

Risk of Tooth Decay in Children with Secondhand Smoke

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While methods of preventing tooth decay in children generally focus on limiting sugar intake, taking oral fluoride supplements, and fluoride therapy, some studies have shown that cigarette smoke plays a role in causing caries.

According to a study published in the journal BMJ, exposure of infants to secondhand smoke (inactive smokers) at 4 months of age is associated with an increased risk of tooth decay at 3 years of age [1]. Smoker parents put their children's teeth at risk of dental caries.

A cross-sectional study revealed that although the effects of family smokers were not significant in 3-year-old children, there was a significant relationship between parental smoking and caries in their 5 years old children [2].

Besides the physical, biological, environmental, and lifestyle factors, some other factors will affect the progression of dental decays. Exposure to secondhand smoke affects teeth and microorganisms in a variety of ways, including inflammation of the oral membrane, salivary gland dysfunction, decreased serum vitamin C levels, and immune system impairment [3-5].

In the saliva of children exposed to secondhand smoke, the concentration of IgA is lower, and the amount and activity of Sialic acid are higher. Sialic acid increases the agglutination of *Streptococcus mutans* that increases plaque formation, and tooth caries [5,6].

This suggests if children are not exposed to secondhand smoke, the prevalence of dental caries might be reduced; however, there is a controversy.

Children are more vulnerable to secondhand smoke effects because they have higher breathing rates per body; their lungs are immature, and they have more lung surface area compared to adults [7]. Besides, infants and children are unwittingly exposed to their parents' cigarette smoke at home, and this is inevitable. As a result, the child would more likely be exposed to toxic substances transported directly to his mouth that not only threatens the child's oral health (including dental caries) but endangers his general condition.

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