



Dental hygiene important for whole body, not just your smile

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Dental cavities and tooth decay is one of the most common medical conditions experienced by Americans and the single most common disease of childhood.

According to the Centers for Disease Control and Prevention (CDC), more than 19 percent of children have untreated cavities and approximately 41 percent of children have decay in their "baby teeth." This is a health statistic that has not improved since the 1970s and recent studies are indicting a new rise in cavities in children.

Cavities are the result of gradual tooth decay caused by the build-up of plaque and breakdown of protective enamel. Bacteria are normally present in the mouth; however, as they digest sugar and starches they produce acid, which weakens the enamel.

Additionally, the bacteria and its acid mixes with food debris and saliva to form a sticky biofilm called plaque. Plaque that is not removed hardens into tartar, which can result in inflammation and gingivitis. The acid within the plaque can continue to dissolve the enamel and eventually cause pits and holes, called cavities.

Initially cavities are painless, but they open the tooth up to infections, eventually exposing the nerve resulting in pain. The internal structures of the tooth can also be destroyed, ultimately causing the loss of the tooth. While this might not seem important in "baby teeth" as they are going to be lost anyway, infection can cause damage to the growing teeth and subsequent treatments can be painful and expensive.

Overall, oral hygiene is an essential component of one's health. At a recent American Heart Association research meeting, researchers shared findings that professional dental care can reduce the risk of heart attack and stroke. The team tracked more than 100,000 people for an average of 7 years in Taiwan. They found that those who had their teeth professionally cleaned at least once every two years were 24 percent less likely to have a heart attack and 13 percent less likely to have a stroke.



The authors argued that regular dentist visits and oral hygiene reduces the growth of inflammation-causing bacterial. Bacteria like *Porphyromonas gingivalis* and *Fusobacterium nucleatum* proliferate on unclean teeth causing periodontal disease. However, these bacteria can also cause inflammation of the vessels, with studies showing that these bacteria are associated with elevation in C-reactive protein, a marker for blood vessel inflammation.

To reduce the rates of dental caries, the U.S. Public Health Service began adding fluoride to drinking water in the 1950s, with widespread adaptation by 1960s. Fluoride interferes with the demineralization of enamel, the tooth's natural defense against cavities. The CDC considered fluoridation of water to be one of the top 10 greatest public health achievements of the 20th century with studies showing an 18-40 percent reduction in childhood cavities. This reduction was even seen in children who had access to regular dental care and fluorinated toothpaste.

Today, we are seeing a resurgence of cavities in children. One proposed mechanism relates to the increased popularity of bottled water, which does not regularly contain fluoride. A study published in the *Archives of Pediatrics and Adolescent Medicine* found that up to 24 percent of children are exclusively drinking bottle water. This study did not take into account the many more who consume filtered water as many home filtration systems remove all or some fluoride.

Dental health should begin in childhood as even babies are susceptible to cavities. Most children get their first tooth around 6 or 7 months of age and dental care should begin promptly thereafter with a visit to the dentist, as well as, regular tooth brushing. One major risk for early childhood cavities is prolonged consumption of sugary liquids, particularly allowing your child to fall asleep with a bottle of juice or milk. The extended contact with sugar increases the rate of tooth decay, having the potential to destroy the child's entire set of teeth. Additionally, it is important to have your children drink tap water as this is an easy and free way to provide them with the appropriate amount of fluoride to protect their teeth. Avoiding sticky foods and frequent snacks are other strategies to ward off cavities. Instilling these routines in childhood promotes their continuation into adult life and with more studies showing broad health benefits from dental hygiene it is essential.

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