

## Human Oral Microbiome and Systemic Diseases: What Stage are We at?

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The oral cavity is a dynamic ecosystem comprising an array of microbial communities, including many pathogenic or opportunistic species. After the gut microbiome, the human oral microbiome is the largest microbial community in the human body [1].

Recent studies have also demonstrated the role of periodontal disease as a risk factor or enhancer of distant systemic pathologies such as Alzheimer's disease and colorectal cancer with bacterial periodontopathogens such as *Porphyromonas gingivalis* and *Fusobacterium nucleatum*, respectively [2,3].

Despite this, it is still not possible to affirm that the presence of certain species in regions other than the oral cavity is synonymous with a relationship with the disease, since many of the microorganisms present in the various regions of the mouth are also habitual residents in other regions such as the intestine [4] without this meaning that there was a migration from the oral cavity. Thus, for example, although there are studies showing a significant abundance of *Porphyromonas gingivalis* in patients with neurodegenerative diseases, they clarify that it is not known whether the microorganism is able to cross the blood-brain barrier [5] or is part of the resident microbial flora.

Since the publication of the results of the human microbiome project [6], it was shown that microorganisms do not have unique niches and their presence in various locations does not necessarily generate disease. We should emphasize that we are just beginning to know the characteristics of microbiomes, their variability influenced by various factors, and their interaction with the host. Therefore, it is responsible to indicate that more information is required with the deepening of the understanding of the association between the oral microbiome and other human microbiomes, since, in the future, they may be used as potential diagnostic biomarkers, screening tools and prognostic indicators, and interventions related to an altered human microbial composition may become the new adjuvant treatment in oral and systemic health.

## References

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