

# Causes and Development of Gingivitis and Periodontitis in Children

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## DESCRIPTION

Plaque-induced gingivitis is the most common type of gingivitis and the most common type of periodontal disease overall. It is caused by bacterial biofilms (also known as plaque) that are attached to tooth surfaces.

### Causes and development of gingivitis

Plaque-induced gingivitis is caused by bacterial plaque, which activates the host response in the body. This can lead to gingival cell damage that can lead to periodontal attachment apparatus destruction. Plaque accumulates in the small gaps between teeth, in the gingival grooves, and in plaque traps, which are areas where plaque accumulate and remain. Calcification traps include restorative margins that really are heavy and hanging down, clasps on detachable removable dentures, and calculus (tartar) structures present on teeth. Although these accumulations are small, the bacteria that live in people produce chemicals such as degradative enzymes and toxins such as lipopolysaccharide (LPS, also known as endotoxin) or lipoteichoic acid (LTA), which cause an inflammatory response in the gum tissue.

This inflammation can cause gingival enlargement and subsequent formation. A relatively simple bacterial community dominated by Gram-positive cocci and rods distinguishes the presence of plaque. The communities become more complex as plaque matures and gingivitis develops, with higher proportions of Gram-negative rods, fusiforms, filaments, spirilla, and spirochetes. Growing evidence emphasizes the importance of periodontal disease prevention, early diagnosis, and early treatment in children. To avoid erroneous diagnoses and unnecessary treatments, the pediatric dentist must distinguish between pathologic processes and normal changes that occur in

the periodontum with age. The relative lack of information on periodontal health and diseases in children and adolescents, as well as the lack of awareness of existing information, may encourage pediatric dentists to use data related to the adult periodontum.

However, when biological changes that occur during childhood and adolescence are not taken into account (i.e., the structural and functional changes of periodontal structures during tooth eruption and exfoliation, the establishment and maturation of oral microflora, and the gradual development of the immune defense system), this compromise may be insufficient. The oral cavity micro biota is influenced by a number of ecological principles (host characteristics, diet, bacterial adhesion, bacterial transmissibility, and so on) that change as the individual grows and matures. As a consequence, there are significant differences in the presence and proportions of microorganisms in dental plaque from children, adolescents, and adults. Periodontal diseases are manifestations of the tissues' inflammatory response to microorganisms and their products, and their manifestations are dependent on the interaction of several local and systemic factors. Chronically inflamed gingiva in children has the characteristics of an early lesion, whereas in adults it presents as an established periodontal lesion. Furthermore, some serum antibody levels to periodontopathic bacteria have been shown to change with age.

It has been implied that IgG antibody activity against *Porphyromonas gingivalis* (*P. gingivalis*) may be found in umbilical cord serum samples. These maternal antibodies are short-lived and only detectable in infants under six months of age, but increase from the primary dentition (mean=7.9 ELISA units) to the mixed dentition period (mean=29.6 ELISA units) and adults over the age of 26 (mean=55.7 ELISA units).

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