

Exploring the Oral Microbiome in Health and Disease

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ABSTRACT

The human body is host to trillions of microorganisms, collectively known as the microbiome, which play a crucial role in maintaining overall health. This invited lecture aims to delve into the intricate relationship between the oral microbiome and its impact on health and disease. The oral microbiome is a complex community of bacteria, viruses, fungi, and other microorganisms that inhabit the oral cavity. The primary site of colonization is the dental biofilm, commonly known as dental plaque, which forms on tooth surfaces. This microbial community is highly diverse, with over 700 species of bacteria identified in the oral cavity. In a healthy state, the oral microbiome exists in a state of dynamic equilibrium, contributing to various physiological functions. Some beneficial bacteria aid in digestion, synthesize vitamins, and help maintain the integrity of the oral mucosa. Additionally, they play a crucial role in preventing the overgrowth of harmful microorganisms and protecting against infections. Disruptions in the balance of the oral microbiome can lead to dysbiosis, which is associated with various oral and systemic diseases. Dental caries, gingivitis, and periodontitis are common oral conditions linked to imbalances in the oral microbiome. Furthermore, emerging research suggests that the oral microbiome may influence systemic conditions such as cardiovascular diseases, diabetes, and respiratory infections.
