

FUNCTIONS OF PROBIOTICS IN MODERN DENTISTRY

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ABSTRACT

The study is conducted to explore various probiotics that are helpful or impact oral health in modern dentistry. It helps to prevent certain dental conditions that can arise from harmful bacteria in the mouth, such as dental caries. Probiotics decrease the pH level of the oral cavity so that plaque bacteria cannot form dental plaque. Probiotics make excellent preservation products because they produce antioxidants. The oral cavity is a vital ecosystem, with environmental changes and permanent interactions in which commensal bacteria i.e. Lactobacillus limit the colonization of pathogenic microorganisms. Probiotics can outcompete pathogenic bacteria and increase the proportion of favorable bacteria in the oral cavity thereby contributing to the prevention of oral diseases. This study is conducted to identify various probiotic functions adopted by dentistry, to spread awareness about the use of probiotics in oral health, and to study and analyze the progress of oral health in the adoption of probiotics. Many recent studies indicate that treatment with probiotics can be a beneficial preventive complement to measures already approved, such as the use of fluorides. Dairy products can be ideal for probiotic administration in dental patients. Oral probiotics prevent plaque, fight bad breath, prevent oral cancer, and decrease inflammation from gum diseases.

Keywords: Probiotics, Periodontal Diseases, Oral Health, Halitosis, Cavity.

I. INTRODUCTION

Probiotics are living microorganisms which are intended to have health benefits when we consumed or applied to the body. Oral Probiotics are especially strains of bacteria known to support a dental problems and improve oral health. Probiotics play an important role in maintaining good oral health through interaction with the oral microbiome. Oral probiotics help to prevent tooth decay.

There are several products with various probiotic bacterial strains in the market such as chewing gum, tablets, or pills, and dairy products such as milk, ice cream, cheese, and yogurt. These are the most natural ones, easiest to find and most widely accepted by the population, especially by children.

Study On Probiotic Use

A study conducted by T. Madhwani et al. compared the use of probiotics in ice cream and drinks and showed that ice cream would be a better option as it maintains a momentous reduction of S. mutans in saliva levels after 90 days of consumption.

Regarding its use in dentistry, we must consider that dairy products should be the vehicle for the administration of probiotics, as they contain casein phosphopeptides (CPP) that have an inhibitory action on demineralization and promote the remineralization of enamel.

Composition Of Probiotics

Probiotics can be bacteria, molds, or yeast. However, most probiotics are bacteria such as Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus lactis, Lactobacillus helveticus, Lactobacillus salivarius, etc are commonly used bacterial probiotics. A probiotic can be created from a single bacterial strain or a consortium of strains. Probiotics can be in powder form, liquid form, gel, paste, granules, or available in the form of capsules, sachets, etc

Some examples of probiotics are Lactobacillus reuteri, and Streptococcus salivarius K12 Natural probiotics are yogurt, Some types of cheese, and Traditional Buttermilk.

How is it used?

The best time to take a probiotic is an empty stomach,"

One should take a probiotic in the morning (at least an hour before a meal), or right before one goes to sleep.

Functions Of Probiotics

- It improves oral health
- In Dental Caries
- In Periodontal diseases
- In Halitosis and many more

Improves Oral Health

Probiotics enhance the host's immune responses. Probiotics produce antimicrobial compounds. It inhibits the growth of pathogens on dental plaque. Oral probiotics are specially designed to balance harmful and helpful bacteria in the oral cavity.

In Dental Caries

Caries are one of the most common infectious diseases in the world. Dental caries can be defined as the destruction of the tissues of the tooth by bacterial fermentation of dietary carbohydrates.

Some bacteria are considered more caries-promoting than others, for example, *Streptococcus mutans*. A common feature of caries-promoting bacteria is that they are acidogenic and acidic.

The most common bacteria used as probiotics, lactobacilli, and bifidobacteria, are, in theory, caries-promoting. They are excellent acid producers, they tolerate low pH values, and they are frequently found in caries lesions. Since probiotics can be consumed

In Periodontal Disease

Periodontal diseases are commonly the result of infections and inflammation of the gums and bones that surround and support the teeth. In its early stage, known as gingivitis, the gums can become swollen and red, and they might bleed.

"Perio balance" is a chewing gum specifically formulated to fight periodontal disease. (P Krasse 2006) It is a mixture of two strains of *L. reuteri* selected for fighting with cariogenic bacteria. Krasse et al evaluated *L. reuteri* in patients with recurrent gingivitis. Patients having moderate to severe gingivitis were selected. (P Krasse 2006) *L. reuteri* strains were administered along with scaling and root planing surfaces of the tooth. After 2 weeks, the clinical aspects were improved in the group consuming probiotic chewing gums.

In Halitosis

Anaerobic bacteria linked with periodontal disorders are the primary cause of halitosis (malodor).. Halitosis occurs due to various reasons such as including consumption of particular foods, metabolic disorders, and respiratory tract infections.

These can degrade salivary and food proteins to generate amino acids, which are in turn transformed into volatile sulfur compounds, such as hydrogen sulfide, etc.

Clinical and laboratory studies have proven the potential of preventing halitosis by the introduction of probiotics. After ingestion of *Weissella cibaria* production of volatile sulphur compounds by *F. nucleatum* was inhibited. A marked reduction in the levels of hydrogen sulfide was noticed after regular gargling using *W. cibaria*. *S. salivarius* strain K12.

II. CONCLUSION

Most articles selected for this meta-analysis state that, in the short term, daily consumption of probiotics can directly affect the oral microbiota, reducing the number of pathogens, and indirect changes that enhance the growth of indigenous microorganisms, and in the long term, it inhibits growth of oral pathogens.

Hence, probiotics can be adopted as a novel approach to prevent the demineralization of enamel, improve periodontal health, eliminate halitosis, and prevent dental caries.

III. REFERENCES

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