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To Study the Effect of Intake of Dairy Products on Periodontal Status in Indian Population

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Abstract
A healthy and nutritious diet includes consumption of a large number of dairy products. Dairy products intake has shown a beneficial effect on systemic and periodontal health. Milk, cheese, butter are the dairy products consumed in Indian population. The present research aimed to study the effect of dairy products intake on periodontal status. The participants in the study were grouped into healthy, gingivitis and periodontitis. Dairy product intake assessment was performed with a questionnaire. Percentage distribution among individuals with the different number of dairy products intake was evaluated. There was no correlation found between dairy product intake and periodontal status in this study.

Keywords: Dairy products, gingivitis, periodontitis

Introduction
The role of nutrition in periodontal disease is being widely studied in the literature. There are varying studies which support the effects of nutrition on periodontal disease. Gingival bleeding and periodontal bone loss occur by a nutritional deficiency of Vitamin C, B12, etc. [1] Dietary supplementation of fruits and vegetables had resulted in a better reduction of bleeding sites, decrease in pocket depth and gain in clinical attachments. [2] Calcium supplements have therapeutic use in the field of orthopedic. [3] The intake levels of calcium and vitamin D for preventing osteoporosis had resulted in tooth retention. [4] The risk of periodontal disease is greater for lower dietary calcium intake. [5] Calcium and Vitamin D are beneficial for periodontal health and it could be incorporated in periodontal disease treatment. [6] The dairy products consumption in childhood and adolescence improves bone mineral density and reduce the risk of osteoporosis. [7, 8] Dairy products may affect plaque quality and quantity through modulation of the inflammatory response. [9] There are very few studies exploring the role of dairy products in periodontology. The present survey conducted was with the aim to evaluate the intake of different types of dairy products.

Material and Methods
In this survey, a total of 154 people reported to the outpatient department with inform consent. The age group assessed was 18-70 years. The people were questioned about the dairy products intake. Five types of dairy products assessed were milk, curd, ghee, butter, and cheese. Dairy products intake, frequency, plaque scores and clinical attachment level were measured. Sillness and Loe index for plaque scores on index teeth # 16, 21, 24, 34, 31 and 46. [10] For each person recording of highest score of clinical attachment loss was done. The individuals for statistical analysis, grouped into healthy, gingivitis and periodontitis. The (table 1 and graph 1) represents the percentage of individuals with gingival health, gingivitis, and periodontitis with respect to the number of dairy products intake. Table 2 and graph represents the mean plaque scores with a different number of dairy products intake. Table 3 and graph 3 represents the mean clinical attachment loss scores with a different number of dairy products intake.

Results and Discussion

Mean plaque score was 0.54-0.71. One Way ANOVA analysis showed no significant difference (P value=0.625) between mean plaque score in people with a different number of dairy product intake. The mean clinical attachment loss was 0.91-1.12. One Way ANOVA analysis showed no significant difference (P value=0.198) between mean clinical attachment loss with a different number of dairy product intake. Dairy products consumption was associated with good health since ages. The growth and development in the field of dairy industry resulted in the higher supply of dairy products. Intake of dairy products leads to skeletal growth development in children; reduce fracture risk and osteoporosis in adults. Dairy products such as milk, cheese, and others are nutritious and rich in protein, peptides, calcium, vitamin D and others. Protein in dairy products leads to maintenance and integrity of the periodontal tissue. [11] The milk products reduce the inflammation in the body by improving levels of inflammatory biomarkers. [12] Milk has bioactive peptides such as angiotensin-converting enzyme inhibitory peptides. These bioactive peptides play a role by reducing the bone resorption associated with periodontitis.[13] The probiotic milk was found beneficial for gingival health.[14] The curd, fermented dairy food provides probiotic a bacterium (e.g., Lactobacillus and Bifid bacterium) helps in suppressing the growth of periodontal pathogens and stimulates the immune system. [15]

In this survey, assessment of periodontal status with respect to different types of dairy products consumed was done. The dairy product consumed in a large amount was milk followed by curd, ghee, butter, and cheese. Among the dairy products, milk was consumed on a daily basis while the others were consumed occasionally. 4.5%, 40.9%, 4.5%, 4.5%, 13.6% and 22.7% of individuals surveyed consumed none, one, two, three, four and five types of dairy products respectively. There was no significant difference in mean plaque score and dairy product intake. This was, in contrast, to study conducted by Adegboye et al. who reported that calcium and dairy-foods intakes within-recommendations were associated with lower plaque scores. [16] There was no significant difference in clinical attachment loss between those who consume a different number of dairy products. Thus, in this study, there was no correlation between dairy product intake and periodontal disease. However, a study conducted by Shimazaki et al. reported that people who regularly consume lactic acid commonly found in dairy products such as yogurt have a lower instance of periodontal disease. [17] A study conducted on 12,764 people reported, the prevalence of periodontitis 41% lower for people with high intake of

Dairy products. [18] Dairy products intake were found to reduce the risk for periodontitis in the Korean male population. [19] The shortcomings of this study were that the actual amount or measure of dairy products could not be studied. The data obtained depends on the person recall capacity. The data collected might be subjected to variation from the facts. This study, conducted on a small sample and thus its inference can't be related to a larger population. Periodontal disease and other diseases can be prevented to a larger extent if the emphasis is given on research in the field of diet and nutrition. Further, studies on a large-scale are required to review the role of dairy products in periodontal disease.

Tables & Figures

Table. 1: Percentage distribution among individuals with different number of dairy product intake

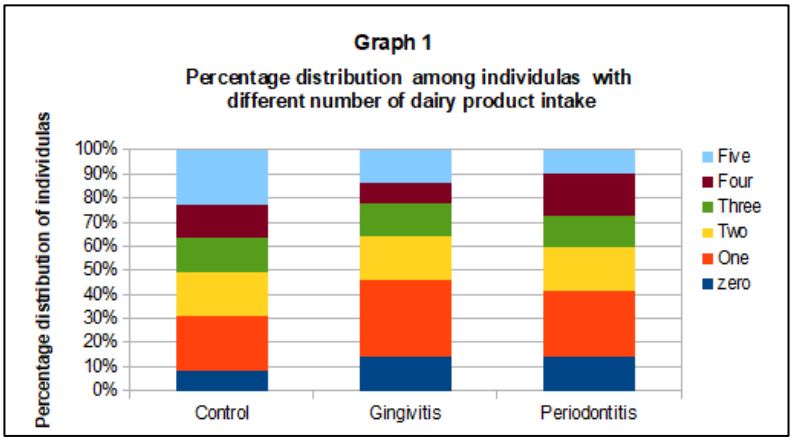
No of dairy product	Control	Gingivitis	Periodontitis
0	8.54	14.2	13.74
1	22.7	31.81	27.27
2	18.18	18.18	18.18
3	13.9	13.6	13.16
4	13.98	8.54	17.6
5	22.7	13.67	9.61

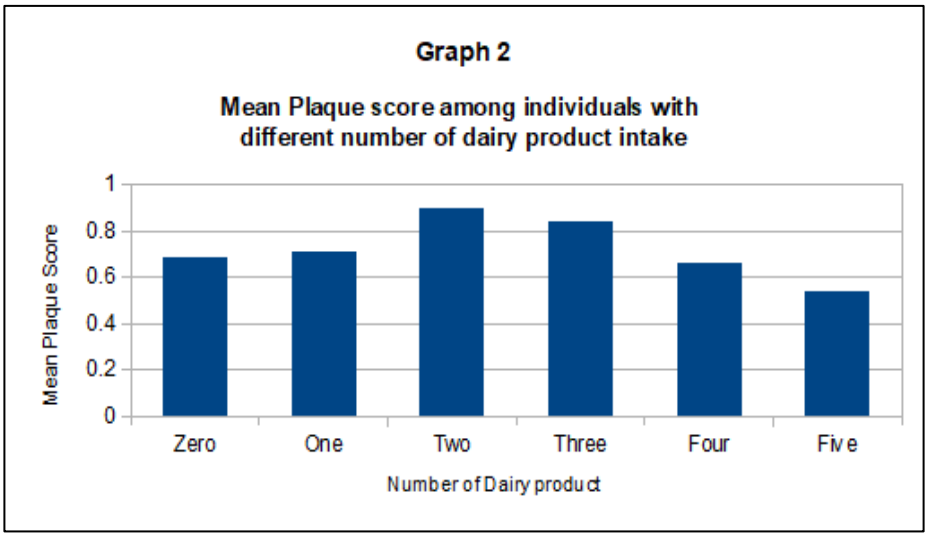
Table 2: Mean Plaque score among individuals with different number of dairy product intake

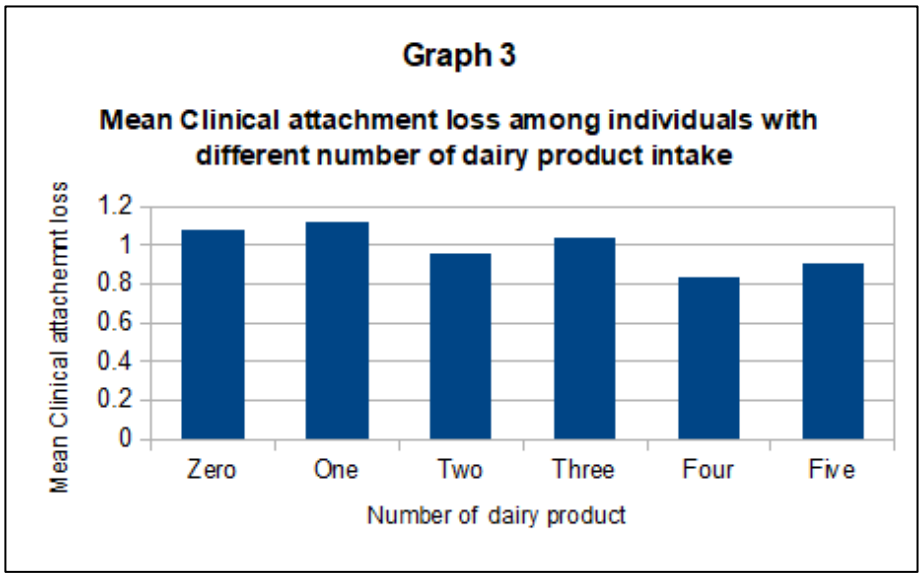
No of dairy products	n	Mean GI score	ANOVA
0	7	0.69 ± 0.48	P value=0.625 NS
1	63	0.71 ± 0.63	
2	7	0.90 ± 0.46	
3	7	0.84 ± 0.54	
4	21	0.66 ± 0.57	
5	35	0.54 ± 0.62	

Table 3: Mean Clinical attachment loss among individuals with different number of dairy product intake

No of dairy products	n	Mean CAL score	ANOVA
0	7	1.08 ± 0.67	P value=0.198 NS
1	63	1.12 ± 0.43	
2	7	0.96 ± 0.53	
3	7	1.04 ± 0.46	
4	21	0.83 ± 0.34	
5	35	0.91± 0.64	







Conclusion

The increased intake of dairy products improves nutrition, reduces inflammation and up-regulates the growth of healthy bacteria. However, in this study, no significant difference was found in periodontal status in individuals taking a higher intake of dairy products. The dairy products intake was found to have no beneficial effect on periodontal health. Future research is required to study the influence of dairy products on periodontium.

References

1. Hujoel PP, Lingström P. Nutrition, dental caries and periodontal disease: a narrative review. J Clin Periodontol 2017:18; 79-84.
2. Chapple IL, Milward MR, Ling MN, Weston P, Carter K, Askey K, et al. Adjunctive daily supplementation with encapsulated fruit, vegetable and berry juice powder concentrates and clinical periodontal outcomes: a double-blind RCT. J Clin Periodontol 2012;39:62–72.
3. Tang BM, Eslick GD, Nowson C, Smith C, Bensoussan A. Use of calcium or calcium in combination with vitamin D supplementation to prevent fractures and bone loss in people aged 50 years and older: a meta-analysis. Lancet 2007; 37:657–666.
4. Krall EA, Wehler C, Garcia RI, Harris SS, Dawson-Hughes B. Calcium and vitamin D supplements reduce tooth loss in the elderly. Am J Med. 2001; 15: 452-456.
5. Nishida M, Grossi SG, Dunford RG, Ho AW, Trevisan M, Genco RJ. Calcium and the risk for periodontal disease. J Periodontol 2000; 71: 1057–1066.
6. Hildebolt. Effect of Vitamin D and Calcium on Periodontitis. J Periodontol 2005; 76: 1576-1587.
7. Rozenberg, Serge, et al. Effects of dairy products consumption on health: benefits and beliefs-a commentary from the Belgian bone blub and the European society for clinical and economic aspects of osteoporosis, osteoarthritis and musculoskeletal diseases. Calcified tissue Int 2016; 98: 1-17.
8. Wadolowska L, Sobas K, Szczepanska JW, Slowinska MA, Czlapka MM, Niedzwiedzka E. Dairy Products, Dietary Calcium and Bone Health: Possibility of Prevention of Osteoporosis in Women: The Polish Experience. Nutrients. 2013; 5: 2684-2707.
9. Wilson M. Dairy products and oral health. In: Food constituents and oral health. 2009, 1st ed, Elsevier, Delhi, p.159.
10. Loe H. The gingival index, the plaque index and the retention index systems. J Periodontol 1967; 38: 610-616.

11. Da Silva MS and Rudkowska I. Dairy nutrients and their effect on inflammatory profile in molecular studies. Mol Nutr Food Res 2015; 59: 1249-1263.
12. Labonté MÈ et al. Impact of dairy products on biomarkers of inflammation: a systematic review of randomized controlled nutritional intervention studies in overweight and obese adults. Am J Clin Nutr 2013; 97: 706-717.
13. Gupta G. Probiotics and periodontal health. J Med Life 2011; 4: 387-394.
14. Staab B, Eick S, Knöfler G, Jentsch H. The influence of a probiotic milk drink on the development of gingivitis: a pilot study. J Clin Periodontol 2009; 36:850-856.
15. Chia CH, Blanca CH, Samuel FT, Valeria W, Daniela B, Julinia M. Milk proteins, peptides, and oligosaccharides: Effects against the 21st century disorders. Bio Med Res Int 2015:1-16.
16. Adegboye AR, Christensen LB, Holm PP, Avlund K, Boucher BJ, Heitmann BL. Intake of dairy products in relation to periodontitis in older Danish adults. Nutrients 2012; 4:1219-1229.
17. Shimazaki Y, Shirota T, Uchida K, Yonemoto K, Kiyohara Y, Iida M, et al. Intake of dairy products and periodontal disease: the Hisayama study. J Periodontol 2008; 79:131-137.
18. Al-Zahrani MS. Increased intake of dairy products is related to lower periodontitis prevalence. J Periodontol 2006; 77:289–294.
19. Koo SM, Seo DG, Park YJ, Hwang JY. Association between consumption of milk and dairy products, calcium and riboflavin, and periodontitis in Korean adults: Using the 2007-2010 Korea National Health and Nutrition Examination Surveys. J Nutr Health. 2014; 47:258-267.