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HARMFUL EFFECTS OF SOFT DRINKS CONSUMPTION ON HUMAN HEALTH

Pharmacology

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ABSTRACT

Soft drink is the most consumable drinks worldwide although of their serious impact on human health, it affects many body systems such as loco motor system, gastrointestinal system, and cardiovascular system, central nervous system and even reproductive system, and simply it affects all the body structures. Diabetes, heart diseases, bones and teeth disorders are frequently induced due to excessive consumption of soft drinks particularly among children and aged persons. More importantly, the association between sugar sweetened beverage consumption and metabolic disorders was true irrespective of the existing adiposity. This ill effect of consuming sugar sweetened beverages is primarily a consequence of adverse sugar metabolism that is triggered in the body.

KEYWORDS

Soft drinks, Diabetes mellitus, Dental disorders, Peptic ulcer and Cancer

INTRODUCTION:

A soft drinks (also called soda, pop, fizze drink, tonic, mineral or carbonated beverage) is a beverage that typically contains water (often, but not always carbonated water), a sweetener, and a flavoring agent. The sweetener may be sugar, high-fructose corn syrup, or a sugar substitute (in the case of diet drinks)[1]. A soft drink may also contain caffeine, fruit juice, or both. A sports drink beverage is designed to help athletes to rehydrate when fluids are depleted after training or competition. Electrolyte replacement promotes proper rehydration, which is important in delaying the onset of fatigue during exercise. As the primary fuel utilized by exercising muscle, carbohydrates are important in maintaining exercise and sport performance. An effect of drinking sports drinks with carbohydrates without prolonged exercise is weight gain.

No party or celebration is complete without a range of soft drinks that titillate our taste buds before temporarily quenching our thirst. Aerated drinks are harmful for our society specially the youth and are responsible for the epidemic of obesity. Such drinks are popular in all age groups, in fact; kids and teens consider such drinks to be an inseparable part of their lives. However, health conscious people have acknowledged the ill effects of consuming such sugar sweetened beverages; fondly referred to as soft drinks. Regular consumption of such drinks in the long run leads to weight gain and has an adverse effect on our metabolic health[2]. Having appropriate recommendations that would help cut down the consumption of sugar sweetened beverages is thus the need of the hour. Just like on a cigarette pack; there should be a warning printed on soft drinks “IT IS INJURIOUS TO HEALTH".

Soft drink consumption has become a highly visible and controversial public health and public policy issue. Soft drinks are viewed by many as a major contributor to obesity and related health problems and have consequently been targeted as a means to help curtail the rising prevalence of obesity, particularly among children. Soft drinks have been banned from schools in Britain and France, and in the United States, school systems as large as those in Los Angeles, Philadelphia, and Miami have banned or severely limited soft drink sales. Many US states have considered statewide bans or limits on soft drink sales in schools, with California passing such legislation in 2005. A key question is whether actions taken to decrease soft drink consumption are warranted given the available science and whether decreasing population consumption of soft drinks would benefit public health.

Toxicity of additives:

Caffeine:

Caffeine in carbonated drink is more readily absorbed than any other drink (like coffee, chocolate etc.). Caffeine disturbs sleep by stimulating nervous system. It also makes premenstrual syndrome worse, causes dehydration and induces stomach to produce acids, aggravating hyperacidity. Since caffeine disturbs sleep, the body is more likely to produce C - reactive protein, which plays an important role in heart disease. Caffeine has been linked to birth defects, some forms of cancer, insomnia, irregular heartbeat, high blood pressure, high cholesterol, breast lumps, and depletion of some nutrients.

Carbon dioxide:

The gas used to make soda bubbly is the same poison we eject out of our bodies through our lungs. This gas is great for plants but it is bad news for human beings.

Harmful sweeteners:

Whether it is high fructose corn syrup or unnecessarily-high amounts of sucrose, carbonated sodas provide more calories than are generally needed by the average drinker. All this sugar can cause people to gain weight, to develop a high number of cavities, and, in the case of people with ADD or ADHD, to exhibit out-of-control behavior[3].

Acid: In addition to the acids formed by bacteria in the mouth when they feed on sugar, the Pediatric Dental Health site advises most carbonated beverages contain phosphoric acid, citric acid or carbonic acid. Any of these can erode tooth enamel. According to Delta Dental, the calcium in saliva works to remineralize teeth after exposure to small amounts of eroding acid, but with the increased consumption of carbonated beverages, it's not enough. Even diet soft drinks contain damaging acids. People often consume many soft drinks over the course of a day, which means tooth enamel is exposed to the acids over several hours.

Contaminated water: The carbonated-drink-producing industry uses huge amounts of water; like all other industries, they use product-ingredient sources that are least expensive.

Effect on organ system:

Effect on Gastro-Intestinal System: When you open the bottle of a soft drink, bubbles and fizz are immediately emitted out. This is due to phosphoric acid and carbon dioxide (CO2) content, which make these drinks highly acidic. The pH of soft drink ranges from 2.5-3.4 which generates a highly acidic environment in the stomach. Throughout the digestive system, that starts from the mouth and ends up at the anus (liver, gallbladder and pancreas play the role of accessory organs) only the stomach can resist an acidic environment up to pH 2.0. But before the acidity of soft drink reaches the stomach it passes through all the other organs involved in the digestive system thus causing an abnormal acidic environment. Hence the linings of the mouth, pharynx and esophagus are highly sensitive to acids[6]. Also there is a very common practice of taking soft drinks when a person suffers from acidity or after having a heavy meal. The phosphoric acid present in soft drink competes with the hydrochloric acid of the stomach and affects its functions. When the stomach becomes ineffective, food remains undigested causing indigestion, gassiness or bloating (swelling of stomach). Thus people who are suffering from acidity should not be drinking soft drinks because actually it increases acidity further.

Effect on Kidneys:
Kidneys are less able to excrete phosphoric acid when it is in excess. Thus, there is extra work for kidney. Soft drinks remove Calcium from the body, causing an excess amount of Calcium that tend to be deposited in kidney, resulting in nephrolithiasis (kidney stones).

Effect on Bones:
Phosphoric acid, present in carbonated drinks is violently poisonous, it de-oxidizes blood. In detergent manufacturing industries, phosphoric acid is used to produce water softener. Water softener removes Ca^{2+} and Mg^{2+} ion from hard water. In human body, the function remains the same by removing Ca^{2+} from bones causing osteoporosis (porous bones).

Obesity and weight-related diseases:
Many of these experiments examined the influence of sugar-sweetened soft drinks on weight gain in children and adolescents[8]. In one experiment, adolescents replaced sugar-sweetened soft drinks in their diet with artificially sweetened soft drinks that were sent to their homes over 25 weeks. Compared with children in a control group, children who received the artificially sweetened drinks saw a smaller increase in their BMI (by −.14 kg/m2), but this effect was only statistically significant among the heaviest children.

Effect on Skin:
Acidic blood affects the action of glutathione, which is an antioxidant enzyme. In addition, these drinks lack vitamins and minerals. By taking these drinks, people cut their intake of fresh juices, milk and even water and deprive themselves from essential vitamins and minerals that are mandatory for skin. Thus, the skin becomes more prone to wrinkles and aging.

DISCUSSION AND CONCLUSION:

The additives of soft drinks and sports drinks were found to have adverse effects. Both drinks are most favorable in summer season but regular usage may degrade the health. Soft drinks are more harmful in comparison to sports drinks. The carbonated soft drinks were found to show more toxic effects on health status. Natural local drinks are very healthy, cheap and easy to obtain in comparison to soft drinks which are expensive and harmful. Using of natural resources usually protect the community from health and economical problems, culturing of community and learning of young students to save and promote their own resources especially fruits and other vegetables and seeds which used as natural drinks will overcome many health disorders and allow them to enjoy with healthy life and healthy mind.

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