

Direct Relationship Between Periodontitis and the Progression of Alzheimer's Disease
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Alzheimer's disease is a neurodegenerative disease that contributes to about 60-70% of all dementia cases worldwide. Periodontitis is a peripheral chronic infection that affects the gums and can deteriorate the jawbone. Periodontal diseases can affect up to 90 percent of the population with periodontitis causing systemic inflammatory responses. Previous studies show that those with Alzheimer's disease have an increased likelihood of developing periodontitis. In this literature review, I examined if and how periodontitis increases the progression of Alzheimer's disease and argue that an increased risk of Alzheimer's Disease is directly related to periodontitis. From this research I found that periodontitis and Alzheimer's disease share cellular and molecular proinflammatory characteristics, such that cytokines and proinflammatory products produced from periodontitis spread from periodontal pockets to the systemic circulation. Furthermore, periodontitis patients have an increased risk of cognitive decline versus individuals without periodontitis. Indeed, *Porphyromonas gingivalis* invades the brain through the bloodstream or the peripheral nerves. Allowing bacteria and proinflammatory products to have a passage to the brain. Although it is well established that periodontitis can invade the brain, it remains unclear if periodontitis can trigger the neuroinflammatory response needed to cause Alzheimer's disease. Together, these findings indicate that there is a relationship between periodontitis and Alzheimer's disease wherein periodontitis can influence the progression of Alzheimer's disease through the bloodstream or the peripheral nervous system. Further research is needed to determine if periodontitis can trigger Alzheimer's disease or if it is limited to affecting the progression of the disease.