

Sugar Clock: A Primordial Approach to Prevent Dental Caries

Sonal Dhingra¹, Anil Gupta², Shourya Tandon³, Charu M Marya⁴

ABSTRACT

Aim and background: "Prevention is better than cure"; this statement is equally important when it concerns dental caries. Diet is directly linked to causing dental caries. Hence, it becomes of utmost importance that the amount, frequency, and time of sugar intake shall be known so that we can prevent dental caries.

Keywords: Decay, Dental caries, Diet, Prevention, Sugar.

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BACKGROUND

In today's world, the role of sugar as a causative factor for dental caries is undebatable. The latest guideline by the World Health Organization (WHO)¹ clearly states to use less sugar as restricted usage would lead to caries prevention. The question raised in the paper by Van Loveren² agitates the thinking of many researchers; what is more important: amount of sugar being consumed or number of times, i.e., frequency of sugar being consumed?

Dental caries is a multifactorial disease. The role of each factor is interrelated to each other. There is no doubt that diet plays a major part in the epidemiological triad of dental caries. Although dental caries has a low mortality rate, yet it impacts quality of life like absenteeism from school or work due to pain, inability to chew hard foods, sleepless painful nights, low self-esteem, behavioral issues, effect on nutrition, and health status.

"An ounce of prevention is worth a pound of cure"; this statement stands apt in case of dental caries. Dietary counseling is one of the basic approach to a positive nutrition for optimal oral as well as general health. Since, dietary habits are personal, so dietary counseling should also be personalized to the person. Early intervention of diet counseling helps to develop healthy behaviors. Out of all the taste perceptions, sweet is the flavor that is savored by almost all the people within variable age groups. So, it is of utmost importance to know the exact amount, frequency, and time of intake of sugar so that it does not prove harmful in regard to dental as well as general health.

As suggested by the new guidelines by the WHO, "Consumption of free sugars should be reduced to below 10% of the energy required (10 E%) or even under 5 E% of the diet." Free sugars comprise of all the monosaccharides and disaccharides that are put in foods either by manufacturers or by consumers and sugars naturally present in fruit juices, honey, syrups, and concentrates.¹

Based on the previously reported data,³⁻⁶ a sigmoid relationship exists between sugar intake and caries levels. Most of the population will not develop dental caries if sugar intake is kept under 15 kg/person/year approximately. There is a steep progression in the rate of caries if sugar intake is between 15 and 35 kg/person/year. The dose-response curve flattens beyond 35 kg/person/year.

When considering the amount and frequency of sugar, addition of sugar during meals is not as detrimental as when sugary snacks are added in between meals. The experiments by

¹Department of Public Health Dentistry, National Dental College and Hospital, Derabassi, Punjab, India

²Department of Pedodontics and Preventive Dentistry, Faculty of Dental Sciences, SGT University, Gurugram, Haryana, India

³Department of Public Health Dentistry, Faculty of Dental Sciences, SGT University, Gurugram, Haryana, India

⁴Department of Public Health Dentistry, Sudha Rustagi College of Dental Sciences and Research, Faridabad, Haryana, India

Corresponding Author: Sonal Dhingra, Department of Public Health Dentistry, National Dental College and Hospital, Derabassi, Punjab, India, Phone: +91 9899593181, e-mail: sonal.673@gmail.com

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Stephan and Miller in 1940 concluded that pH drops within 30 minutes after a sugary intake. So, any intake of sugar within these 30 minutes is less detrimental to oral health than the intake after these 30 minutes.⁷

Hence, out of amount or frequency, frequency overrules in the understanding of the process of dental caries. Hence, an appropriate approach to caries prevention should be reducing the frequency (as well as amount) of sugar intake rather than only reducing the amount of sugar (Fig. 1).

CONCLUSION

The dental care professionals should focus on the importance of diet in patients and help them in seeking professional care. In true sense, a diet that is beneficial to both general and dental health is "the one with low saturated fat, free sugar and salts, rich in fibrous content containing fruits, nuts, vegetables, whole-grain carbohydrates with fair amount of fish, poultry, legumes and lean meat and large amount of fluids preferably milk, water and very limited with sugar containing beverages."⁸

In addition, it is of utmost importance that the counselor should always remember to highlight the significance of proper toothbrushing with fluoridated toothpaste in the sessions of diet counseling so as to prevent dental caries.



Fig. 1: Sugar clock

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