



WATERWISDOM®

Drinking Water Scams Exposed!

Myths, Half-Truths, Deceptions & Lies

A SPECIAL REPORT FROM WATERWISE INC.

BY JACK A. BARBER

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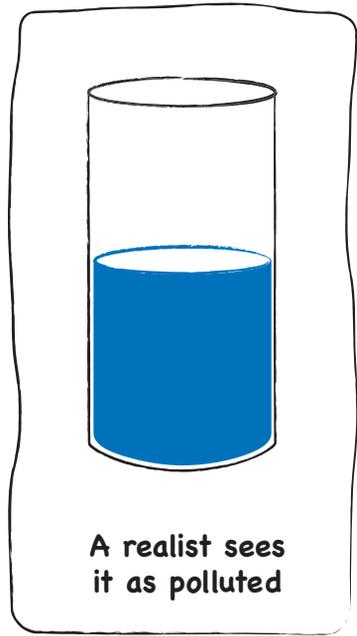
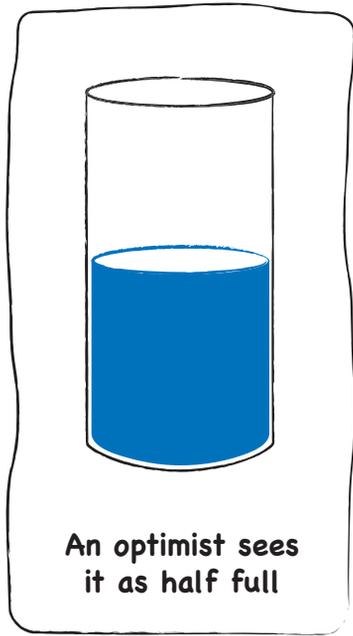
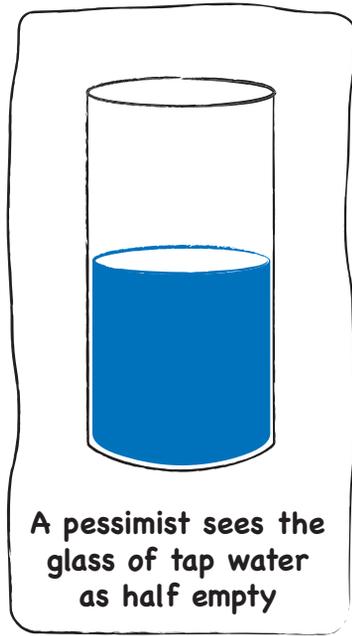


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For additional information about water quality and its importance, please visit:

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THE EXPERTS SPEAK
Experts Share Their Views on the Benefits of Drinking Pure Water

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DRINKING WATER SCAMS EXPOSED!

Myths, Half-Truths, Deceptions & Lies

By Jack A. Barber

A 2009 GALLUP POLL FOUND THAT 59% of the people polled said they were worried “a great deal” about the pollution of their drinking water. Growing water quality concerns over the past decade have opened the floodgates for drinking water scams.

It is truly alarming to see the explosion of internet ads, TV infomercials and mail order blitzes offering bogus products with magical water properties. Elite Hollywood pitchmen extol the virtues of so-called specialty waters that are enhanced, clustered, structured, oxygenated, magnetized, energized, mineralized, alkalized, vitalized or some other pseudoscientific term.

Then there is the debate over the drinking water options available from the public tap, private well or commercial bottle. How do processed waters like filtered, reverse osmosis and distilled compare and what can you really believe? Feeling overwhelmed yet?

“Polywater” was among the first of the wonder waters to be exposed as a fraud as far back as 1966. Soviet scientists caused a sensation when they announced the creation of a new form of water with a host of unusual “properties” that made it denser, stickier and hard to boil or freeze. Scientists around the world raced to confirm the existence of Polywater and some even believed they succeeded! Thanks to the persistent work of skeptics like U.S. scientist Denis Rousseau, who found that human sweat had oddly similar properties, this fraud was exposed as nothing more than impure water.

But these shameless scams continue. The luxury bottled water “Bling H₂O” costs as much as \$40, depending on the size and style of bottle. Even though the water does receive more treatment than the average \$2 plastic bottle, it is more about image than taste. In a blind taste test in New York City, most people preferred the taste of Manhattan tap water over the outrageously expensive “Bling H₂O.”

“Liquid Om” is the first frequency enhanced water. We are told that this balanced energy water promotes health, harmony and peace. The water is purportedly infused with the vibration of the universe by striking a giant gong and Tibetan bowls in the vicinity of the water. The positive energy it creates can be experienced even as you’re holding the bottle. How gullible are we?

Even though I have decided to expose “the myths, half-truths, deceptions & lies” that have corrupted this industry, I wade into this water with humility and appreciation for all those who are champions of pure drinking water. I recognize and applaud the efforts of well-meaning people within the government, scientific and professional community to find viable solutions to the complex problem of drinking water purification. There are also reputable pioneers researching some novel water technologies. My intention is not to mock or disparage any of these genuine crusaders, nor to offend other honest businessmen. I am simply trying to use humor and common sense to introduce some scientific reasoning into a market that has become a virtual quagmire of fraudulent claims and misinformation.

For over four decades, I’ve been committed to helping people improve the quality of their drinking water and have continually worked to keep up with the latest research and information. I diligently investigate the different treatment methods and equipment and have a junk pile of gadgets, devices, magic waters and liquid potions to prove it. I have read thousands of articles and reports from trade publications, magazines and newsletters. My enormous library of reference material includes over 2,000 books and DVDs on water and health, and I am always looking for real data from reliable sources that can provide proven facts.

In other words, I haven’t had my head stuck in the sand for the last 40 years. I don’t pretend to have all the answers, but I stand firm in my commitment to bring you the very best possible drinking water treatment solutions.

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, be aware that some companies are simply fly-by-night cons, hiding behind a P.O. box or an Email 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 has 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.” You should 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 technical and analytical terms in an attempt to cloak themselves in scientific respectability. For example, a book by a cosmic “water doctor” based more on superstition than science, and old Russian research based on flawed observational studies do not qualify as adequate proof to support legitimate scientific claims.

Some companies will state that scientific evidence is available, but just try to get your hands on it! In the ab-

sence of valid scientific evidence, these companies will rely on customer testimonials to support their fraudulent claims since these are not subject to Federal Trade Commission (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.

While it is against the law for a business to deliberately mislead you, the FTC has limited resources. Inundated with so many cases of false and misleading advertising, the FTC can afford to take only limited action.

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 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 perform as advertised.

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 claims that simply “don’t hold water.”

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 that yields 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 valid information. Websites spread the lies by copying each other using the same deceptive information to promote their own products. In fact, one particular filter company has its tentacles stretched across the in-

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ternet 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 often doesn't make it true!

Some would consider this savvy marketing... simply harmless hucksters making a living off other people's trust. 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 mouse, 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. Something new is exciting and creates a buzz, but that doesn't make it true. 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 “myths, half-truths, deceptions and 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, water fountain or backyard hose. Now, after so many “boil water” alerts, chemical spills, and broken water mains, there are real concerns about the safety of our tap water.



“Will this prescription interact with the meds already in my drinking water?”

In the early 1900's, prior to the widespread use of chlorination, the average life span in the U.S. was 35 years. This innovation that made it possible to prevent epidemics of waterborne diseases like typhoid fever and cholera is one of the greatest contributions to our modern rates of longevity.

An unexpected consequence of this treatment process, however, has been the creation of a class of disinfection by-products known as trihalomethanes (THMs). These cancer-causing compounds occur when chemical disinfectants react with organic matter in the water. The Environmental Protection Agency (EPA) has identified more than 600 disinfection by-products but only 11 are regulated by state or federal standards despite unknown long-range health effects. It seemed like a good idea at the time, but in this case, solving one problem has caused many more.

Though municipal treatment plants can effectively control most biological contaminants with chlorine, many cannot effectively treat giardia and cryptosporidia. There are some ten million cases of waterborne disease in the U.S. every year. Water experts estimate that 63% of waterborne illnesses are directly caused by these chlorine resistant cysts which can be fatal to the immune suppressed (i.e. surgical patients, the sick and elderly and HIV/AIDS infected).

Fluoride, another common additive long promoted to fight tooth decay, has recently come under scrutiny by Congress as new scientific evidence has shown that it is ineffective and has serious health risks. Fluoride is banned in such diverse places around the world as China, India, Israel and Japan. Recently, it has been effectively banned through-out all of the 27 countries of the European Union by a landmark European Court of Justice decision that requires fluoridated water to be regulated as a medicine (HLH Warenvertrebers and Orthica (Joined Cases C-211/03, C-299/03, C-316/03 and C-318/03 9 June 2005). Over 600 professionals are urging a stop to fluoridation in the U.S. until Congressional hearings are conducted. The American Dental Association is also warning parents not to use fluoridated water in the preparation of infant formula.

The Safe Drinking Water Act of 1974 initially regulated only 22 contaminants. Today there are 85,000 chemicals on the Federal Registry and about 1,000 new chemicals are added each year, though safe standards have been set for only 91 contaminants. The EPA is looking at 10,000 emerging pharmaceutical, industrial and agricultural contaminants already known to be in tap water though only 104 of these common contaminants are currently under consideration by the EPA for regulation.

Even though safety levels have been established for 91 contaminants, there is a fine line between safe and unsafe. If your tap water contains less than the maximum contaminant levels (MCL) of each of the regulated contaminants, your water is considered “legally safe.” If those maximums are exceeded, the water is labeled “contaminated.” Common sense tells us that what is considered “legally safe” could be dangerously close to exceeding the maximum standards.

The MCL’s can also be reduced over time because of continuing research. In January 2006, for example, the EPA lowered the maximum level of arsenic permitted in drinking water from 50 ppb (parts per billion) to 10

ppb. That means the previous standard was 500 percent higher than the current standard. While concentration of such contaminants is not high enough to cause immediate discomfort or sickness, it is proven that even low-level exposure, over time, can cause severe illness including liver damage, cancer, cardiovascular disease and other serious ailments. So, water we were told 20 or 30 years ago was “legally safe” to drink may not be considered safe by today’s (or likely future) standards.

In 2008, we learned that the water supplies 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 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, as yet, require any testing.

Dr. Robert Morris, environmental epidemiologist and author of The Blue Death: Disease, Disaster and the Water We Drink, warns of the risk that all these contaminants pose to our water supplies. Even if the technology to remove hazardous chemicals and microbes from our water were available, Dr. Morris suggests that it would simply be too cost prohibitive to treat all municipal water. That degree of purity would also be unnecessary considering we drink only about a half gallon of the roughly 100 gallons of household water used per person each day.

Even if the tap water could be effectively treated, there’s yet another threat lurking inside the approximately one million miles of underground water pipes in the United States. Distribution pipes can be 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 1800s, as well as thousands of miles of asbestos water pipes laid in the 1950s. More than 30 million Americans are drinking water with lead levels in excess of the maximum contaminant level set by the EPA.

Washington’s Water and Sewage Authority (WASA) was aware that dangerous amounts of lead had seeped

into the Washington, D.C. water supply in 2001. The water authority hid its findings, however, until a 2004 *Washington Post* article exposed the elevated lead levels. Numerous lawsuits against WASA followed, including a \$200 million suit filed by a father of twin boys exposed to the contaminated water.

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, are attributable to problems with distribution systems," the National Research Council said in a study for the EPA released in 2006.

In 2007 the EPA calculated \$334.8 billion in capital investments will be needed over the next 20 years as all of our municipal systems reach or exceed their expected life spans. Meanwhile, the American Society of Civil Engineers (ASCE) gave drinking water distribution systems a D- grade in their 2009 report on America's infrastructure. ASCE calculated the nation needed to invest one trillion dollars to replace aging water and wastewater facilities to comply with existing and future federal regulations.

While communities around the country are struggling to maintain and upgrade aging water systems, the federal and state governments' contribution to total clean water spending has shrunk dramatically. In the drinking water category alone, ASCE estimates \$255 billion will be needed in the next five years, though estimated spending will be only \$146.4 billion, leaving a shortfall of \$108.6 billion.

So many concerns, so little time! The national distribution of quality water is a colossal challenge to modern technology, but there is a simple solution. You can wait for the federal government to solve the problems, or you can take personal responsibility for the quality of your drinking water.

See "[Evolution of Pollution](#)" on page 24

Well Water Woes

The U.S. Geological Survey (USGS) reports that 43 million people, 14% of the nation's population, rely on



"The water tried to kill us."

their own water supply. Although the EPA regulates public water systems, it has no authority over drinking water from private wells. This means that well owners are responsible for ensuring the safety of their water.

Common groundwater contaminants include an almost endless list of inorganic chemicals, volatile organic compounds, microbes, lead, copper, radon, nitrates, pesticides, petroleum and others. Principal sources of groundwater contamination are farming operations, industrial factories, municipal landfills, animal feedlots, septic systems and cesspool effluents.

In tests conducted by the USGS, more than 20% of privately owned wells contained at least one contaminant at a potentially unsafe level. USGS based its report on samples from 2,100 wells taken from 30 aquifers in 48 states. Radon and arsenic were frequently measured at elevated concentrations in areas near crystalline-rock aquifers. Bacteria were found in as many as one-third of a subset of 400 wells, indicating fecal contamination.

The USGS found that 75% of stream water and 40% of ground water samples from agricultural areas contained atrazine. This commonly detected pesticide, which is banned by the European Union, is a known endocrine disrupter.

A study by the University of Alabama presented at the American Urological Society's annual meeting in April 2009, suggests that drinking well water with pesticide contamination may increase the risk of bladder cancer.

Well Water Woes

(continued)

This is of special concern for those who live close to farms or golf courses that may use large quantities of pesticides and fertilizers.

Well owners need to be aware of potential health problems and take the necessary steps to safeguard their families' drinking water. The USGS study underscores the need for regular testing, as well as the need for reliable treatment for the plethora of common contaminants.

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. The U.S. bottled water market topped \$15 billion (wholesale) in 2015 according to Chicago-based, market research firm Mintel, as published in *Beverage Industry Magazine*. Mintel projects a 34.7 percent sales growth through 2020.

While some consumers are returning to much cheaper tap water, some communities, colleges and governmental agencies have taken steps to either ban or limit the consumption of bottled water due to increasing environmental and cost concerns. Cities including San Francisco, Los Angeles, Salt Lake City and New York have joined in the crusade against bottled water.

The bottled water industry's strategy has been to market bottled water as the safe and clean alternative to tap water. Unfortunately, consumers have been tricked into paying thousands of times more for "designer" water that is, in some cases, the same or even more polluted than water available from the faucet. Bottled water prices range from \$.70 to more than \$12.00 a gallon for the grossly over-priced Penta Water found in many health food stores. The health claims that are made for this bottled water are just as absurd as its price. What a rip-off!

Bottled water has recently been under scrutiny by the Environmental Working Group (EWG), who published the 2011 Bottled Water Scorecard. The findings of the 18-month long study were discussed before a congressional oversight hearing to close loopholes in the nationwide bottled water standards.

EWG researchers analyzed labels and websites from 173 bottled waters to learn which bottlers voluntarily disclosed the same information as required of community water supplies. EWG found that many disclose little to no information at all on water source, how the water has been processed and what chemical pollutants each bottle may or may not contain.

EWG water quality tests found that bottled water is not necessarily any safer than ordinary tap water. The lab tests of 10 popular brands identified 38 pollutants ranging from fertilizer residue to industrial solvents. During a heavily publicized Congressional hearing on the Government Accountability Office (GAO) and EWG reports, House subcommittee chairman Bart Stupak, D-Mich., declared, "Just because it comes in a bottle, we assume it's healthier, but it's not the case."

Unfortunately, consumers have been tricked into paying thousands of times more for "designer" water that is, in some cases, the same or even more polluted than water available from the faucet.

Some bottled water labels are intentionally misleading, implying the water bubbles up from a natural spring somewhere in the French Alps. While this evokes a pristine image, it may have actually been drawn from a municipal 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 at the source or introduced during bottling, such as bacteria, chemicals, dissolved solids, heavy metals, etc.

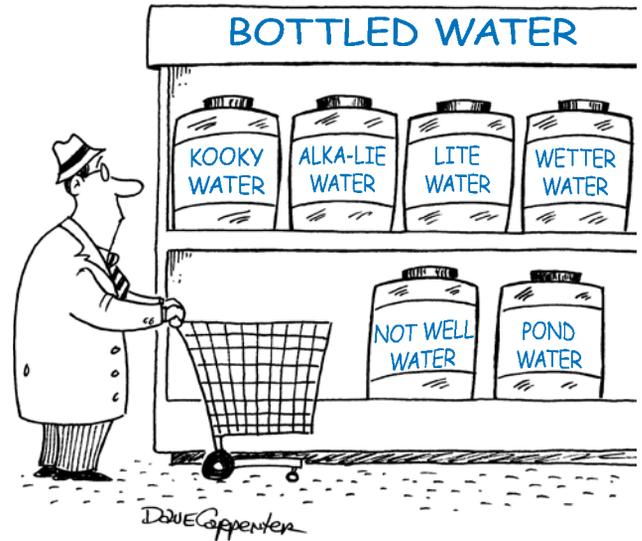
Consumers should also be wary of words like "pure," "pristine," "glacial," "premium," "natural" or "healthy." They are basically meaningless words used to emphasize the alleged purity of bottled water. Though it is not legal to mislabel water as to its source or method of treatment, there are no laws to prohibit bottling ordinary municipal water.

And if the questionable quality of bottled water isn't enough to raise your concern, how about those dispos-

able plastic bottles? Not only can the noxious plastic taste make you gag, but the methyl chlorides, phthalates and antimony that may leach into the water are carcinogenic.

Though bottled water may be considered a convenient alternative to tap water, it is a pending environmental debacle. Every 27 hours Americans consume enough bottled water to circle the entire equator with plastic bottles stacked end to end. Based on a typical 16.9 fluid ounce bottle, 8 inches in height; 8.4 billion gallons of bottled water consumed annually in the U.S. (23 million gallons per day) (Beverage Marketing Corporation 2010); and the Earth's circumference at the equator, 24,901 miles.

There are certainly some very reputable bottlers providing high quality water. Sometimes bottled water may be just a necessary convenience, but always read the label carefully for the source or processing method and expiration date. The quality of bottled water varies greatly, depending on quality of the original water source as well as the treatment process. If it's a brand you purchase frequently, it would be wise to request a complete water analysis.



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.

Bottled water cost more than gasoline! Up to 6,200 times the cost of tap***

BRAND	PROCESS	CPG*	TDS**	TIMES COST of TAP
Penta®	Reverse Osmosis	\$12.46	0.5	6,200
Mountain Valley®	Spring	\$10.94	220.0	5,400
Essentia®	Reverse Osmosis	\$9.54	72.0	4,700
Function: Water®	Distilled	\$7.54	44.0	3,700
Smartwater®	Distilled	\$6.78	40.0	3,300
Fiji®	Artesian	\$6.54	187.0	3,200
Iceland®	Spring	\$6.02	58.0	3,000
Dasani®	Reverse Osmosis	\$6.02	38.7	3,000
Aquafina®	Reverse Osmosis	\$5.28	3.7	2,600

* CPG (Cost Per Gallon) as of February 2016

** TDS (Total Dissolved Solids) are basically minerals and other “stuff”

*** Environmental Protection Agency estimates the cost of tap at about 0.002¢ per gallon (EPA 2009)

Outrageous Oxygenated

This high-priced water scam has been around since the 90's and was originally marketed with blatantly false and unsubstantiated health claims. These absurd claims included cure or prevention of serious diseases such as cancer and heart disease. On May 3, 1999, the FTC charged Rose Creek Health Products with making false and misleading claims about oxygenated "Vitamin O" water. The subsequent settlement prohibited any health claims.

Today, 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.

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, Ph.D., Editor-in-Chief of The Sports Medicine Newsletter and Professor Emeritus at Penn State University. 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. All of this would happen before any oxygen could reach your blood, much less the muscles. Therefore, any intake of so-called super-oxygenated water would be of no use in improving athletic prowess.

Separate studies conducted by John Porcari, Ph.D. at the University of Wisconsin; Craig Horswill, Ph.D. 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

Each year, university researchers on human aging bestow their annual "Silver Fleece" award on anti-aging quackery. The 2002 recipient was "clustered" water.

These mystical molecules promise to restore health, youth and vitality through improved cellular hydration. Ordinary water, they claim, contains large clusters of molecules, many of which are too big to fit through tiny channels called aquaporins that allow water into a cell.

Experts on the structure of water and its absorption by the human body dispute these claims based on a fundamental misunderstanding of how water molecules enter cells. The size or shape of the molecules makes no difference to a cell's ability to absorb them, as water enters cells only one molecule at a time. The aquaporin breaks off molecules one by one and flushes them inside at a rate of a billion every second. On top of this, the

clusters in which water molecules clump together last for an average of three picoseconds—three trillionths of a second—before they are broken up by colliding with other clusters.

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.

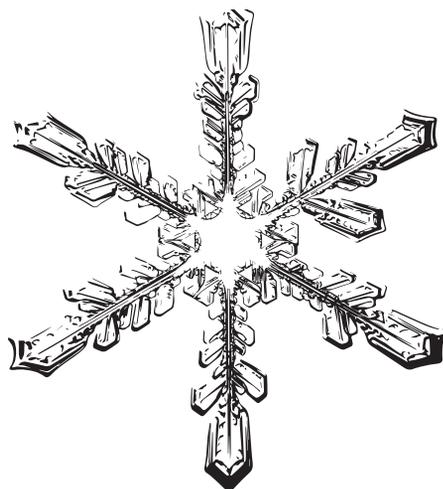
Scientists view water as a loosely-connected network of water molecules. There are about a billion molecules in a drop of water that tend to associate with one another, forming short-lived and ever-changing groupings that are sometimes described as “clusters.” These clusters are constantly rearranging 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 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.”

“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. Those pictures, however, are widely recognized as ice crystals, not liquid water. Other photos supposedly show how water “molecules” are changed by exposure to numerous external influences like music, words and thoughts. James Randi, founder of the James Randi Educational Foundation, has publicly offered Emoto \$1 million dollars if his results can be reproduced in a double-blind study.

An actual scientific study to test “The Effect of Distant Intention of Water Crystal Formation” was published in 2009 in *The Journal of Scientific Exploration*. This triple-blind study used Emoto’s very elaborate protocol and more than 1,900 of his followers, who focused thoughts of gratitude on water bottles in a vault over a period of three days. The results did not reveal any



“...looks like a snowflake to me.”

significant differences among the samples of crystals photographed.

Emoto openly admits that he is not a scientist and believes that “fantasy is the best way to get a clear picture of reality.” Interestingly, his Ph.D. came from Open International University in India, where such degrees can be purchased for less than \$500. Even though there is no scientific or logical explanation for his work, Emoto is revered as a water authority on some websites, which usually demonize distilled and reverse osmosis (RO) water in order to peddle kooky products.

The “kooky clustered” patrons 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 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, it does absolutely nothing to improve the quality of your water.

Energized Exploitation

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

Energized Exploitation *(continued)*

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 mind-set 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 don’t 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, chloride, chromium-6, copper, cyanide, fluoride, lead, manganese, mercury, nitrates, perchlorate, phosphates, sodium, sulfates, and the list goes on and on.

There are several other 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

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flow rates, dumping trapped contaminants back into the drinking water. These problems can lead to higher contaminant levels than if there was no filter used at all.

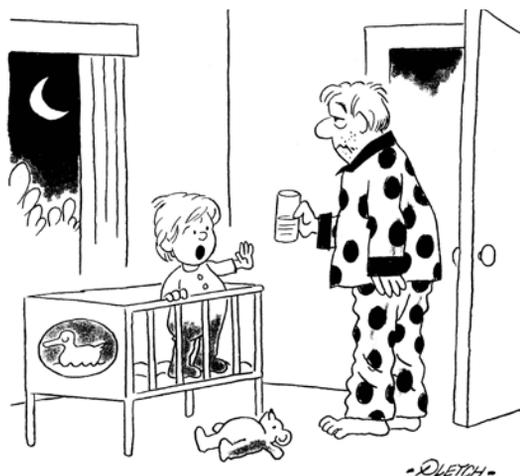
Furthermore, unless there is a noticeable decrease in flow rate or a detected odor in the treated water, it is difficult to know when the filter has become saturated with contaminants and is no longer effective. Some manufacturers suggest replacing filters when bad taste or odor return. In reality, a 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, they 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.

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,



“I gotta have a drink of water but not that stuff! I heard on TV it may be full of toxic chemicals!”

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. Viruses cannot be effectively removed by any filtration method, including RO. Membrane technology is also not effective in removing low-molecular-weight, volatile organic compounds (VOCs) such as chlorine, MTBE, bromoform and trihalomethanes. That is why RO systems 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 are 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 feed water quality including pH, dissolved solids, bacterial and chemical contamination. Minerals, iron, hydrogen sulfide, alum, silt, silica, tannins, 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 premature 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 feed water pH can drop the reduction of fluoride from about 96% to below 50%. Some vendors also recommend adding an ultraviolet light if bacterial contamination is a problem.

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. RO can remove only about 85% of this heavy metal.

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.

The complex problem of microbiological contamination is addressed by some experts who believe in the phenomenon of “bacterial grow-through.” This theory is that bacteria growing on the membrane surface can initiate growth on the other side of the membrane, leading to contamination of the treated water. 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.

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.

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.

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.

My personal pursuit of pure water began 44 years ago when I discovered bacteria and parasites in our spring water while living on a farm in Virginia. My concern for the health of my family led me to steam distillation, widely recognized as the “gold standard” in water purification. What began as a concern has become a lifelong conviction. Even though there is widespread debate, my own research and experience leads me to unapologetically believe that the healthiest drinking water is distilled, not only because of its purity, but because it is also slightly acidic with extremely low minerals and high surface tension. These are the same properties of the healthiest waters found in nature.

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



Distilled water meets the U.S. Pharmacopoeia definition of “purified” water, which is essentially free of all chemicals and microbes and contains no more than 10 ppm (parts per million) of TDS (total dissolved solids). Homemade distilled water is typically 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, volunteers and embassies also depend on distillation.

Besides being the most effective form of treatment, distillation is the easiest to understand—evaporation and condensation. 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. Organic compounds with boiling points higher than 212° will also stay behind in the boiler. Any remaining volatile organic compounds (VOCs) with boiling points equal to or lower than 212° 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, chloromine 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 was no concern about organic chemicals. Because of the chemical contamination prevalent 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 consistently pure water.

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."

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 coffee maker) 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 with vinegar or other liquid descaler. That's really all there is to it!

Distillation is not only the simplest and most effective process, but also very 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 used solar distillation in Julius Caesar's day. And it wasn't used just in Mediterranean 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, antiquated 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," I call it "peace of mind."

“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.”

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. I believe the facts speak for themselves... distillation is the wise choice!

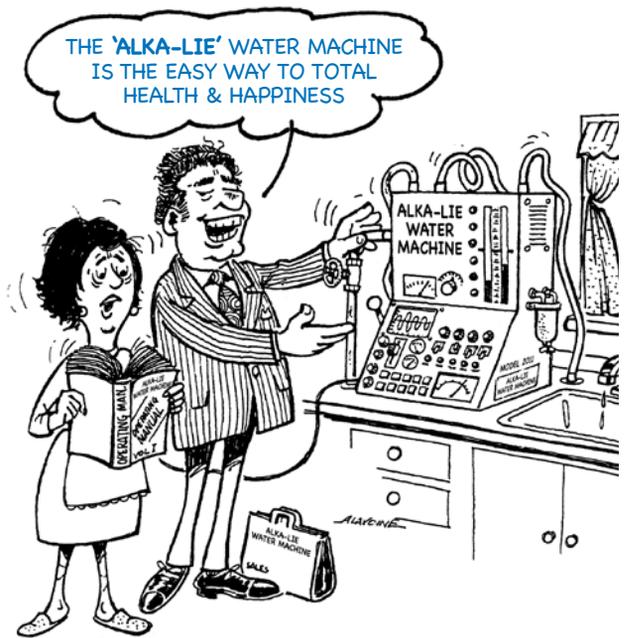
pH Paranoia

It's an all too common misconception that highly touted alkaline water is the key to perfect health even though claims about the health benefits or safety of this water are not supported by credible evidence. 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 is absolutely no scientific proof that any of these claims are true. This pH myth has created a thriving market for alkalizing products and appliances for a trusting public willing to believe the "alka-lie".

In this commercial war of waters, alkaline water zealots not only shamelessly promote the benefits of alkaline water but have even gone so far as to malign distilled water because it can be slightly acidic. It is important to note that RO, deionized, rain and many spring waters are also mineral free and have the same pH properties as distilled. The truth is the unique properties of mineral free, ultra-pure drinking water actually make the pH measurement meaningless in the body.

To better understand how the body renders this debate meaningless, it is necessary to have a basic explanation of pH. The pH level is a quantitative measure of the hydrogen ions representing the acidity or alkalinity of a solution. Any substance that lowers pH is an acid and any substance that raises it is a base. Buffers are substances that enable water to resist pH change when an acid or base is added.

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



Pure distilled water is neutral. Since there is virtually nothing in this water, there is nothing to influence the pH change in either the alkaline or acid direction or to act as buffers to resist change. That degree of purity makes distilled water extremely sensitive, so that adding the slightest amount of acid or base will easily change its pH. Therefore, even a small amount of carbon dioxide from the air will combine with the distilled water to slightly lower the pH. For the same reason, adding just a speck of an alkalizing substance like baking soda will immediately raise the pH back to neutral. In contrast, it would require considerably more acid or base to change the pH of water containing minerals or other additives which act as buffers 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 other waters that require a mallet to move the pendulum.

Now to the point... when you drink distilled water, it immediately combines with the slightly acidic digestive enzymes in saliva and seconds later with very acidic digestive enzymes and gastric juices in your stomach. The much stronger hydrochloric acid in the stomach with a pH of 1 is about 100,000 times more acidic than any slightly acidic distilled water with which it combines. That renders the pH of distilled water completely irrelevant!

Dr. Bob Arnot, well-known author and nutritionist, took issue with alkaline water in a recent *Men's Health Journal* article. "Say no to alkaline water, it's a scam," he said. "Your body is designed to adjust to its optimal pH balance no matter what you ingest. For instance, once alkaline water enters your stomach, your body simply pours in greater amounts of acid to neutralize it." The notion that drinking alkaline water can raise the body's blood pH is false. If you drink alkaline water, the pH is quickly altered by the highly acidic gastric fluid in the stomach. The hydrochloric acid that healthy stomachs make is one million times stronger than the mild alkalinity of your blood.

Even though the pH of alkalized water is altered in the acid environment of the stomach, it can still have a long-term effect on the digestive system. The stomach always contains some gastric juices and is always acidic. The acidic enzymes that the stomach lining secretes during digestion are specially designed to break down food. Every time you drink alkalized water then, your stomach produces more acid to compensate for the dilution of gastric juices. When the broken down stomach contents finally reach the intestines, they are neutralized and made alkaline by pancreatic juice. The pancreas produces 1 to 1.5 quarts of highly alkaline digestive juices per day but the constant ingestion of alkalized water can dilute the natural acidity of the digestive tract and interfere with digestion. This can create an abnormal digestive condition in a previously healthy gut.

Furthermore, maintaining normal stomach acidity is necessary to protect against bacterial and viral infections. The acidic environment destroys organisms that may be ingested in both food and water. Altering this acid environment leaves you wide open to intestinal infections. At least half of everyone over 60 suffers from some level of low stomach acid. This can be compounded by the consumption of alkalized water which adds up to one of the worst things you can do for your health.

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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. Spinmeisters prey on these consumers.

According to reputable scientists, not only are their products medically baseless and worthless, but possibly dangerous. Four 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. Normal cells die under extremely alkaline conditions. A study published in the *Journal of Biological Chemistry* found that alkalosis (rising cellular pH) causes alkaline-induced cell death as a result of altering mitochondrial function. These results raise very serious doubts about the safety of drinking alkaline water.

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. David Brownstein, author, international lecturer and foremost practitioner of holistic medicine, said, "I disagree with the claims made about alkaline water. The claims about the benefits of drinking alkaline water are made with no supporting scientific evidence. The best way to optimize your pH is to eat a healthy diet full of minerals and vitamins. It is especially important not to drink alkaline water with your meals as this will impair your stomach's natural digestive ability."

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 of 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.”

Author, lecturer and nutritionist Dr. A. True Ott noted, “Water that is rich in hydrogen measures 5 to 6 on the pH scale. In my experimentation and research, there is a direct correlation with water purity levels and hydrogen content. The purer the water (as defined by absence of totally dissolved solids, TDS) the more hydrogen ions are available for the cells. Thus, one should strive to consume the purest water possible—and that is simply steam distilled water. It is rich in free hydrogen ions. The water we consume that is so vital to our health and well being must be completely and totally purified and cleansed of natural or man-made contaminants if we truly desire to maintain, or to regain the condition known as vibrant health.”

The late Dr. Carey Reams, world renowned expert on body pH, was trained in mathematics, biophysics and biochemistry and had 5 Ph.D.s to his credit. Dr. Reams is best known for developing the Reams Biological Theory of Ionization (RBTI), a system to measure energy in the body by measuring the pH which he used in his practice for over fifty years with astounding success. Dr. Reams emphatically stated that pH is the most important determiner of human health. The best water to drink according to Dr. Reams was distilled! And it’s still being used today by those who practice his system of pH balancing.

Dr. Alexander F. Beddoe studied directly with Dr. Carey Reams over a 10 year period until Reams’ death in 1985. According to Dr. Beddoe, “the promotion of alkaline water for health on and off the internet is load-



ed with flawed and absolutely wrong information.” He warns that “attempting to purposely make the pH of the urine and saliva move higher than 6.4 (up into the 7-8 range) through consuming alkaline water or any other alkaline product dramatically slows metabolism beginning in the digestion. Contrary to the alkaline promoters, health does not thrive in an alkaline environment.”

I believe the evidence clearly shows that any discussion regarding the “acidity” of distilled water or the “beneficial” pH of alkaline water is useless. It is my sincere hope that this combination of scientific evidence, expert advice and common horse sense settles the pH debate so we can all freely enjoy the 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 written by Dr. Zoltan Rona—“Early Death Comes From Drinking Distilled Water”—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 certain contaminants. You can’t have it both ways! Is it really smart to risk ingesting chemicals, bacteria and heavy metals in an attempt to get an insignificant and inconsistent amount of indigestible 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, Ph.D. 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 sufficient in water or salt or both.” In short, the human body does not consist of lead or copper pipes which “leach” in the presence of low TDS water.

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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, there is no evidence that it can “leach” minerals that have become a part of the body’s cell structure.

An article entitled “Water Vapors” posted on NewYorkTimes.com on 9/9/08 quoted two experts from Cornell University who agree that distilled water is safe and does not leach minerals from the body. Dr. Ann Lemley, water quality expert and Dr. Joseph Hotchkiss, food science professor, agree that accepting the idea that distilled water could draw minerals out of the body would mean assuming that it was not actually ab-

sorbed into the body. Dr. Hotchkiss explained that distilled water is absorbed like other water and its excretion is controlled by the kidneys.

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.”

The “correlation” between soft water and cardiovascular disease referred to by Rona has no scientific merit. Numerous epidemiological (population) studies have been conducted to determine the effect of mineral composition of drinking water on the cardiovascular health of a population. While some studies suggest a possible correlation, other studies do not. 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.

A study by University College London, London, UK, April 2008 suggests that neither high water hardness, nor high calcium or magnesium intake protect against coronary heart disease or cardiovascular disease. Initiatives to add calcium and magnesium to desalinated water could not be justified. The WQA has concluded that de-mineralized water cannot be implicated in heart disease studies, nor can the use of



“How is the water prepared?”

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 mineral water. Northern Ireland and Scotland have extremely low TDS and virtually no calcium and magnesium. Vancouver, Canada, a city with a population well over 2 million, has a very soft (low mineral) 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). Hundreds of millions of people worldwide are drinking low or no calcium or magnesium water in a lifetime and there is absolutely 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 harmful, 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.

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 low 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 any 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!

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

Scientists and physicians from the Mayo Clinic to the American Medical Association agree that mineral requirements are met by eating a balanced diet. They concur 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 fruits and vegetables than in non-consumers, regardless of the type of water consumed.

The debate about minerals in drinking water seems to revolve around whether the body can actually assimilate the inorganic minerals commonly found in water. Inorganic minerals are considered those derived from a non-living source like rocks, clay or soil. Organic minerals are considered those derived from a living, carbon-based source, either plant or animal. It appears that human physiology has a biological affinity for carbon-based minerals.

Dr. Bill Misner, Alternative Medicine Practitioner, explains in his book, *Nutrition for Endurance: Finding Another Gear*, that “most organic minerals for our body come from dietary plant foods. A growing plant converts the inorganic minerals from the soil to a useful organic mineral. When an organic mineral enters the stomach, it must attach itself to a specific protein molecule in order to be absorbed. Then it gains access to the tissue sites where it is needed.”

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.

Dr. Ron Kennedy, anti-aging specialist and founder of the popular website, 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. 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

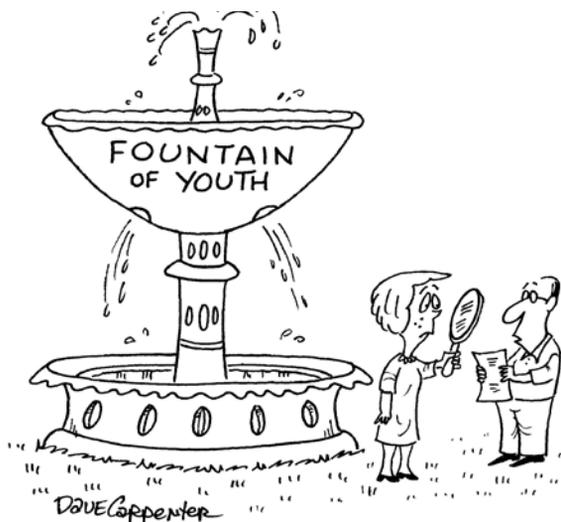
is that the minerals you find in natural mineral water are in salt form, not the organic, carbon-based form that your body needs. So I recommend eating a balanced daily diet, along with a good multi-nutrient. As for what to drink, after over 35 years of research, distilled water is still the only water 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 almost 45 years. To the contrary, I enjoy a healthy and active lifestyle at the young age of 70 and have no mineral deficiencies nor any other infirmities.

Dr. Paavo Airola, author and nutritionist referenced in Rona’s article, “warned about the dangers of distilled water,” but died at the early age of 64 from a stroke. On the other hand, Dr. Norman Walker, Ph.D., one of the world’s leading nutritionists for over 40 years and author of many books still sold today, avidly supported drinking only distilled. 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 by accident at the age of 81, and Dr. Allen Banik, author of The Choice is Clear book on distilled water, enjoyed life until the age of 91.

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. 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 natural sources of ultra pure water that have provided healthy drinking water



“It does say here that acne may be one of the side effects.”

throughout history. One is mineral-free glacier water, the reputed water source of the Hunza people of the Himalayas known for their long life span. Across the Arctic and high in the mountains the world over, populations use snow melt for their sole source of drinking water. This drinking water has practically zero calcium and/or magnesium content. These people are not known to have elevated heart disease. In fact, it is quite the opposite. Greenland Eskimos, for example, are known to have a low death rate from coronary heart disease.

Another source is rainwater. This has been a source of drinking water all over the world for thousands of years and more recently has become a necessary solution due to global water shortage concerns. Some parts of Alaska, Texas and Hawaii have traditionally collected rain water.

There are also successful catchment systems in countries like Germany, Gibraltar, Tasmania and some areas of the Caribbean that provide potable, de-mineralized drinking water to large populations of the world without any adverse effects ever reported or observed.

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. In all honesty, we live in an imperfect world in which there are no perfect solutions. 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.

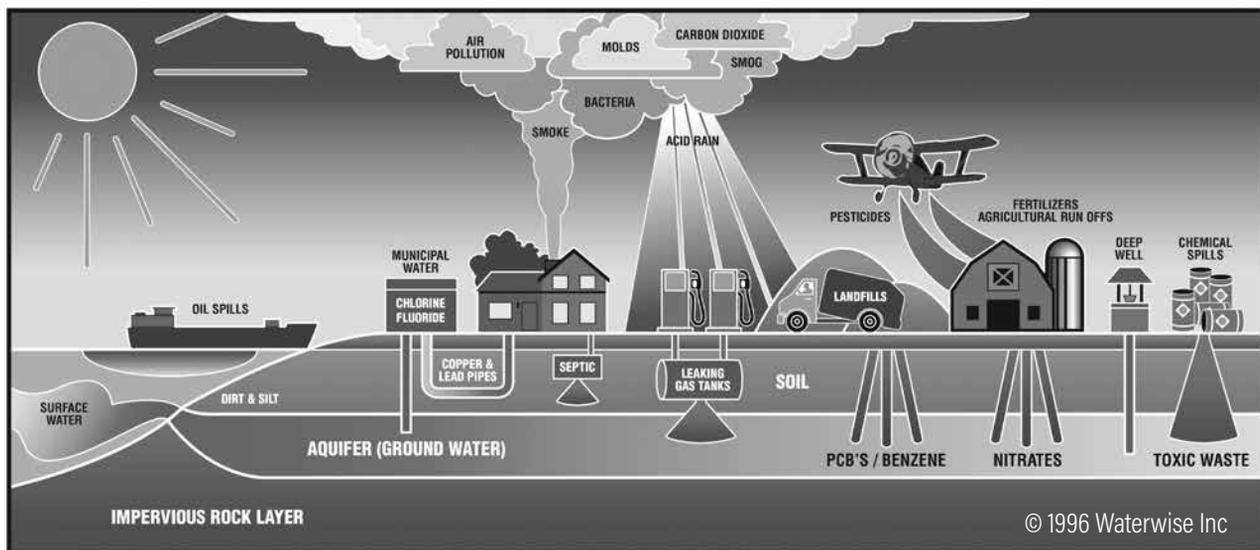
We realize that nutritional convictions can be as varied as political and religious beliefs, and sometimes held to just as firmly. So, if you are still concerned about minerals in your drinking water, you can simply make your own “live, homemade” mineral water from purified distilled. Steve Meyerowitz, aka “Sproutman,” health researcher, raw foods advocate and author of Water The Ultimate Cure, and eight other books about health and nutrition, suggests adding a pinch of sea salt or a few grains of rice to 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.

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 evidence 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 44 years of research and personal experience, I am more convinced than ever that nothing compares in performance and simplicity to distillation. While no single technology will meet everyone’s criteria, a quality home distillation system is the proven, time-tested method that will provide the safest and healthiest drinking water possible. ■

Evolution of Pollution



Potential Sources of Water Contamination

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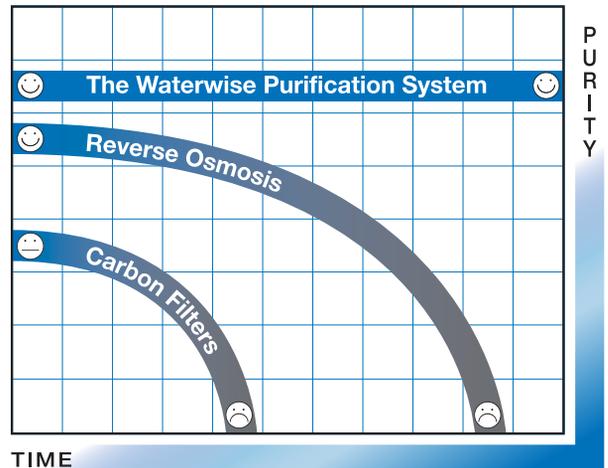
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