

SOFT DRINKS AS A RISK FACTOR FOR DENTAL DISEASES

Juraeva Nigora Iminjonovna

Senior Teacher of Department of Pediatric Dentistry, Dental Faculty of Andijan State Medical
Institute, Uzbekistan

n.juraeva68@gmail.com

<https://orcid.org/0000-0001-5711-1885>

Abstract: Soft drinks are popular beverages. These cool, bubbly drinks are being consumed everywhere. In fact, you may very well have a can sitting next to you as you read this article.

Keywords: Soft drink, dental disease, method, treatment.

INTRODUCTION

Dentists are becoming increasingly concerned that overconsumption of soft drinks may result in greater amounts of dental disease. It is well known by the medical profession that disease loves acid, and this is particularly true of dental caries. Dental caries, by definition, is tooth demineralization caused by acidic byproducts of the bacterial fermentation of dietary sugars. The resulting caries lesion involves gradual demineralization of subsurface enamel and dentin, leaving the outer 20- to 50- micrometer-thick surface preserved more or less intact.

MATERIALS AND METHODS

However, enamel maturation takes time. The newly erupted enamel in teenagers is immature, and the crystalline structure is porous, chalky, and easily penetrated and dissolved by acids. Even in the absence of carbohydrates, soft drinks can be destructive to teeth. These acidic, or low pH, beverages can contribute to the demineralization of dental hard tissues.

Dental erosion is the loss of tooth structure by a chemical process not involving bacteria. Initially, enamel will demineralize and dissolve, with the surface appearing dull. Acids can also enter the pits and pores of enamel and cause subsurface structure loss. The solubility of hydroxyapatite increases logarithmically with decreasing pH.

RESULTS AND DISCUSSION

Erosion may be caused by either intrinsic or extrinsic sources. The intrinsic causes have been documented to include cases of anorexia nervosa and bulimia, as well as any gastrointestinal disorder that involves increased outputs of gastric acids. Extrinsic sources include acidic medicines such as vitamin C and aspirin, aerosol acid chemicals in the work environment, or the frequent consumption of acid food- stuffs or drinks.

Children start consuming soft drinks at a remarkably young age, and consumption increases through young adulthood. Twenty percent of one- and two-year-old children consume soft drinks. Those toddlers drink an average of seven ounces — nearly one cup — per day.



Fig.1 Photograph of a 16-year, two-month-old male with rampant caries secondary to soft drink consumption. This teenager presented for consultation after referral from a general dentist.

High soft drink consumption can also lead to excessive energy (caloric) intake, which may contribute to childhood obesity, a growing problem among our children. Sodas are the largest single source of added sugars. A 12-ounce soft drink contains on average 150 dietary calories. The percentage of overweight youths aged 6 to 17 years has more than doubled in the past 30 years [3].

Food acceptance by young children has been shown to be largely dependent upon two characteristics: sweetness and familiarity. There is evidence that continuous exposure to sweets sustains a neonate's preference for sweets. Studies have shown that sweet preference changes with exposure to sugars, and the more sugars people consume, the higher their threshold for sweetness, indicating an increased risk for caries.

Soft drink companies market their products by sending the message that soft drinks are healthy to consume at all times of the day. A quote from M. Douglas Ivester, Coca-Cola's® chairman and CEO, defending marketing in Africa, said, "... actually, our product is quite healthy. Fluid replenishment is a key to health. . . Coca-Cola® does a great service because it encourages people to take in more and more liquids." [4]

CONCLUSION

As you may imagine, although the erosion and caries processes are as different as their histological appearance, the two conditions occurring concurrently could be deleterious to dental hard tissues. As dental professionals, we need to educate our patients about the consequences of soft drink consumption and provide suggestions to minimize the risk. We also need to be active in educating school administrators on the negative impact soft drinks have on students' teeth. The place where children spend a great portion of their day and where they are influenced greatly by their surroundings is their school. Schools are therefore the most suitable environment to provide health information to children in order to achieve the goal of health promotion programs. It is quite a contradiction to teach principles of good nutrition in health education, then adjourn the class to the reality that the children have high accessibility to soft drinks right outside the classrooms.

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