared ceramic, catalytic carbon, volcanic minerals, quartz crystals and UV-light. These “bells and whistles” promise to deliver water that is purified, restructured and antioxidant enriched, as well as having a lower surface tension and enhanced solubility. The best they can do is

reduce a broader range of contaminants for a longer period of time, but they are still limited in what they can remove and will still produce a declining quality of water.

Some people choose to rely on filters because they don't remove the inorganic minerals, but it is a fallacy to believe you can leave in the "good" and take out the "bad." It simply can't be done. Filters can only provide a limited measure of safety and leave you with a false sense of security.

Reverse Osmosis Overrated

Reverse osmosis (RO) is a filtration system that relies on osmotic pressure to force tap water through a synthetic, semi-permeable membrane and carbon filters. Treated water is collected from the "clean" side of the membrane and goes to the storage tank which is lined with a plastic or rubber bladder. Water containing concentrated contaminants is flushed down the drain from the "contaminated" side.

The pores in an RO membrane are so tiny that contaminants such as heavy metals, salts, minerals and some organic compounds are significantly reduced and rejected in the waste water. Larger biological contaminants like bacteria and cysts are rejected, though not the smaller viruses. RO membrane technology is also not effective in removing lowmolecular-weight volatile organic compounds (VOCs) such as chlorine, MTBE, bromoform and trihalomethanes. That is why RO systems necessarily require pre and post carbon filters.

A properly functioning high quality RO system will claim to reduce many contaminants by about 95-99% initially, though its ability to perform will continually decline with use. Keep in mind that performance claims are usually based on ideal laboratory conditions but variable water conditions in the home can reduce the level of RO performance. Contaminants that are effectively removed or reduced by a new RO system can get through the system as the filters and membrane degrade with use. Careful monitoring and maintenance is necessary to maintain water quality. Also, damaged membranes are not easily detected, so it is hard to tell if the system is functioning effectively.

Lifetime and performance of the membrane are affected by variables such as the amount of use, water pressure, temperature, and feedwater quality including pH, dissolved solids, bacterial and chemical contamination. Minerals, iron, hydrogen sulfide, alum, silt, silica, tannins, iron bacteria and algae will foul or scale the membrane. Fouling is progressive and if not controlled early, will impair the membrane performance in a relatively short time, causing a decline in product water quality and quantity. It will be necessary to pre-treat the water with a water softener in some areas to prevent pre-mature fouling of the membrane.

There are various other measures that can combat the variable water conditions and enhance performance of an RO. Inadequate pressure can be remedied with the addition of a booster pump. Since the rejection of fluoride is very pH dependent, it may be necessary to monitor and make adjustments to the feed water pH. An acidic feedwater

pH can drop the reduction of fluoride from about 96% to below 50%. It is also recommended to add an ultraviolet light if bacterial contamination is a problem.

Although RO membranes have pores smaller than the dimensions of most microbial contaminants in water, some of these contaminants still manage to pass through. There is much debate over how this happens; some industry experts believe it is due to water bypassing o-rings, leaks in adhesive seals or through minor imperfections in the membrane itself. The sealing and gluing process for making most RO membranes and the overall integrity of the membrane are apparently inadequate to provide reliable, consistent microorganism removal. Viruses cannot be effectively removed by any filtration method, including RO.

The complex problem of microbiological contamination is addressed by other experts who believe in the phenomenon of "bacterial grow-through." This theory is bacteria growing on the membrane surface can initiate growth on the other side of the membrane, leading to contamination of the treated water. Because bacteria are alive and will grow anywhere and under virtually any condition, another school of thought is "back contamination," wherein bacteria grow back from the faucet into the storage tank and/or membrane. For this reason, it will be necessary to periodically disinfect the entire system with harsh chemicals, including the rubber bladder inside the storage tank.

Another common concern is copper contamination which occurs as a result of micro-corrosion of copper pipes widely used in household plumbing. At high concentrations, it can cause a bitter metallic taste in water and deposit blue-green stains on plumbing fixtures. Reverse Osmosis can remove only about 85 percent of this heavy metal.

Most under-counter RO systems require costly professional installation. Many times premature failure is due to improper installation or defective components. Most properly functioning systems also require professional monitoring, water testing and scheduled replacement of filter cartridges and RO membranes. Without water testing, there is really no way to know for sure how the system is performing.

Another expense of operating an RO is the rejected waste water flushed down the drain. Under normal operating conditions, an RO will waste three to ten gallons for every one produced. At a 6:1 ratio (wasting six gallons to produce one), producing three gallons of RO water per day would waste over 6,500 gallons per year.

Even the most advanced RO system is consistently overrated, as well as complicated and expensive. When you consider the cost of installation, maintenance, testing and monitoring, membrane and filter replacements, and wasted water, the cost per gallon exceeds that of a quality distillation system which produces a consistently higher quality water...and without all the fuss!

Dynamic Distillers

A steam distillation system is the one water treatment technology that most completely

and consistently removes the widest range of drinking water contaminants, effectively treating your water for more pollutants than any carbon filter or reverse osmosis system. A quality distillation system has been proven to be the best available technology for removing heavy metals, dissolved solids, and chemical contaminants, including pharmaceuticals. Distillation stands alone in the ability to consistently remove dangerous micro-biological contaminants.

Contrary to the claims made for many other types of water to cure various maladies, we make no such claims. We simply promise you the purest water that functions to hydrate, flush, dissolve, transport, lubricate and cushion your body...all those essentials we should be able to expect water to do.

Distilled water meets the U.S. Pharmacopeia definition of “purified” water which is essentially free of all chemicals and microbes and contains no more than 10 parts per million (ppm) of total dissolved solids (TDS). Homemade distilled water is, in fact, much better with less than 5 ppm TDS. Not only is this the purest drinking water, but hospitals, laboratories and other businesses requiring ultra pure water opt for steam distillation. In remote places around the world, missionaries, Peace Corp Volunteers and embassies also depend on distillation.

Not only is a distillation system the most effective form of treatment, it is the easiest to understand—evaporation and condensation plus filtration. It differs from all other forms of water treatment because water is removed from the impurities rather than the impurities from the water.

To begin the process, untreated water is heated to a boil—killing micro-biological contaminants like giardia, e-coli, cryptosporidium and legionella. These microorganisms are not evaporated into the product water but remain in the boiling chamber along with sediment, TDS and heavy metals... iron, mercury, lead, aluminum, chromium, copper, fluoride, salts, nitrates, phosphates, sulfates, asbestos and anything else too heavy to be carried up by the light steam vapor. Volatile organic compounds (VOCs) with boiling points higher than 212 degrees will also stay behind in the boiler, while any remaining with boiling points equal to or lower than 212 degrees may rise with the steam vapor.

The steam rises into a baffled stainless steel condensing coil, breaking up some gases and discharging any VOCs like benzene, MTBE, bromoform, chlorine, chloroform and THMs through a gaseous vent in the coil. After the vapor condenses, it then percolates through an organic coconut shell carbon filter as a final treatment for any residual VOCs before it passes into a collector reservoir.

So let's put to rest the outdated myth that distillation does not remove VOCs. Earlier distillers did not include baffles, gaseous vents and final filtration because in those days, there were no organic chemicals. Because of the chemical contamination today, a quality distillation system will always include a filter as final treatment. Since the organic coconut shell carbon filter serves only to eliminate possible residual gases in the purified steam distilled water, it is not subject to fouling like normal use filters. This

simple, dynamically effective process of steam distillation and carbon filtration guarantees you the purest water possible...consistently pure, year after year.

Dr. Ronald Klatz, President of the American Academy of Anti-Aging Medicine and Dr. Robert Goldman, President of the National Academy of Sports Medicine recommend drinking distilled water in their book "The New Anti-Aging Revolution." According to the authors, "Not all water is the same nor is it all good for you. The best water a person can drink is steam distilled water. Distilled water actively removes inorganic and toxic materials that are rejected from our bodies by our cells and tissues. An added benefit is its ability to chelate or attach to toxic molecules and minerals and eliminate them."

Another enthusiastic proponent of distilled water is Dr. Robert Willix, former Cardiac Surgeon who has been practicing Integrative and Preventive Medicine in South Florida since 1981. Dr. Willix has authored four books related to disease prevention and anti-aging, and is the recipient of Prevention Magazine's "Best Doctor" Award. In his book, "Maximum Health," Dr. Willix asserts, "The 'gold standard' for purifying your water is a system that distills and filters it. You have the comfort of knowing there is no chlorine, fluoride, bacteria, viruses, pesticides or lead. You get just pure H₂O."

Dr. Russell Blaylock is a nationally recognized board-certified neurosurgeon recently retired from his neurosurgical practice to devote full time to nutritional studies and research. Dr. Blaylock, author of three books on nutrition and wellness, is an earnest supporter of distilled water. He says, "Simple water filters and reverse osmosis systems may initially cost less, but their effectiveness is relatively poor when compared to steam distillation. Many biological and chemical contaminants are able to get through these inferior systems. Distillation can eliminate your water quality concerns, once and for all."

Since critics of distillation can't legitimately attack the process that produces superior quality water, they will typically cite concerns about energy, output and maintenance. The truth is residential distillers are simple electrical appliances (think coffeemaker) that produce up to 9 gallons a day...enough for any family's needs...for about 30 cents a gallon. And maintenance consists of replacing the coconut shell carbon filter after 60-80 gallons (annual cost of about \$40.00 a year with normal use) and periodically cleaning the boiler. Just pour in a descaler (like vinegar or Kleenwise), let it dissolve the buildup, then pour it out. That's really all there is to it!

Distillation is not only the simplest and most effective process, but also the most economical. It is a one-time investment that will last for many years, while other systems have expensive components that degrade with use and require expensive, frequent replacement. Bottom line, if you want pure, economical water without all the monitoring and maintenance, a distiller is the clear choice.

Over 2,000 years ago, Greek sailors were distilling sea water and Roman soldiers in the field used solar distillation in Julius Caesar's day. And it wasn't used just in editerranean countries—earthenware distillers over 1,000 years old have been found in China. Reliance on distillation for drinking water purification has gone on since antiquity and

has passed the test of time.

Today we stand on the threshold of a changing environment awash in chemical pollution, inadequate and deteriorating municipal treatment plants, and the looming threat of bioterrorism. We don't know what challenges lie ahead, but you don't have to worry about the safety of your water. A distillation system is the only technology that is proven to work...providing the most consistently pure water... in a complex 21st century environment. Some distillation critics have called it "overkill," we call it "peace of mind."

There is no denying the reality of the deteriorating condition of our water supplies...and the scams that are feeding off these concerns. This report, however, is not **intended** to instill fear of the problem, but to build confidence in a solution. We believe the facts speak for themselves...distillation is the wise choice!

pH Paranoia

In our attempt to guide you through the murky waters of misinformation, it's not enough to tell the truth about distillation. We must expose the extravagant myths that our competitors continue to fabricate. The misleading pH myth has created a thriving market of potions and gadgets for a trusting public willing to believe the "alka-lie." People are persuaded to believe that guzzling "alkaline" water is the key to perfect health, even though claims about the health benefits (or safety!) of "alkaline" water are not supported by any credible evidence.

Some have even gone so far as to say that drinking pure distilled water is harmful because it can be slightly acidic. It is important to note here that reverse osmosis water is also mineral free and has the same pH properties as distilled. Curiously, however, RO is routinely endorsed in these circles while distilled is routinely demonized...hmmm! The truth of the matter is the unique properties of mineral free, ultra pure drinking water actually make the pH measurement totally meaningless! This may sound too simple, but read on...

For a basic explanation, all water contains both hydrogen ions and hydroxide ions. The pH level is a relative measurement of the hydrogen ions, representing the acidity or alkalinity of the solution. Any substance that lowers the pH when dissolved in water is an acid. A base is a substance that raises the pH. Buffers are substances that enable a solution to resist pH change when an acid or base is added.

The pH scale ranges from 0 to 14, with a pH of 7 being neutral. A pH less than 7 is acidic, and a pH greater than alkaline. The pH scale is logarithmic, so for every one unit of change in pH there is a tenfold change in acidity. This means a solution with a pH of 3 is 10 times more acidic than one with a pH of 4 and 100 times more acidic than one with a pH of 5.

Pure distilled water is considered neutral, with a pH of 7, having an equal number of hydrogen and hydroxide ions. Since there is a lack of dissolved solids (TDS) in

distilled water, there is nothing to influence the pH change in either the alkaline or acid direction. That degree of purity makes distilled water extremely sensitive so that adding the slightest amount of acid or base will easily change its pH.

Because there are no buffering substances to make distilled water resistant to change, even a small amount of carbon dioxide from the air will combine with distilled water to lower the pH to about 6. For the same reason, adding just a pinch of an alkalizing substance like baking soda will immediately raise the pH to over 7. It would require considerably more acid or base to change the pH of unprocessed (high TDS) water with the same pH. The difference is the buffers or dissolved solids making it resistant to change. In other words, the pH of distilled water is like a pendulum that can easily be moved with a feather, compared to high TDS water that requires a mallet to move the pendulum.

When you drink distilled water, it immediately combines with the slightly acidic digestive enzymes in saliva and seconds later with very acidic digestive enzymes in your stomach without “activating any buffering systems” or affecting pH in any way. In short, the extremely sensitive distilled water pH immediately adjusts to your body rather than your body adjusting to the distilled water pH. The much stronger hydrochloric acid in the stomach with a pH of 1 is about 100,000 times more acid than any slightly acidic distilled water that it combines with. That renders the pH of distilled water completely irrelevant!

It is also a fact that neither the pH of ordinary drinking water nor any of the highly alkalized waters can affect the extremely acidic pH of the gastric juices. As soon as water hits the highly acidic gastric fluid in the stomach, its alkalinity is gone. The only effect on body fluids is the pH of your urine.

Even though the pH of alkaline water is altered in the acid environment of the stomach, it can have a long-term effect on the digestive system. The stomach always contains some gastric juices and is always acidic. The enzymes that the stomach lining secretes are specially designed to work best in a strongly acid solution. So, every time you drink alkalized water, your stomach produces more acid to compensate for the dilution of gastric juices. The constant ingestion of alkaline water can create an abnormal digestive condition in a previously healthy gut.

Furthermore, drinking alkaline water along with meals can dilute the natural acidity of the digestive tract and interfere with digestion of proteins, carbohydrates and minerals. This results in putrefaction of undigested food and accumulation of toxic waste which can create a variety of health problems. Consumption of high alkaline water is consistently linked to excessively dry skin and fungus growth. Maintaining normal stomach acidity is also necessary to protect against bacteria that can be ingested in both food and water.

Advocates of alkaline water claim that it is not actually the water that is alkalized but the minerals in the water, primarily calcium, potassium and magnesium. They explain that

the main benefit of alkaline water is to assist in the absorption of these “alkaline” minerals. From a scientific perspective, these ions all form insoluble carbonates in alkaline solution and become even less available.

Minerals are proven to be better absorbed in an acidic environment. As people age, they tend to produce less stomach acid, which means they also tend to absorb fewer minerals. This can be compounded by the consumption of high alkaline water which adds up to one of the worst things you could do for your health.

The staggering health claims made about alkalized water also include “super anti-oxidant” because of something called oxidation reduction potential (ORP). The ORP measure has been useful in the pool and spa industry as well as municipal water treatment for years to monitor pathological activity, but now it’s the newest twist in the alkaline water scam. Just in case you weren’t confused enough about water, the spinmeisters have somehow related ORP to the potential of alkaline water to “remove acid waste” from the body. Though distilled water has been historically recommended for this purpose, the claims are now being spun in favor of alkaline water based on this new misapplication of ORP measures. If reputable “scientists” cannot agree on this notion, how can the average consumer possibly make any sense of this double talk?

The Mayo Clinic responded to the alkaline water hype: “Some proponents say that alkaline water can neutralize acid in your bloodstream, boost your energy level and metabolism, and help your body absorb nutrients more effectively. Others say that alkaline water can help you resist disease and slow the aging process. However, there’s no scientific proof that any of these claims are true.”

The popular “alkaline ionizing” gizmos, according to scientists, are not only “medically baseless and worthless,” but possibly dangerous. Testing by Japanese researchers showed no harmful effects on test animals for short term exposure to alkaline water. However, extended testing on these same animals resulted in near universal mortality. Three other Japanese studies have been published in peer journals and independently verified showing that alkaline water caused pathological changes in heart cell muscles and increased the risk of heart attack in laboratory animals. These results raise very serious doubts about the safety of drinking “alkaline” water.

In spite of all the warnings, many people want the best health without the sacrifices needed to achieve it effectively and safely. We all love the idea of a quick fix. What better way to correct years of poor nutrition, zero exercise and chronic dehydration than by simply drinking “magical” alkaline water. Hucksters prey on these consumers, selling their useless products which may have severe long-term side effects. According to reputable scientific sources, “ionized water” is nothing more than sales fiction.

The wide range of pH values needed throughout the body is exquisitely balanced, primarily through a complex system of buffering and breathing. There are, however, some simple things you can do to maintain a naturally healthy pH. Just eating more fruits and vegetables, practicing deep breathing, and drinking plenty of pure hydrating

water will enable your body to more easily remove toxins and acid wastes. Other factors such as lack of exercise, emotional stress, medication, coffee, alcohol and smoking can adversely affect the internal pH of your body over an extended period of time. Improving your health is not a quick-fix but a slow, cumulative process consisting of numerous lifestyle choices.

Dr. Andrew Weil, nationally known nutritionist, author and Founder of the Integrative Medicine Program at the University of Arizona, has stated, “For reasons I don’t understand, any number of myths—some quite extreme— have grown up over the years about distilled water. As far as acidity goes, distilled water is close to neutral pH and has no effect on the body’s acid/alkaline balance.”

As a Harvard Medical School graduate, Dr. Weil is eminently qualified to evaluate the health claims of alkaline water. He says, “The health claims for water ionizers and alkaline water are bogus. Save your money. You should consider the fact that alkaline water is common throughout the western states, but to my knowledge, it has not protected anyone from the diseases and disorders that occur elsewhere in the U.S.”

Dr. Carey Reams, world renowned expert on body pH, was trained in mathematics, biophysics and biochemistry and had six PhD’s to his credit. Dr. Reams is best known for developing the Biological Theory of Ionization, a system to measure energy in the body by measuring and balancing the pH, which he used in his practice for over fifty years with astounding success. The best water to drink according to Dr. Reams is distilled! And it is still being used today by those who practice his system of pH balancing.

We believe the evidence clearly shows that any discussion regarding the “acidity” of distilled water or the “beneficial” pH of alkaline water is useless, especially considering the unique properties of distilled water. Some common horse sense, coupled with biochemistry 101, exposes this “alkalie.” It is our sincere hope, therefore, that this expose will settle once and for all any unfounded concerns about the pH of distilled water so you can freely enjoy this pure elixir of life without any “pH paranoia.”

Mineral Mania

The most persistent attempt to demonize distilled water is the myth that drinking mineral free or low TDS water can lead to mineral deficiency. Many websites citing this viewpoint are using the absurd and unscientific article “Early Death Comes From Drinking Distilled Water” written by Dr. Zoltan Rona to promote their products and agendas.

In the article, Rona specifically attacks distilled water, claiming it is acidic and leads to mineral deficiencies. Then, ironically, he recommends reverse osmosis water because it is “neutral.” That is a curious contradiction because both distilled and reverse osmosis are pH neutral and virtually mineral free. Throughout the article, he makes outrageous accusations against distilled water while reverse osmosis is given a free pass. This

makes absolutely no sense! (See “pH Paranoia” for information on pH of distilled water.)

Rona also states that water passed through a solid carbon filter is slightly alkaline, suggesting that is an advantage. The truth is the pH of filtered water is totally dependent on the pH of the water entering the filter. Some people may prefer filtered water because it does not remove the minerals. No treatment method, however, can selectively remove harmful contaminants while leaving “beneficial” minerals behind. Ultra pure water will be both toxin and mineral free. Or, conversely, the methods that leave in minerals also leave in contaminants. You can’t have it both ways! Is it really smart to risk ingesting all types of chemicals, bacteria and heavy metals in an attempt to get an insignificant and inconsistent amount of minerals?

Rona alleges that distilled water is used in soft drinks and other sugary beverages. Then he gives a list of diseases associated with the consumption of these beverages which he ridiculously attributes to distilled water! Bullfeathers! First of all, distilled water is not used in the preparation of these beverages! Secondly, the list of actual ingredients, such as high fructose corn syrup, aspartame, caffeine and phosphoric acid should tell any rational person why these products are so harmful to your health! The phosphoric acid in carbonated soft drinks is proven to limit the bones absorption of calcium. Numerous studies have linked the highly acidic phosphoric acid to weak, brittle bones.

Rona asserts that the prolonged drinking of distilled water will rob (“leach”) minerals from your body. Then he refers to an EPA study about the “aggressive” nature of distilled water in the presence of metals. Granted, if you’re talking about metal pipes, distilled water, as well as all other low TDS water, will have a more corrosive reaction than water that already contains dissolved substances. However, since the human body does not consist of metal pipes, this study has nothing whatsoever to do with Rona’s outlandish distilled water “leaching” accusation.

A published study by the Water Quality Association (WQA) Science Advisory Committee with review by Dr. Lee T. Rozelle, PhD. and Dr. Ronald L. Wathen, M.D. in March 1993 called “Consumption of Low TDS Water,” concluded that, “...the consumption of low TDS water, naturally or from a treatment process, does not result in harmful effect to the human body.” Dr. Wathen also indicates, “Salts and minerals are not ‘leached’ from the human body; they are preferentially retained or excreted, either of these events occurring relative to whether or not one is surfeit in water or salt or both.” In short, the human body is not a lead or copper pipe which “leaches” in the presence of low TDS water.

In a surprising twist, instead of blaming distilled water, Rona says that aging and disease are the direct result of the accumulation of acid waste products from a poor diet and mental and physical stress. Then he recommends the short-term use of distilled water as a way of “drawing these poisons out of the body.” This is apparently the “leaching” process that has erroneously been associated with the removal of biologically bound minerals. While it is true that distilled water does help to eliminate accumulated

acid waste from the body, it does not “leach” minerals that have become a part of the body’s cell structure.

The “correlation” between soft water and cardiovascular disease referred to by Rona has no scientific merit. While some studies suggest a possible correlation, other studies do not. Some studies found detrimental effects from drinking high mineral water while others found healing effects from drinking low mineral water. The National Research Council states that results are inconclusive and recommends that further studies should be conducted.

Numerous epidemiological (population) studies have been conducted to determine the effect of mineral composition of drinking water on the health of a population. These studies came about primarily because some countries with only marginal nutrition have had to resort to desalinated (low TDS) drinking water supplies.

There is some evidence that populations with nutritionally deficient diets may benefit from mineralized water. However, the simple truth is you will have health problems if you have a poor diet, no matter what kind of water you drink. You simply can’t blame de-mineralized water for common diseases like heart disease and osteoporosis. If this were true, why would people drinking other types of water get these conditions as well?

Though most scientists have dismissed these studies as flawed, some “authorities” have drawn their own biased conclusions. There is a huge problem with the methodology which does not take into account the numerous demographic, socioeconomic and other variables which may be underlying causes of heart disease. Some other factors not considered such as the presence of chlorine and heavy metals like cadmium, lead and copper leached from water pipes by low mineral water, for instance, have been directly associated with heart disease by any number of authoritative sources.

The WQA has concluded that de-mineralized water cannot be implicated in heart disease studies, nor can the use of mineralized water be identified as reducing heart disease. The World Health Organization (WHO) considered these studies in 2006 and arrived at the same set of conclusions. Both the WQA and WHO concluded that calcium and magnesium are essential, but that food is the principal source.

If Rona’s assertions were true and the studies were valid, we should be able to find similar populations suffering from the ill effects of drinking low TDS (dissolved inorganic substances, i.e. minerals, salts, heavy metals) water. Vancouver, Canada, a city with a population well over 2 million, has a very soft water supply. The water source, from acidic mountain run-off and snow melt, has about 2 ppm of naturally occurring calcium and magnesium (this is on par with distilled and RO). There is no evidence to support any correlation between this soft water and heart disease or any other health concern. If consumption of low mineral water were bad, other places in the U.S. where the water is naturally low in dissolved solids would show evidence. As defined by the WQA

Science Advisory Committee, “Low TDS water is that containing between one and 100 mg/L of total dissolved solids.” Exact numbers will fluctuate seasonally, but according to the WQA, some of the largest U.S. cities with low TDS are Atlanta 44 mg/L, Baltimore 89 mg/L, Boston 31 mg/L, Denver 39 mg/L, New York 41 mg/L, Portland 22 mg/L, San Francisco 27 mg/L, Savannah 91 mg/L, Seattle 41 mg/L, and Tacoma 40 mg/L.

These large populations drink low mineral water every day and do not suffer from increased mineral deficiency or associated conditions any more than the general population. In fact, three of the cities with low TDS water, San Francisco, Seattle and Denver, are among the top ten healthiest cities in the U.S. according to the 2007 Centrum Healthiest Cities Study.

For decades the issue of minerals in drinking water has been a controversial subject among physicians, scientists, nutritionists and many health experts. It is easy to find “authorities” on both sides of this controversial issue. The debate seems to revolve around whether the body can assimilate the minerals commonly found in water. Research doesn’t reveal any real consensus about how to define a mineral, how many types there are and which type is the most bio-available. For the sake of simplicity, let’s consider two types of minerals, organic and inorganic.

Organic minerals are considered those derived from a living, carbon-based source, either plant or animal. Inorganic minerals are considered those derived from a non-living source like rocks, clay or soil. The body appears to have a biological affinity for carbon-based minerals. An example of this is arsenic which is nourishing in the organic state as found in foods like celery and asparagus, but the metallic or inorganic state found in water can be a lethal poison. Another example of this is iron. Organic iron found in lentils and fish is healthy but inorganic iron, like ferric acid, can be poisonous. Iodine in the organic form is necessary for life, but the inorganic, metallic form is toxic.

Though the need for minerals in the body is well established, there are no reliable scientific studies establishing that routinely consuming high mineral water improves your health. According to The American Medical Journal, “The body’s need for minerals is largely met through foods, not drinking water.”

The EPA has determined Maximum Acceptable Levels for minerals in drinking water, though no minimum levels have ever been established, precisely because low TDS drinking water does not pose any health threat. Furthermore, the FDA forbids mineral water companies in the U.S. from making any health claims.

Even if it were possible to meet mineral requirements from drinking water, it would not be practical. In cities where tap water contains high levels of minerals, you would still not be able to consume enough to make any meaningful contribution to your daily intake. For example, the minimum daily Recommended Dietary Allowance (RDA) of calcium for an adult is about 1,000 mg. In St. Paul, you would have to drink about 160 glasses of water to meet the daily requirement versus someone in Boston consuming about 676 glasses a day. How ridiculous is that? And some people think that the

recommended eight glasses of water a day is hard to swallow!

Scientists and physicians from the Mayo Clinic to the American Medical Association agree that mineral requirements are met by eating a balanced diet. “There are no essential nutrients dissolved in tap water which humans depend on for their survival or well-being.” There are also numerous epidemiological studies reported in the British Journal of Nutrition citing a more favorable cardiovascular risk profile in consumers of fruit and vegetables than in non-consumers, regardless of the type of water consumed.

Dr. Ron Kennedy, anti-aging specialist and founder of the popular website, www.medical-library.net, argues that carbon-based minerals from living systems are the most bio-available. Water from the ground consists of minerals in the salt form that must be either stored or excreted. “A good example,” says Dr. Kennedy, “is CaCO₃ (calcium carbonate). Carbonate is not a sufficiently complex organic molecule and, therefore, cannot properly contribute its calcium to living systems. The calcium comes out instead in ionic form and precipitates by forming other salts. Common locations for precipitation of calcium are the lens of the eye (cataracts), the kidneys (kidney stones) and the walls of arteries (arteriosclerosis).”

Dr. Charles Mayo, co-founder of the Mayo Clinic, was an early pioneer of distilled water. He taught that “water hardness (inorganic minerals in solution) is the underlying cause of many, if not all, of the diseases resulting from poisons in the intestinal tract. These pass from the intestinal walls and get into the lymphatic system, which delivers all of its products to the blood, which in turn, distributes to all parts of the body. This is the cause of much human disease.”

Dr. Andrew Weil has stated, “A quick internet search today will take you to sites that put forth such views as ‘Distilled Water Leads to Early Death.’ Nonsense! One claim holds that distillation removes all of water’s beneficial minerals. While it’s true that distillation removes minerals as well as various contaminants from water, we don’t know that the human body can readily absorb minerals from water. We get our minerals from food, not water.”

Dr. Weil continues, “As to whether distilled water leaches minerals out of the body, that reflects another myth. While pure water helps to remove minerals from the body that cells have eliminated or not used, it does not ‘leach’ out minerals that have become part of your body’s cell structure. I hope I’ve set your mind at ease. Distilled not only isn’t dangerous, it’s the purest form of water. It’s also the kind of water I drink.”

Dr. David Williams also weighs in on the mineral water debate. Best known as the author of America’s pioneering natural health newsletter *Alternatives* since 1985, Dr. Williams is at the center of a vast network of doctors, scientists, researchers and natural healers worldwide—arguably the world’s largest such network. He regularly travels to the far corners of the globe to discover effective remedies never before heard of in this country. He is an enthusiastic proponent of distilled water and says, “What most people don’t realize is that the minerals you find in natural mineral water are in salt form, not

the organic, carbon-based form that your body needs. So I recommend eating a balanced daily diet, along with a good multi-nutrient. As for what to drink, after over 25 years of research, distilled water is still the only water that I trust.”

The truth is no credible scientific study showing any negative effect of drinking distilled water can be found. Occasionally some propagandist will dredge up a meaningless anecdotal study, however, there is ample anecdotal evidence to demonstrate not only that distilled water is not harmful for you, but very beneficial. My own story confirms no harmful effects from drinking distilled water for over 30 years. To the contrary, I enjoy a healthy and active lifestyle at the young age of 62 and have no mineral deficiencies or any other infirmities.

Dr. Paavo Airola, renowned author and nutritionist referenced in Rona’s article, “warned about the dangers of distilled water,” but died at the early age of 65 from a stroke. On the other hand, Dr. Norman Walker, PhD, one of the world’s leading nutritionists for over 40 years and author of many books still sold today, avidly supported drinking only distilled water. He died in 1985 at the “early” age of 99. Other well-known proponents who “survived the ravages” of distilled water include Dr. Paul Bragg, “Father of America’s Health Movement.” He died of an accidental swimming death at the age of 96 and Dr. Allen Banik, author of “The Choice is Clear” book on distilled water, enjoyed life until the age of 87.

Then there is the account of Dr. Brown Landone, a neurologist from Nebraska and close friend of Dr. Banik. At the age of 17, Dr. Landone had been told that he would die within months from calcification of his heart valves. With nothing to lose, he decided to start drinking distilled. Dr. Landone subsequently survived to the ripe old age of 98. Although this phenomenon cannot be directly attributed to the distilled water he drank, it certainly didn’t do him any harm.

Another remarkable story is that of Captain Dodge Diamond (a patient of Dr. Landone), who was crippled with arthritis and had become bedridden by the age of 70. After a consultation with Dr. Landone, he began drinking only distilled water. Shortly thereafter, Captain Diamond was teaching a class at age 76, riding a bicycle and walking twenty miles a day at the age of 108, and at age 110 attended a function where he danced all night. He finally died when he was 120 years old. So much for the unfounded nonsense of “early death from distilled water!”

Some have argued that high purity, de-mineralized water does not appear anywhere else in nature, so it must be bad. Actually, there are two natural sources of ultra pure water that have provided healthy drinking water throughout history. One is rainwater which is too polluted for consumption today. The other is glacier water, the reputed water source of the Hunza people of the Himalayas known for their long life span.

Throughout the eons of time, man has enjoyed an abundance of pristine water from free flowing rivers, streams, cisterns and hand-dug shallow wells. Nourishing food has been harvested from the mineral-rich, fertile soils. Such was life in a more idyllic time, but

times have changed. Since the Industrial Revolution thousands of toxic chemicals have been dumped into our environment and farmland has been stripped of its nutrients. Regardless of what you believe about the value of minerals in your drinking water, there is no denying that we have a real pollution problem.

We realize that nutritional convictions can be as varied as political and religious beliefs, and sometimes, held to just as firmly. So, if you are still concerned about minerals, you can make your own “live, homemade” mineral water from purified distilled. Steve Meyerowitz, aka “Sproutman,” health researcher, raw foods advocate and author of nine books about health and nutrition, suggests adding a pinch of sea salt or a few grains of rice in your distilled water. “Do your own thing!” says Meyerowitz. “But whatever you do, it is reassuring to know that you are starting with the purest water on earth.”

Critics and hucksters may continue to attack distilled water, either because they are uninformed or unscrupulous, but not because there is any credible evidence. If you were to weigh on a balance scale the evidence on both sides of this issue, you would have an ounce of questionable studies on one side, versus a ton of logic and common sense based on solid scientific principles on the other. I will remain open to the facts from any new research, as opposed to the overblown theories, propaganda and mineral mania. Until then, I am content to let the proven facts about distilled water speak for themselves.

After 32 years of research and personal experience, I am still convinced that nothing compares in performance and simplicity to distillation. While no technology today will produce 100% pure water, a quality home distillation system is the proven, time-tested method that will most consistently remove the broadest range of contaminants from your drinking water. And that’s the whole truth!

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