

# Health Issue Related to Excess Consumption of Soft Drink: Obesity

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**Abstract:** Soft drink consumption has expanded rapidly in our daily life so that soft drinks are currently become choice for millions of people and the largest single contributors to energy intake. Indian beverage market is 21% and Indian ranked 3rd largest beverage consumption after the USA and China. In India every year beverage consumption is nearly 120 billion liters. Consumption of sugar-sweetened drinks increase the risk of overweight, diabetes and cardiometabolic disease. Soft drinks have consequently been targeted as a means to help curtail the rising prevalence of obesity, particularly among children. Several factors might account for this increased risk, including increased carbohydrate load and increased amounts of dietary fructose. Fructose acutely increases thermogenesis, triglycerides and lipogenesis as well as blood pressure.

**Keywords:** Refratorimeter, soft drink, Sucrose, Health Risk, Obesity.

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## 1. INTRODUCTION

Sweeteners have been used for food since prehistoric times, probably beginning with the discovery of honey. Sugars occur both naturally and as an ingredient in many foods. They are present in natural foods like fruits, vegetables, milk and honey. Added sugars provide taste and texture to foods. Sugar is present in processed foods like chocolates, jams, ice-creams and soft drinks.<sup>[1, 2]</sup>

The sucrose is a disaccharide combination of the monosaccharides glucose and fructose with the formula  $C_{12}H_{22}O_{11}$ . In sucrose, the components glucose and fructose are linked via an ether bond between  $C_1$  on the glucosyl subunit and  $C_2$  on the fructosyl unit. The bond is called a linkage. The word "sucrose" was coined in 1857 by the English chemist William Miller from the French *sucré* ("sugar") and the generic chemical suffix for sugars *-ose*.<sup>[2]</sup>

Sucrose is often extracted and refined from either cane or beet sugar for human consumption. Modern industrial sugar refinement processes often involves bleaching and crystallization also, producing a white, odorless, crystalline powder with a sweet taste of pure sucrose, devoid of vitamins and minerals. It plays a central role as an additive in food production and food consumption all over the world.<sup>[2, 3]</sup>

## 2. METHOD AND MATERIAL

Soft drink sample is degased with the help of Degas Aerator for 15 minutes and ensure that there are no  $CO_2$  bubbles because these bubbles affects brix results. Few drops of distilled water put on Refratorimeter prism surface, set zero end and wipe up distilled water from the prism surface. Clean the prism surface then drip about 0.1 ml sample on to the prism surface and calculate the actual brix of sample.<sup>[4, 5]</sup> Acidity of soft drink is measured with the help of pH meter.

**Calibration of Refratorimeter:** Take 50 grams of sucrose (95.5%, Merck), dried it at 80 °C for 4 hours and cool it for 30 minutes. Make 10, 11 and 15 brix sucrose solution and with help of these standard solution calibrate the Refratorimeter.

### 3. RESULTS AND DISCUSSION

Refratometric analysis shows that both type of sample have average sucrose quantity 10.98 and 10.52 in every 100 ml of liquid sample. The value of pH of both sample falls below 3.00 at 20°C, this value indicates samples are acidic in nature.

The average bottle of soft drink (300 ml) contains about 15 grams of sugar, if we follow the specifications of soft drink quality given by the FPO, 1955, PFA, 1955 and IS 2346:1992. That's 5 teaspoons of sugar.<sup>[6, 7]</sup> According to Dietary Guidelines for Indians (NIN), sugar intake for moderate waking healthy human 30gm / day.<sup>[8]</sup> Analyzed data shows that every 300 ml soft drink intake adds near about 32 gm sugar in our body .So excess intake of soft drink leads to health related problems.<sup>[9, 10, 11]</sup>

**Table 1. Physicochemical Parameter of Soft Drink**

Sample	°Brix	pH	Sample	°Brix	pH
P <sub>1</sub>	10.88	2.55	C <sub>1</sub>	10.51	2.78
P <sub>2</sub>	11.01	2.61	C <sub>2</sub>	10.56	2.80
P <sub>3</sub>	10.95	2.32	C <sub>3</sub>	10.46	2.83
P <sub>4</sub>	10.91	2.47	C <sub>4</sub>	10.57	2.77
P <sub>5</sub>	11.11	2.66	C <sub>5</sub>	10.50	2.75
P <sub>6</sub>	11.05	2.72	C <sub>6</sub>	10.47	2.76
P <sub>7</sub>	10.99	2.28	C <sub>7</sub>	10.55	2.81

### 4. CONCLUSION

It is well documented that diets high in refined sugar promotes obesity, which increases the risks of diabetes, high blood pressure, stroke, and heart disease. Sugary soft drinks also promote tooth decay. The high sugar content is a major reason why health professionals are concerned about frequent consumption of soft drinks. Low pH. Leads to acidity and affect the digestive system.

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