



# Oral Health is Key to Overall Health

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From a young age, we are taught that daily brushing and flossing—in addition to visiting the dentist regularly—can lead to healthy teeth and gums. As the scientific evidence mounts, dental professionals and other health specialists tell us more and more that proper oral health not only leads to a healthy mouth, but also plays a vital role in our overall health and well-being. The link between dental and systemic health demands our attention—and our action.

Our body's natural defenses, as well as proper oral care, can help keep bacteria, or germs, in our mouths—most of which are harmless—in check. Neglecting our teeth and gums, however, can ramp up the accumulation of plaque, a sticky film of bacteria that produces acids that can attack tooth enamel and cause tooth decay or lead to periodontal disease, which affects the soft and hard structures that support the teeth.

One of the most common infections, periodontal disease is caused primarily by poor oral hygiene.

According to the Centers for Disease Control and Prevention, one-half of all Americans over age 30—nearly 65 million people—have periodontal disease.<sup>1</sup> Left unchecked, this largely preventable disease can wreak havoc on one's health, potentially contributing to cardiovascular disease, diabetic complications, rheumatoid arthritis, respiratory disease, and cancer, among other diseases. Furthermore, there is significant scientific evidence linking oral inflammation and systemic inflammation, which plays a role in all of these diseases.<sup>2</sup>

## Cardiovascular disease

The link between oral health and heart disease has long been debated. While there is no conclusive evidence that periodontal disease causes heart disease, studies show that poor oral health is associated with higher levels of cardiovascular disease risk.

A 2010 study found that people who brushed their teeth more frequently were at less risk of cardiovascular disease than those who brushed less often.<sup>3</sup> Less frequent tooth brushing was associated with higher concentrations of C-reactive protein (CRP), which is a marker for inflammation and rises with infection. The scientists discovered that CRP levels increased with less frequent brushing, suggesting that poor oral hygiene raises the risk of cardiovascular disease via systemic inflammation.

More recently, Korean scientists found people with poor oral hygiene habits were more likely to have hypertension.<sup>4</sup> The researchers evaluated nearly 20,000 participants' daily tooth brushing. For those with and without periodontal disease, more frequent tooth brushing accompanied a decreased prevalence of hypertension. The researchers concluded that oral hygiene is a risk factor for hypertension and that good oral health habits, including daily brushing and flossing, could help to control or prevent high blood pressure.

## Diabetic complications

People with diabetes are also at increased risk of periodontal disease. According to the American Diabetes Association, poor oral health is a double-edged sword for people with diabetes. Diabetes makes one more susceptible to serious gum disease, while periodontitis can negatively affect blood glucose control. Diabetics are at increased risk for periodontal disease because they are more susceptible to bacterial infections and have a decreased ability to fight infections that invade the gums.

An analysis conducted by Australian researchers found that standard periodontal treatment, including both non-surgical and surgical procedures, can reduce long-term blood glucose levels (also called hemoglobin A1C, which provides a two- to three-month average of blood sugar readings). The researchers concluded that even modest reductions in blood glucose levels can have substantial benefits in reducing other complications of diabetes, including microvascular (small blood vessel) complications that affect the eyes, kidneys, and nerves.<sup>5</sup>

# Rheumatoid arthritis

A mouth full of healthy teeth means more than just a nice smile. Research suggests that tooth loss, which is a sign of periodontal disease, may predict the likelihood of developing rheumatoid arthritis (RA), an autoimmune disorder that causes pain, swelling and stiffness of joints.

At the 2012 European Congress of Rheumatology, researchers presented findings of a study that noted a correlation between the number of teeth lost and the risk of RA. They found that 24.2 percent of patients with early-stage RA had 10 or fewer teeth (adults have a full set of 32 teeth) and that those with 10 or fewer teeth had more severe disease.<sup>6</sup>

Another research group conducted comprehensive oral examinations on 57 RA patients and 52 healthy people, including assessments of plaque accumulation and gum inflammation, both of which are indicative of poor oral hygiene.<sup>7</sup> The researchers discovered that the patients with RA were eight times more likely to have periodontal disease than their healthy counterparts. The RA patients' poor oral health may be due to a combination of systemic inflammation, which is common in both periodontal disease and RA, and patients' inability to properly care for their teeth and gums due to the pain and joint stiffness caused by RA.

# Respiratory diseases

Maintaining good oral health may also contribute to a healthy respiratory system. Research shows that bacteria that grow in the oral cavity can travel to the lungs and cause respiratory diseases such as pneumonia and chronic obstructive pulmonary disease (COPD), especially in people with periodontal disease.

Indian researchers found that patients with COPD and pneumonia had worse periodontal disease than their healthy peers.<sup>8</sup> The study of 200 patients, half with COPD and half with no history of respiratory disease, determined that oral pathogens associated with periodontal disease increased the risk of developing or worsening respiratory infections, which are among the leading causes of death in the United States.

Another study, which reviewed clinical trials designed to determine whether proper oral care reduces the incidence of respiratory diseases in hospitalized elderly patients, discovered that 10 percent of deaths from pneumonia in elderly nursing home residents could be prevented by improving oral hygiene.<sup>9</sup>

# Cancer

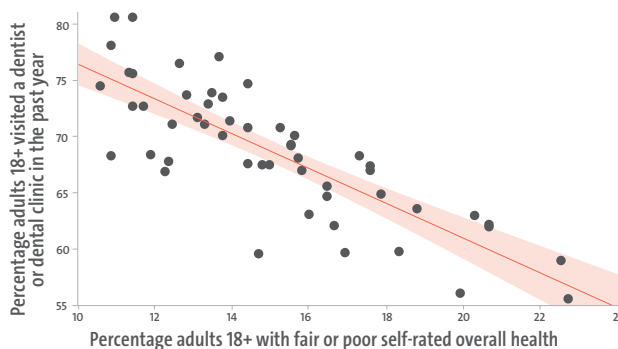
According to the Oral Cancer Foundation, nearly 50,000 Americans are diagnosed each year with oral or pharyngeal (throat) cancer, and more than 8,600 die annually from these diseases. Many of these cancers are not routinely discovered until late in the course of the disease, when they are more difficult to treat.

Recently, scientists observed that people with swollen gums and missing teeth—key components of periodontal disease—are more likely to be infected with the human papillomavirus (HPV), a sexually transmitted virus that can cause both oral and pharyngeal cancers.<sup>10</sup> Poor oral health, including gum inflammation or mouth sores, may provide an entry point for the HPV virus. This is the first study linking poor oral health to HPV infection.

Other studies, including one by the State University of New York at Buffalo, suggest that chronic periodontitis may increase the risk of developing head and neck cancers.<sup>11</sup> Each millimeter of tooth loss due to periodontal disease was associated with more than four times the risk of head and neck cancers after factoring in other risks such as smoking. The strongest link between gum disease and cancer was among those with cancer of the mouth, followed by cancer of the oropharynx (the back of the mouth/throat).

With all the discussion about improving overall health and reducing health-care costs, little is mentioned about the strong correlation between oral and systemic health. The chart below<sup>12</sup> illustrates

how the two are inextricably linked. In states where 80 percent of people visited the dentist in past year, very few reported poor overall health.



Source: National Oral Health Surveillance System and HRQOL: Chart of Percentage with fair or poor self-rated health

Fifteen years ago, the US Surgeon General identified oral disease as a health-care priority. The bottom line remains the same today as it did in 2000: we cannot improve the overall health of Americans without first improving their oral health.

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