

## Role of Probiotics in Attaining Periodontal Health

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### ABSTRACT

Probiotics have importance in maintaining systemic health. Its role in attaining periodontal health has also been explored. Various studies have been conducted to find its effect in treatment of gingivitis, periodontitis. Effect of probiotics on inflammatory parameters and putative micro-organisms in oral cavity has also been determined. Studies reported beneficial effect of probiotics. However, further randomized controlled trials are needed to prove its role in attaining periodontal health.

**Key words:** Probiotics; gingivitis; periodontal health

### INTRODUCTION

The term probiotics was introduced by Lilly and Stillwell in 1965. [1] Probiotics are defined as live micro-organisms that when administered in adequate amounts confer health benefits upon the host. [2] Probiotics have been utilized to maintain systemic health. The treatment strategy for treatment of periodontal disease is based on mechanical subgingival debridement and improved oral hygiene. [3] With this treatment modality, there is decrease in counts of putative bacteria; however recolonization with putative subgingival bacteria often occurs within weeks to months. [4] Use of probiotics might provide control of periodontal diseases. Today, there use in maintaining periodontal health is demonstrated. [5] Properties of probiotics that make it effective in oral cavity are ability to adhere to saliva coated surfaces, [6] resist growth [7] and colonization [8] of putative microbiota and to modulate inflammation. [9]

### Routes for administration of probiotics:

Probiotic species mostly belong to genera *Lactobacillus* and *Bifidobacterium*. Probiotics are commonly delivered in dairy products (mainly fermented milks), as food supplements, in tablets, in soft drinks. Lozenges, chewing tablets or gums appear to be better forms of delivering probiotics for maintaining periodontal health.

### Studies evaluating importance of probiotics in periodontal health:

Influence of probiotics is studied in gingivitis patients. Krasse et al [10] conducted double blind, randomized, placebo-controlled study for evaluating effect of *L. reuteri* in treatment of recurrent gingivitis. The patients were randomized over placebo group, or over one of two probiotic groups. Both probiotic groups received one of two different *L.reuteri* strains delivered via chewing gums at concentration of  $1 \times 10^8$  [8] CFUs. The placebo group received an identical chewing gum without *L.reuteri*. Professional prophylaxis was provided and patients were instructed to use chewing gum twice a day for 2 weeks. Gingival scores in *L.reuteri* strain 1 group reduced more than in the placebo group. The plaque scores were reduced for both probiotic group but not in placebo group. Use of probiotic yogurt supplemented with *B. animalis* is reported to decrease plaque accumulation and gingival inflammatory parameters after refraining from oral hygiene practices. [11] In smokers, ingestion of tablets containing *L.salivarius* WB 21 decrease plaque index, probing depth. [12] Positive effect of probiotics in periodontitis is also reported. After root planing, repeated application of

*S.sanguinis*, *S.salivarius* and *S.mitis* reduced and maintained low levels of anaerobic species and black-pigmented bacteria. [13] *L.rhamnosus* SP1- containing probiotic sachet when used once a day for 3 months as an adjunct to non-surgical therapy, resulted in significant reduction in number of participants with probing depth  $\geq$  6mm, indicating a reduced need for surgery, in contrast to placebo group. [14] Lozenges containing *L.reuteri* are reported to be useful supplement in moderately deep pockets of patients with chronic periodontitis. [15] All of the above mentioned studies report beneficial effect of probiotics.

## DISCUSSION

Probiotics have role in promoting beneficial bacteria and in maintaining health. Studies also report beneficial effect of probiotics in treatment of periodontitis and gingivitis. However, well designed long term follow up studies need to be conducted to evaluate their beneficial role as well as to determine the oral health risk from long term use of dietary probiotics.

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