

Is Bottled Water Worth the Price?

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Abstract:

As different commercial products are advertised, some manage to create new trends. One fashion based on health that has caught everyone's attention is bottled water. Masked as the easy way to a new you, bottled water sales increase each year. In 1990, bottled water was priced at \$0.90 per one gallon versus \$0.80 per 500 gallons of tap water(1). Today, many consumers buy their bottled water out of vending machines while at work or school. Vending machines charge at least \$1.00 per 9 ounces of water making it \$14.22 per gallon of bottled water today. I explored whether bottled water is worth the price people pay for it. Using actual store prices and literature research, I found that the content and price of bottled water deserves no more monetary value than tap. It is shown to be profitable for the manufacturers. The results presented include the ingredients, the health effects of different minerals added to the water, the amount consumers spend each year on bottled water, and the change that would occur if tap water were used. Selling bottled water is primarily a marketing ploy aimed at making money from consumers who believe it is healthier than tap water.

Introduction:

People of the United States consumed 25.8 billion liters of bottled water in 2004(2). On average, it takes more than 1.5 million barrels of oil per year to make enough bottles for bottled water to meet the American's demands, which is enough oil to fuel 100,000 US cars for one year(2). Is there any proof that bottled water is better for people than tap water? Why has it become so popular? Bottled water has been advertised by Evian and others as being healthier than tap water (8). As time goes on, the price of bottled water rises and more people are wondering why they should pay so much for it (5). Now that more research is being conducted, consumers ask how bottled water is processed, what the source of each brand is, how it is healthier than tap water, and how its production affects the environment. I hypothesized that bottled water is not healthier than tap water, it is potentially hazardous to those that drink it, and it is hazardous to the environment.

Method:

My method was to review published scholarly literature. I also emailed *Evian*, *Pepsi Cola (Aquafina)*, and *Coca Cola (Dasani)*, in order to receive a better insight into how they process their water.

Results:

What it means to drink bottled water

Table:1	Bottled Water	Tap Water
Effects of Containers on the Environment	86% of plastic water bottles were thrown away in 2005(5). If water bottles are buried, they take 1,000 years to biodegrade. If they are incinerated, toxic byproducts are produced(5).	None
Potential Hazards from Consumption	The FDA has decided that bottled water plants are a low priority for inspection(6). They normally inspect certain bottled water facilities only if there are consumer complaints(6).	Tap water undergoes rigorous testing to ensure safety. Therefore there are very few hazards.
Amount Spent by Consumers	\$100 billion per year(7).	\$15 billion per year.
Health Benefits	No health benefits have been found. However, the amount of Magnesium and Calcium is almost equivalent to that in tap water making it just as healthy to drink as tap water(1).	The amount of Calcium and Magnesium in tap water is important to one's health(1).



More Results:

Cost aside, it is important to note the health hazards that arise when deciding whether to drink bottled water or tap water. Tap water is much safer because public water distributors track water-borne illness cases. If any of the standards that the FDA sets for tap water are not met, the public water distributors are required to notify the citizens of the contaminant, its health effects, the level of the contaminant in the water supply, and what measures the citizens have to take to prevent illness as a result to the contaminant(1). Therefore, the consumers know the risks they are taking if they drink contaminated water. It is also important to consider that 40% of bottled water, such as Dasani and Aquafina, begin as tap water which may speak for their safety when they leave the factory(4, 5). However, the hazard of drinking bottled water is that the bacteria that is hazardous to one's health does not start developing until after the seal has been broken. After the seal is broken on a bottle of water, if the bottle of water is left out of the refrigerator, it is the perfect place for bacteria to grow(1). The level of health risks increase greatly if the bottle is not properly maintained. If the consumers reuse their bottles without thoroughly cleaning them, they do not know what dangerous bacteria they could be drinking. However, it is also important to note that bottled water and tap water both can have health benefits if there are sufficient amounts of Calcium and Magnesium. Death rates are usually lower with higher levels of Ca and Mg(1). Deficiencies in magnesium can produce heart disturbances, including 215,000 fatal heart attacks in the US alone each year(1). World wide its 20,000,000 heart attacks(1).

Discussion:

After much research, it is evident that bottled water is not healthier than tap water, costs more than tap water, and is hazardous to the environment. Bottled water does not promote health and beauty any more than tap water does(8). Consumers spend approximately the same amount on one liter of bottled water that they spend on one gallon of gas. Not only are there billions of dollars being paid per year by consumers for bottled water, the environment is harmed because of it. 86 percent of bottled water bottles were thrown away rather than being recycled in 2005. Even before the bottles are discarded, they can be hazardous to one's health because of the bacteria that can easily accumulate in the bottles if they are unsealed and left at room temperature(1). Bacteria especially accumulate if the bottle is reused without proper cleaning(1). From this research, I have concluded that bottled water is not healthier than tap water, and that consumers would find much more chunk change in their pockets if they decided to stick with tap.

References:

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Bottled Water Company	% Ca	% Mg	Tap Water	% Ca	% Mg	Price Per Liter
Crystal Geyser	1	1	San Diego	9	6	\$0.75
Evian	8	6	L.A.	4	4	\$1.57
La Croix	6	6	Houston	4	1	Unable to locate
Perrier	9	1	Chicago	4	3	Unable to locate
San Pellegrino	20	14	New York	1	0.4	Unable to locate
Volvic	1	2	Detroit	3	2	Unable to locate

Table: 2 Data stating that bottled water and tap water hold the same almost the same amount of calcium and magnesium(1). The prices are according to the ones given from froogle.google.com Shipping center. However, many are unable to locate.

Age (years)	Calcium (mg*/day)
*mg = milligrams (Dietary Reference Intakes, National Academy of Science, 1997)	
1 - 3	500 mg
4 - 8	800 mg
9 - 18	1300 mg
19 - 50	1000 mg
51 or older	1200 mg

Table 3: Calcium recommended daily value(10).

Table 4: Magnesium Daily Value(11).

Age (yrs)	Male (mg/day)	Female (mg/day)	Pregnancy (mg/day)	Lactation (mg/day)
1-3	80	80	N/A	N/A
4-8	130	130	N/A	N/A
9-13	240	240	N/A	N/A
14-18	410	360	400	360
19-30	400	310	350	310
31+	420	320	360	320