

Significant Role of Oral Microbiome in Sustaining Dental Health

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DESCRIPTION

Dental health is an essential aspect of overall well-being, as it directly affects our ability to speak, eat, and maintain proper nutrition. While brushing, flossing, and regular dental check-ups play a significant role in preserving oral health, an often overlooked but vital contributor is the oral microbiome. The oral microbiome is a diverse ecosystem of microorganisms that inhabit our mouths and significantly influence oral health. In this article, we will explore the role of the oral microbiome in maintaining dental health and how an imbalance in this delicate ecosystem can lead to various oral health issues.

The oral microbiome consists of a wide array of microorganisms, including bacteria, viruses, fungi, and archaea, living in our mouth. This diverse microbial community forms biofilms, commonly known as dental plaque, on the surfaces of teeth and oral tissues. These biofilms are essential for maintaining a balanced oral environment. When the oral microbiome is in harmony, it helps to protect against harmful bacteria and aids in the breakdown of food particles, preventing the buildup of plaque and cavities. The oral microbiome comprises both beneficial and harmful bacteria. The balance between these two types of bacteria is significant for oral health. Beneficial bacteria, such as *Streptococcus* and *Lactobacillus* species, help in neutralizing acids produced by harmful bacteria, thus preventing enamel erosion and tooth decay. They also produce antimicrobial substances that inhibit the growth of harmful bacteria, protecting the oral environment from infections.

Some harmful bacteria produce acids that erode tooth enamel, leading to cavities, and contribute to the development of gum disease. An imbalance in the oral microbiome can trigger inflammation and infection, ultimately resulting in periodontitis if left untreated. Diet plays a significant role in shaping the composition of the oral microbiome. Consuming a diet high in sugary and starchy foods promotes the growth of harmful bacteria. These bacteria thrive on sugars, leading to increased acid

production and a higher risk of cavities. On the other hand, a diet rich in fruits, vegetables, and fiber promotes the growth of beneficial bacteria that aid in maintaining a healthy oral environment.

Saliva plays a significant role in maintaining a balanced oral microbiome. It contains enzymes and antimicrobial compounds that help control the growth of harmful bacteria. Saliva also acts as a natural cleanser, washing away food particles and neutralizing acid, reducing the risk of tooth decay. Additionally, saliva contains antibodies that help fight infections, contributing to overall oral health. Gum disease, also known as periodontal disease, is a prevalent oral health issue that can be attributed to an imbalance in the oral microbiome. When harmful bacteria accumulate and form biofilms along the gum line, it triggers an immune response, leading to inflammation and swelling. Over time, this can result in the destruction of gum tissue and the underlying bone, leading to gum disease.

Maintaining a healthy oral microbiome is essential for preventing oral health issues. Here are some strategies to promote a balanced oral microbiome and sustain dental health, regular brushing, flossing, and tongue scraping help remove plaque and food particles, preventing the overgrowth of harmful bacteria. Adopting a diet rich in fruits, vegetables, whole grains, and lean proteins while minimizing sugary and starchy foods can positively influence the oral microbiome. Routine dental visits allow for the early detection and management of any emerging oral health issues. Unnecessary antibiotic use can disrupt the oral microbiome, so it's significant to only use antibiotics when prescribed by a healthcare professional.

The oral microbiome is a dynamic ecosystem that plays a pivotal role in maintaining dental health. Striking a balance between beneficial and harmful bacteria is essential for preventing oral health issues such as cavities and gum disease. By adopting good oral hygiene practices, making mindful dietary choices, and seeking regular dental care, we can promote a healthy oral microbiome and enjoy improved overall dental health.

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