

# **The bacteria in your mouth are important for your health—four diseases linked to your oral microbiome**

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Your mouth is one of the most diverse habitats in the human body. It contains over [700 known species](#) of bacteria, as well as yeasts, viruses and some protozoa. This community is collectively referred to as the oral microbiome—and like your gut microbiome, the bacteria in your mouth play an important role in your health.

Some of the [most common diseases](#) caused by changes to your [oral microbiome](#) are [tooth decay](#) and [gum disease](#). But growing evidence suggests that the oral microbiome is also linked to many other serious health conditions that occur elsewhere in the body.

## Respiratory diseases

Since the [respiratory tract](#) starts in the mouth and ends in the lungs, it's perhaps not surprising that an overgrowth of the oral microbiome can result in these microbes being inhaled into the lungs.

This can commonly lead to infections such as pneumonia, an often fatal disease in the elderly that has been linked to [poor oral hygiene](#), leading to an overgrowth of oral bacteria such as *Streptococcus pneumoniae* and *Haemophilus influenzae*.

Research has even demonstrated that introducing regular oral hygiene practices and professional dental cleaning in elderly care homes can reduce the number of pneumonia cases [by a third](#). Keeping [dentures and mouthguards clean](#) is also important.

Poor oral health has also been linked to [chronic obstructive pulmonary disease](#) and poorer respiratory function, and this is linked to changes in the oral microbiome.

## Heart disease

One of the most common oral microbiome diseases is chronic [gum disease](#). This is a destructive inflammatory response that destroys the bone and tissues that support the teeth, eventually resulting in tooth loss. This disease is caused by an overgrowth of the bacteria that thrive in the crevice between your gums and your teeth due to poor oral hygiene.

But what has puzzled researchers for years is the strong associations between [gum disease and cardiovascular disease](#).

The link may be due to common risk factors. For example gum disease and heart disease are both [more common in smokers](#).

Others have theorized that gum disease bacteria might [travel to the heart](#) and cause infection. No convincing evidence for this link has yet been presented.

Gum disease also triggers a strong inflammatory immune response. Inflammation is how the body tackles infections. It results in the production of immune cells and chemical signals that fight infection. But too much inflammation can be damaging. Some researchers think that inflammation caused by gum disease could damage the cardiovascular system.

[One study](#) showed that treating gum disease reduced inflammation levels in the bloodstream and significantly improved artery function. Other studies have also shown that treating gum disease reduces [overall inflammation levels](#) in the body.

These studies demonstrate how a disease in the mouth can have significant effects on the function of tissues elsewhere in the body. And considering many people live with [untreated gum disease](#) for decades,

the potential for long-term health impacts are significant.

## Colon cancer

Oral bacteria have been [known to travel](#) through the stomach and into the intestines. Generally, our oral microbes are not well adapted to this new environment and they normally die out. But in 2014, [two studies](#) showed that bowel cancers were heavily colonized by a species of bacteria called Fusobacterium which is normally found in dental plaque.

Both studies also showed Fusobacterium has a high affinity for malignant cancer cells. This is because the surface of cancer cells allows the bacterium to tightly bind and invade the tumor. Multiple studies have now confirmed that Fusobacterium can colonize tumors throughout [the gastrointestinal tract](#).

Research has also shown that [colon cancer](#) patients heavily colonized with Fusobacterium [respond worse to chemotherapy](#) and have shorter life expectancy compared to those who are not colonized. This may be because tumors infected with Fusobacterium are more aggressive and therefore [more likely to spread](#) compared to those that aren't infected with the bacteria.

Investigations are ongoing into this relationship—and whether those at risk of bowel cancer could be [vaccinated against this oral bug](#).

## Alzheimer's disease

One of the most controversial links between oral health and disease involves Alzheimer's disease.

Chronic gum disease has been associated with greater cognitive decline

in [people with Alzheimer's disease](#). But since both gum disease and Alzheimer's disease are [associated with aging](#), it's difficult to determine if there's a clear cause-and-effect relationship.

But in 2019, [researchers presented evidence](#) that the brains of people with Alzheimer's disease were colonized with *P. gingivalis*—one of the main bacteria that causes gum disease. The idea that the brain, a normally sterile part of the body, could be infected by oral bacteria is still highly controversial and requires further work.

As with [heart disease](#), the [inflammation caused by gum disease](#) has also been proposed to be a driver of Alzheimer's disease in patients with poor oral health.

## Good oral health

Although the impact of poor oral health seems overwhelming, the good news is that we have the power to manage our oral microbiome and prevent diseases related to it.

A good [oral hygiene regimen](#) is essential. This includes brushing twice a day and flossing regularly to control plaque and reduce the incidence of cavities and gum disease. If you smoke, quitting can [greatly reduce your chances](#) of developing gum disease. It's also worthwhile visiting your dentist or hygienist every six months for a professional cleaning and personal oral hygiene advice.

All this work not only enhances your smile, but may even add years to your life.

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