

Probiotics for Healthy Teeth and Gums in Children: Old and New Perspectives

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Abstract

Probiotic bacteria are good not only for the gut, but also for the oral cavity. They help maintain gingival health and prevent cariogenic bacteria. These things will be discussed here.

Keywords: Gum; Teeth; Probiotics

Introduction

Children may have frequent complaints of teeth and gum problems (also called gingivitis). The commonest such problems are caries and gingivitis. These and other problems like periodontitis and cavities in teeth may be due to good bacteria of mouth being replaced by unhealthy bacteria. Dental probiotics may help in curing issues like dental decay, gingivitis and halitosis or bad breath [1].

Probiotics for good teeth and gum

Probiotics are live microorganisms which when ingested in small amounts, provide some health benefits to the host. Dental probiotics or oral probiotics are bacterial strains that help maintain a healthy mouth and oral hygiene [1].

How oral probiotics work in children

Oral probiotic strains have numerous benefits like:

- They help prevent plaque build-up.
- They help avoid cavities.
- They help control halitosis and in this aspect are better than mouthwashes. Mouthwashes remove both healthy and disease-producing bacteria from the mouth while probiotics eliminate only pathogenic bacteria. So, in this way they are superior to mouthwashes.

- Oral thrush can also be prevented by oral probiotics. This is because oral probiotics along with reducing sugars in diet can hinder growth and multiplication of *Candida* spp, and thus prevent oral thrush.
- Lactobacillus reuteri* has been found to be good in treating and preventing gingivitis.
- It has been seen that *Bifidobacterium* and *Lactobacillus* spp. can help fight gum disease and cavities in children. In addition, the bacterium *Streptococcus salivarius* may help manage bad breath [2].

The microbiome in different parts of the body is determined in first 1000 days of life, and it is true for the Oral cavity also. Hence oral probiotics maybe tried for this.

How dental probiotics for children are different from those of adults

- Bifidobacterium infantis* is found in children, but in adults it is more of *Bifidobacterium bifidum*.
- Dental probiotics in children are mostly in the form of chewable tablets, while in adults it is in the form of pills.
- Dose of probiotics is also less in children as compared to adults.

The very word 'probiotic' means 'for life' in Greek [3]. Usually, probiotics were thought to alter gut microbial flora, but they can also be thought to affect oral microflora [3]. For caries oral *Streptococci*, *Candida albicans* and *Lactobacilli* are important. *Lactobacillus paracasei* and *L. rhamnosus* have antimicrobial effects and can antagonize *Candida spp.* Also, many lactobacilli are acidogenic and can dissolve dentin and enamel [3]. So, all these facts come to play a cumulative role to affect caries development in children. *Lactobacillus strain GG* can produce diacetyl, adhesion inhibitors for *Streptococcus* and other molecules which inhibit cariogenic *Streptococcus spp* [3]. In many studies, this starting could significantly reduce load of *Streptococcus mutans* in children aged 1 to 6 years. The effect is more prominent in children aged 3 to 4 years. Heat-killed Lactobacilli with pyridoxine is able to reduce caries in children by about 42%. Most of the probiotics are based on fermented milk and milk itself contains anti-cariogenic substances like Calcium and Calcium lactate.

Forms of oral probiotics

Oral probiotic chewing gum containing Lactobacillus or xylitol can reduce Streptococcus mutants. In infants, use of pacifiers containing *L. reuteri* ATCC 55730 has been tried. Even ice creams containing *L. bulgaricus* and *Bifidobacterium lactis* have been able to reduce *S. mutans* significantly in Oral cavity. Randomized controlled trials have also used probiotic drops. Even probiotic toothpastes are there in the market, containing three strains of probiotic bacteria [4]. As regards halitosis, probiotic-containing mouth rinses help in reduction of the volatile Sulphur compounds and help in controlling bad breath [5]. About 85 per cent of users report a reduction of bad breath causing germs after using mouthwashes containing probiotics.

Probiotics and postbiotic substances also boost Oral mucosal immunity

It has also been seen that babies born vaginally develop caries later in life because of exposure to maternal protective bacteria and protective factors, unlike babies born by Caesarean section. The common Indian curd is a mixture of *Lactobacillus bulgaricus* and *L. thermophilus* and has been thought to be used for good gut health,

but its applications for Oral health has not been assessed. Many formulations have been used and products like probiotic-containing mouthwashes can also be used. These products can be used after brushing or flossing [6]. However probiotic or prebiotic containing toothpastes have still not got the nod of dental bodies like American dental Association.

Discussion

Probiotics are good for Oral health. They can prevent early childhood caries [7]. This strategy needs to be adopted now because removal of cariogenic bacteria by administration of antibiotics has not been very successful [8]. The dosage, specific strain to be used, optimum contact time, schedule, most effective way of delivery and safety should be considered before using these Oral probiotics. Thus, probiotics help in maintaining a healthy balance in the oral microbiome. Prebiotic toothpastes are also helpful in this way. Probiotics can be used as powders also to fortify health drinks for children for this purpose. More and more new uses of oral probiotics are coming to light. Short term benefits of probiotics on teeth are good but their long-term effects remain to be explored more. Needless to say, this is the topic of the future.

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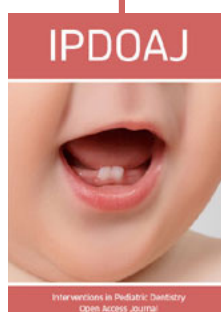


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