Content available at: https://www.ipinnovative.com/open-access-journals

International Dental Journal of Student's Research

Journal homepage: https://www.idjsronline.com/

Short Communication

A short communication on interrelationship among oral health and nutrition

Shivam Dubey [1]*

[1] *Dept. of Biosciences, Rani Durgavati Vishwavidyalaya, Jabalpur, Madhya Pradesh, India*

ARTICLE INFO

Article history:
Received 25-10-2024
Accepted 28-11-2024
Available online 10-12-2024

Keywords:
oral health
nutrition
food patterns
lifestyle
dietary choices

ABSTRACT

Oral health, nutrition, and diet are closely related. Like other bodily tissues, oral tissues are influenced by nutrition and diet. The diet provides the food molecules that metabolic processes convert into nutrients that support life and foster health. The amount and frequency of free sugar intake are linked to dental caries, according to strong evidence gathered from epidemiological, animal, experimental, and human intervention studies. One of the many elements of intervention methods for health improvement is nutrition education.

1. Introduction

Parents and medical professionals indicated in a recent Walker et al.[1] study that they would like preventative nutrition treatments to incorporate gamification, interactive material, and useful tools for putting knowledge into practice. Tooth wear has emerged as an oral health issue during the last twenty years or so due to shifting trends in socioeconomic position, food patterns, and personal lifestyles. The human body need daily nutrition in the form of minerals, proteins, and carbs in order to be healthy. There are numerous interrelated elements that contribute to the complicated relationships among oral health issues, nutritional status and dietary patterns, and overall health status. Dental caries, periodontal disorders, oral mucosal diseases, and infectious diseases are all impacted by inadequate nutrition. Chronic systemic disorders may result from poor nutritional status brought on by compromised dental health, which can also change dietary preferences and intake. The development of the craniofacial region, oral cancer, and infectious illnesses of the mouth are just a few of the ways that diet and oral health are related. Dental conditions are costly to cure and have a significant negative influence on one's quality of life and sense of self. Improving one's health and quality of life requires identifying and treating issues related to diet and dental health.

Food consumption can encourage enamel remineralization when the diet contains adequate amounts of calcium, phosphates, and vitamin D.[2,3] Consumption of cheese has been associated with a lower likelihood of cavities in the mouth.[2] Some of the suggested defense mechanisms include increased salivary flow and buffering, preventing plaque bacteria from growing too much, and enhancing remineralization through the consumption of calcium, inorganic phosphate, and casein.[4] Additionally, by using foods high in vitamin D, severe lesions may be remineralized at the early phases of pre-cavitation.

The investigations have shown inverse connections between children's caries and parents' oral health awareness about nutrition and oral hygiene habits. Various researches on children's oral health knowledge have assessed food beliefs in relation to oral health interventions that take place in school environments and correlations between tooth pain and specific food consumption.[5,6] Furthermore,

* *Corresponding author*.
E-mail address: shivamdubey20@gmail.com (S. Dubey).

https://doi.org/10.18231/j.idjsr.2024.040

investigation on parents' oral health nutrition knowledge has generally assessed parents' and caregivers' knowledge of their children's caries status.[7] Dental caries susceptibility is increased by undernutrition, which is linked to enamel developing abnormalities. It is thought that in today's scenario, the dental erosion is getting a commonly occurring problem globally. Soft drinks, a common source of acids in the diets of affluent nations, appear to be a key contributing factor. Sugars are the primary dietary component linked to dental caries, according to compelling data from experimental, animal, human observational, and human intervention research. Teeth are impacted by nutrition during development, and malnutrition can make infectious disorders of the mouth and periodontal disease worse. The regional impact of diet in the oral cavity on the onset of cavity formation and enamel degradation, however, is the most important effect of dietary products on teeth. Soft drinks are a key source of dietary acids, which are linked to an increase in dental erosion. Dental caries is still common and is getting worse in several developing nations going through a nutrition transition, even while trends in dental caries levels in wealthier nations have improved.

High and frequent consumption of fermentable carbohydrates, especially ultra-processed foods that contain high levels of refined starches and free sugars, is a common dietary risk factor for dental cavities and other chronic diseases. When these foods are consumed, the metabolism of fermentable carbohydrates in the biofilms results in the production of organic acids by the indigenous bacteria.[8] Local pH values in the dental biofilm drop below neutrality to crucial levels of five and a half and below as a result of these lactic, formic, and acetic acids, demineralizing the tooth tissues. Slow salivary clearance rates of starchy foods and the accompanying longer retention duration in the mouth can also prolong the effects of other concurrently present sugars when starch ingestion has a co-cariogenic effect with them.[9] Consuming processed foods that contain sugar and starch between meals was consistently linked to a higher risk of dental cavities, according to a recent systematic review of prospective cohort studies.[10] The government-endorsed dietary guidelines for healthy eating in the individual countries of study[11,12] provided recommendations and guidance that were followed when classifying foods as healthy or not.

2. Conclusion

Studies show that limiting sugar intake is crucial for preventing dental cavities. A person's tooth caries is low when they consume less than 15 kilograms of free sugars annually. National health authorities should set country-specific targets to reduce sugar intake, and foods containing free sugars should be consumed no more than four times a day. Adhering to international guidelines promotes a diet low in free sugars and fat, abundant in fruits, vegetables, and starchy staple foods. Understanding children's and adults' prior food knowledge is essential for implementing dietary lifestyle changes.

3. Source of funding

None

4. Conflict of interest

None.

References

1. Walker JL, Dix C, Hardt J, Farletti R, Littlewood R. What Do Health Professionals and Parents Want as Part of an Online Childhood Obesity Prevention Program? *Child Obes*. 2022;19(2):88–101.
2. Kashket S, Depaola DP. Cheese consumption and the development and progression of dental caries. *Nutr Rev*. 2002;60(4):97–103.
3. Hujoel P. Dietary carbohydrates and dental-systemic diseases. *J Dent Res*. 2009;88(6):490–502.
4. Touger-Decker R, Van Loveren C. Sugars and dental caries. *Am J Clin Nutr*. 2003;78:881–2.
5. Abuhaloob L, Petersen PE. Oral Health Status and Oral Health Behaviour among 5- to 6-year-old Palestinian Schoolchildren-Towards Engagement of Parents and Schoolteachers for Oral Health through Schools. *Oral Health Prev Dent*. 2021;19:673–82. doi:10.3290/j.ohpd.b2448571.
6. Nicksic N, Massie A, Byrd-Williams C, Kelder S, Sharma S, Butte N, et al. Dietary Intake, Attitudes toward Healthy Food, and Dental Pain in Low-Income Youth. *JDR Clin Trans Res*. 2018;3(3):279–87.
7. Pandey R, Mishra A, Chopra H, Arora V. Oral health awareness in school-going children and its significance to parent's education level. *J Indian Soc Pedod Prev Dent*. 2018;36(2):120–4.
8. Loesche WJ. Association of the oral flora with important medical diseases. *Curr Opin Periodontol*. 1997;4:21–8.
9. Linke H, Birkenfeld L. Clearance and metabolism of starch foods in the oral cavity. *Ann Nutr Metab*. 1999;43(3):131–9.
10. Hancock S, Zinn C, Schofield G. The consumption of processed sugar- and starch-containing foods, and dental caries: A systematic review. *Eur J Oral Sci*. 2020;128:467–475.
11. Scarborough P, Rayner M, Stockley L, Black A. Nutrition professionals' perception of the 'healthiness' of individual foods. *Public Health Nutr*. 2007;10(4):346–53.
12. Talip WA, Steyn NP, Visser M, Charlton KE, Temple N. Development and validation of a knowledge test for health professionals regarding lifestyle modification. *Nutrition*. 2003;19(9):760–6.

Author's biography

Shivam Dubey, Research Scholar https://orcid.org/0000-0002-2704-4260

Cite this article: Dubey S. A short communication on interrelationship among oral health and nutrition. *International Dental Journal of Student's Research* 2024;12(4):202-203.