



Research Article

CARBONATED DRINKS DISPLACES MILK AND FRUIT BEVERAGES

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ARTICLE INFO	ABSTRACT
<p>Article History: Received 05th January, 2015 Received in revised form 08th February, 2016 Accepted 10th March, 2016 Published online 28st April, 2016</p>	<p>If you're guzzling a carbonated soft drink with dinner (or breakfast!) You are not drinking the glass of healthy Juice that nutritionists recommends. Around 50 million people in the world are suffering from diabetes. People who drink lot of soft drinks aren't going to drink as much nutritious liquid as others. Now a days heavy sweetened, carbonated or sodas are more popular in the world. But have you ever thought what it is composed of, is it harming your health? Actually, when you are having a cold bottle of carbonated drink and enjoying its undeniable freshness, do we know what chemical "cocktail" we pour into our throats? It is simply a sweetened carbonated beverage.</p>

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INTRODUCTION

The consumption of carbonated drinks is much higher compared to healthy milk and fruit drinks. The below data clearly justifies this

Table 1 Per Capita consumption of Beverages

S.NO	Category	Market Size(Cr)	Per capita consumption (ml/year)
1	Carbonated drinks	5000	700
2	Flavored Milk	750	300
3	Fruit Drinks	4500	500

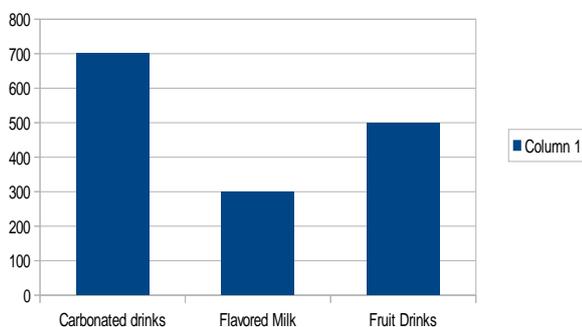


Fig 1 Per Capita consumption of Beverages

Graph clearly shows that carbonated drink is the most consumed beverage. But have you ever thought you are costing your health with every sip you take! Let us highlight some of the many health effects caused by drinking carbonated drinks.

Food/Habit Responsible for diseases

- Junk food
- Low fiber food
- Heavily salted and pickled foods
- Consuming more sweetened carbonated drinks
- Smoking

Ingredients used in Carbonated drinks which leads to diseases

Sugar : Sugars are carbohydrates and mainly provide energy for the body .

Table 2 Sugar used in different category

S.NO	CATEGORY	SUGAR(GM)
1	Flavored Milk	3.5
2	Fruit Drink	16
3	Carbonated Drinks	27

As chart shows clearly Carbonated drink contain more sugar as compare to Flavoured milk and fruit drink when consumed in excess, cause diabetes risk, weight gain, heart disease, mood swings, and more.

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Preservative

- Preservatives are substances which prolong the shelf-life of foodstuffs by protecting them against deterioration caused by microorganisms.
- Almost amongst 1 of 2 Fruit drinks/Carbonated drinks contain preservatives.

Harmful Effects of Preservatives

- Breathing difficulties
- Behavioral changes, especially in young children
- Can weaken heart tissues
- Has ability to transform into carcinogens when digested

Major clinical diseases are

Diabetes in India

- India is presently home to 62 million diabetics an increase of nearly 2 million in just one year.
- In India,nearly 44 lakhs in their most productive years aged 20 to 79 years aren't aware that they are diabetic. (1)
- The diabetes epidemic in the country, that killed 10 lakh people in 2011 .
- Below graph is about the ratio of Diabetes in US, China and India.(2)

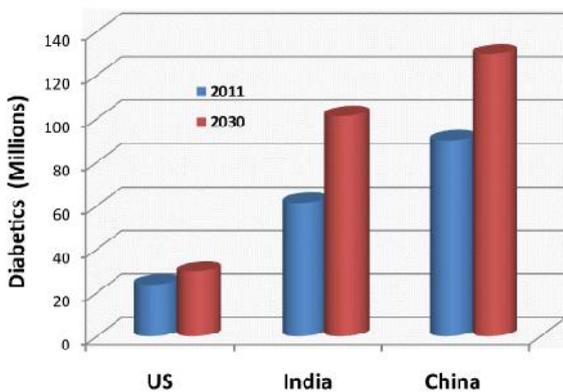


Fig 2 Diabetes in US, India and China

- Graph clearly shows that India is second only to China which is home to 92.3 million diabetics.
- By 2030, India's diabetes numbers are expected to cross the 100 million mark, will have the largest number of patients in the world.(3)

Next question will be why diabetes is caused

A group of metabolic diseases in which the person has high blood glucose (blood sugar), either because insulin production is inadequate, or because the body's cell do not respond properly to insulin, or both . This high blood sugar is due to increased intake of sugar.(4) Carbonated drinks are sugar-sweetened, fruit drinks are also sugar-sweetened but with added benefits of fruits. One can of carbonated drink increase the chance of diabetes by **20%** . **Sugar** has been largely replaced by high fructose corn syrup(HFCS) largely because

the latter is not price controlled, and is a little bit sweeter, so less is needed. But HFCS causes low insulin response.(5)

Most of the people don't know that carbonated drinks contain color that is caramel color. Caramel color is rich in advance glycreatic that might increase in the risk of cancer.(6)

Next diseases is Cancer

Cancer is the second most common disease in India responsible for maximum mortality with about 0.3 million deaths per year. Research shows that cancer rate will double in coming 20 years.Cancer cases will increase from 979,786 cases in the year 2010 to 1,148,757 cases in the year 2020.The cause of such high incidence rates of cancer is mainly our food habits.(7)

Cancer Patient data

Table 3 Cancer Patient data

Year	No. of Cancer Patients
2004	819354
2005	846635
2006	863575
2007	907838
2008	846172
2009	962832
2010	979786

According to WHO report 2014 (% of total deaths, all ages, both sexes)

Table 4 WHO report 2014 (% of total deaths, all ages, both sexes)

Diseases	% of total death
Cardiovascular	26%
Cancer	7%
Diabetes	2%

We have already discussed consumption rate of carbonated drinks,and now you will be surprised to know that carbonated drinks contains scientifically proven carcinogen,**BENZENE**- a chemical linked to leukemia, can form in soft drinks containing two ingredients: Vitamin C, also called ascorbic acid, and either of the two.

Preservatives: sodium benzoate and potassium benzoate. Researcher says that light and heat exposer can trigger a reaction that forms benzene in the beverage.Studies shows that Benzene is known to cause cancer. Studies are done on animals and human both. The link between benzene and cancer has largely focused on leukemia and cancer of other blood cells. The cost for treatment of this cancer is huge, a middle class family will definitely find hard.FDA strictly limits benzene level in drinking water to 5 parts per billion. But, in 2006 test results for other drinks also revealed the presence of highly elevated benzene levels. One carbonated drink the FDA tested was contaminated at 138 ppb, 27 times the 5 ppb tap water limit, and a fruit drink had 95 ppb.

High acidity cause tooth decay:These carbonated drinks are highly acidic drinks. Some carbonated drinks are the most acidic at 2.5. Acidity is due to carbonic acid formed by dissolving carbon dioxide in water. This carbonic acid makes

the beverages extreme acidic. Apart from carbonic acid, phosphoric acid(pH 2.8) also adds to acidity. A tooth in cup will dissolve in a cup of coke in 24-48hrs.(8) Soft drinks contain many acids and sugar have both acidogenic. Many studies shows that a positive relationship between caries and dental erosion and the consumption of soft drinks.(9)

Bone Demineralization

Studies have shown that, women who regularly drank cola - based sodas -- three or more a day -- had almost 4% lower bone mineral density in the hip, even though researchers controlled to calcium and vitamin D intake. Phosphoric acid, a major component in most of the sodas that upsets the calcium phosphorous ratio dissolving calcium resulting in premature osteoporosis. People should replace carbonated drinks with calcium enriched drinks. As it is known that milk is highest source of calcium. Consumers should take milk to avoid osteoporosis. Another is caffeine, which experts have long known can interface with calcium absorption.

Carbonated drinks should be replaced by milk & Fruit drinks

Milk is supposed to be complete diet. Thirsty?? You don't have to rely anymore on carbonated drinks of the world. Here is a drink that provide good nutrition and health benefits also. Flavored milk is a sweetened milk made with milk,sugar, colourings and natural flavors.

Nutrients in milk

Table 5 List of Nutrients (10)

S.No	NUTRIENTS
1	Calcium
2	Vitamin D
3	Phosphorous
4	Protein
5	Vitamin A
6	Vitamin B12
7	Niacin
8	Potassium
9	Riboflavin

Health benefit of Flavoured milk

Table 6 Health benefits of flavoured milk

Good source of calcium, protect body from various ailments	Help rehydrate body
Aids in development of bone structure	Treats dry skin & nourishes skin
Improve dental health	Improve intake of vital mineral & vitamins
Provide relief from acidity	Reduces risk of cardiovascular & heart strokes

Other Healthy Alternative-Fruit Drinks

- Fruits are nature's gift not just in terms of taste but also nutrition. Each fruit is rich in nutrients and some super fruits provide some essential / vital nutrients for well-being of human body.
- Fruit drink deliver vitamins, minerals and antioxidants that play a pivotal role in the prevention of cancers, aging, infections, etc.

Vitamins in fruit drinks and its health benefits .The below data clearly justifies this:

Table 7 Vitamins & their health benefits

Vitamins	Benefits
Vitamin B1 – Thiamine:	Energy Generation, Nerve Function
Vitamin B3 – Niacin:	Detoxification, Skin Health
Vitamin B5 - Pantothenic Acid:	Energy & Hormone Production
Vitamin B6 – Pyridoxine:	Healthy Brain & Immune Function
Vitamin B9 - Folic Acid:	Development of Red Blood Cells
Vitamin B12 – Cobalamin:	Build Proteins, Promote Stability

- Fruit drink contain protein and calcium which is again good for health . It is a component of every cell in your body. In fact, hair and nails are mostly made of protein.
- The fruit is very rich source of soluble dietary fiber. The fiber content helps protect the colon mucous membrane by decreasing exposure time to toxins as well as binding to cancer-causing chemicals in the colon.

Carbonated drinks

A carbonated drink is a drink that bubbles and fizzes with carbon dioxide gas. Carbonation is a process in which gas is dissolved in the drink. Carbon dioxide (Co2) is used for carbonation.

Now Market trend is changing

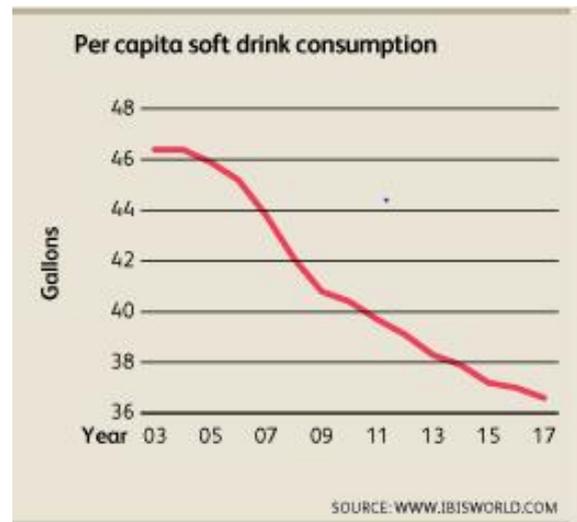


Fig 3

As graph shows that the soft drink consumption is decreasing drastically

- With the rising health consciousness among Indians, focus is increasingly shifting towards healthier eating and drinking habits.
- The estimation is decline appx. 36.6 per capita as opposed to 40.2 par capita in 2011.

CONCLUSION

Milk and milk based beverages are a complete package of nutrients. Flavoured milk which has extra calcium and proteins is also included as a part of a healthy eating pattern. Calcium

and proteins are needed for growth and development of bones and muscles respectively. Calcium consumption is must from childhood as proper mineralization of bones happens in this age till adolescence. After a peak is reached, de- mineralization happens which leads to porosity of bones. Mineralization at a young age is must especially for women as after menopause, the incidences of demineralization increases leading to osteoporosis. In case of adults, calcium is needed for maintenance of calcium levels in bones. Three servings of milk and milk products are recommended for Indians. But Indians normally do not meet this requirement. Other beverages like carbonated drink consumption is on higher side. Also seen from the above tables, all the other beverages are high in sugar and do contain additives like preservatives and stabilizers which may be harmful when consumed in excess. Carbonated drinks have 25% higher sugar and energy drinks top the list with more than 200% of higher sugar than flavoured milk. Thus it is clear that flavoured milk is a healthy substitute to all the other beverages.

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