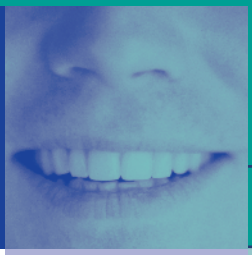
Periodontal (Gum) Disease

Causes, Symptoms, and Treatments

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
National Institute of Dental and Craniofacial Research



Periodontal (Gum) Disease

If you have been told you have periodontal (gum) disease, you're not alone. Many adults in the U.S. currently have some form of the disease. Periodontal diseases range from simple gum inflammation to serious disease that results in major damage to the soft tissue and bone that support the teeth. In the worst cases, teeth are lost.

Whether your gum disease is stopped, slowed, or gets worse depends a great deal on how well you care for your teeth and gums every day, from this point forward.

Periodontal (Gum) Disease

What causes gum disease?

Our mouths are full of bacteria. These bacteria, along with mucus and other particles, constantly form a sticky, colorless "plaque" on teeth. Brushing and flossing help get rid of plaque. Plaque that is not removed can harden and form "tartar" that brushing doesn't clean. Only a professional cleaning by a dentist or dental hygienist can remove tartar.

Gingivitis

The longer plaque and tartar are on teeth, the more harmful they become. The bacteria cause inflammation of the gums that is called "gingivitis." In gingivitis, the gums become red, swollen and can bleed easily. Gingivitis is a mild form of gum disease that can usually be reversed with daily brushing and flossing, and regular cleaning by a dentist or dental hygienist. This form of gum disease does not include any loss of bone and tissue that hold teeth in place.

Periodontitis

When gingivitis is not treated, it can advance to "periodontitis" (which means "inflammation around the tooth.") In periodontitis, gums pull away from the teeth and form spaces (called "pockets") that become infected. The body's immune system fights the bacteria as the plaque spreads and grows below the gum line. Bacterial toxins and the body's natural response to infection start to break down the bone and connective tissue that hold teeth in place. If not treated, the bones, gums, and tissue that support the teeth are destroyed. The teeth may eventually become loose and have to be removed.

Risk Factors

- **Smoking.** Need another reason to quit smoking? Smoking is one of the most significant risk factors associated with the development of gum disease. Additionally, smoking can lower the chances for successful treatment.
- **Hormonal changes in girls/women.** These changes can make gums more sensitive and make it easier for gingivitis to develop.
- **Diabetes.** People with diabetes are at higher risk for developing infections, including gum disease.
- **Medications.** There are hundreds of prescription and over the counter medications that can reduce the flow of saliva, which has a protective effect on the mouth. Without enough saliva, the mouth is vulnerable to infections such as gum disease. And some medicines can cause abnormal overgrowth of the gum tissue; this can make it difficult to keep teeth and gums clean.
- **Illnesses.** Diseases like cancer or AIDS and their treatments can also negatively affect the health of gums.
- **Genetic susceptibility.** Some people are more prone to severe gum disease than others.

Who gets gum disease?

People usually don't show signs of gum disease until they are in their 30s or 40s. Men are more likely to have gum disease than women. Although teenagers rarely develop periodontitis, they can develop gingivitis, the milder form of gum disease. Most commonly, gum disease develops when plaque is allowed to build up along and under the gum line.

What can I do to prevent gum disease?

- Brush your teeth twice a day (with a fluoride toothpaste)
- Floss every day
- Visit the dentist routinely for a check-up and professional cleaning
- Don't smoke

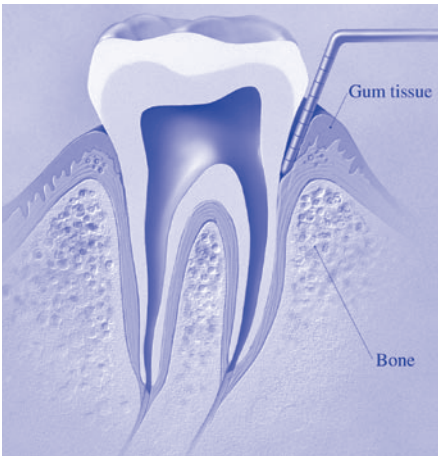
How do I know if I have gum disease?

Symptoms of gum disease include:

- Bad breath that won't go away
- Red or swollen gums
- Tender or bleeding gums
- Painful chewing
- Loose teeth
- Sensitive teeth
- Receding gums or longer appearing teeth

Any of these symptoms may be a sign of a serious problem, which should be checked by a dentist. At your dental visit the dentist or hygienist should:

- Ask about your medical history to identify underlying conditions or risk factors (such as smoking) that may contribute to gum disease.



- Examine your gums and note any signs of inflammation.
- Use a tiny ruler called a 'probe' to check for and measure any pockets. In a healthy mouth, the depth of these pockets is usually between 1 and 3 millimeters. This test for pocket depth is usually painless.

The dentist or hygienist may also:

- Take an x-ray to see whether there is any bone loss.
- Refer you to a periodontist. Periodontists are experts in the diagnosis and treatment of gum disease and may provide you with treatment options that are not offered by your dentist.

How is gum disease treated?

The main goal of treatment is to control the infection. The number and types of treatment will vary, depending on the extent of the gum disease. Any type of treatment requires that the patient keep up good daily care at home. The doctor may also suggest changing certain behaviors, such as quitting smoking, as a way to improve treatment outcome.

Deep Cleaning (Scaling and Root Planing)

The dentist, periodontist, or dental hygienist removes the plaque through a deep-cleaning method called scaling and root planing. Scaling means scraping off the tartar from above and below the gum line. Root planing gets rid of rough spots on the tooth root where the germs gather, and helps remove bacteria that contribute to the disease. In some cases a laser may be used to remove plaque and tartar. This procedure can result in less bleeding, swelling, and discomfort compared to traditional deep cleaning methods.

Medications

Medications may be used with treatment that includes scaling and root planning, but they cannot always take the place of surgery. Depending on how far the disease has progressed, the dentist or periodontist may still suggest surgical treatment. Long-term studies are needed to find out if using medications reduces the need for surgery and whether they are effective over a long period of time. Listed on the next page are some medications that are currently used.

Medications	What is it?
Prescription antimicrobial mouthrinse	A prescription mouthrinse containing an antimicrobial called chlorhexidine
Antiseptic "chip"	A tiny piece of gelatin filled with the medicine chlorhexidine
Antibiotic gel	A gel that contains the antibiotic doxycycline
Antibiotic microspheres	Tiny, round particles that contain the antibiotic minocycline
Enzyme suppressant	A low dose of the medication doxycycline that keeps destructive enzymes in check
Oral antibiotics	Antibiotic tablets or capsules

Why is it used?	How is it used?
To control bacteria when treating gingivitis and after gum surgery	It's used like a regular mouthwash.
To control bacteria and reduce the size of periodontal pockets	After root planing, it's placed in the pockets where the medicine is slowly released over time.
To control bacteria and reduce the size of periodontal pockets	The periodontist puts it in the pockets after scaling and root planing. The antibiotic is released slowly over a period of about seven days.
To control bacteria and reduce the size of periodontal pockets	The periodontist puts the microspheres into the pockets after scaling and root planing. The particles release minocycline slowly over time.
To hold back the body's enzyme response — If not controlled, certain enzymes can break down gum tissue	This medication is in pill form. It is used in combination with scaling and root planing.
For the short term treatment of an acute or locally persistent periodontal infection	Tablets or capsules taken by mouth

Surgical Treatments

Flap Surgery. Surgery might be necessary if inflammation and deep pockets remain following treatment with deep cleaning and medications. A dentist or periodontist may perform flap surgery to remove tartar deposits in deep pockets or to reduce the periodontal pocket and make it easier for the patient, dentist, and hygienist to keep the area clean. This common surgery involves lifting back the gums and removing the tartar. The gums are then sutured back in place so that the tissue fits snugly around the tooth again. After surgery the gums will shrink to fit more tightly around the tooth. This sometimes results in the teeth appearing longer.

Bone and Tissue Grafts. In addition to flap surgery, your periodontist may suggest bone or tissue grafts. Grafting is a way to replace or encourage new growth of bone or gum tissue destroyed by periodontitis. A technique that can be used with bone grafting is called guided regeneration, in which a small piece of mesh-like fabric is inserted between the bone and gum tissue. This keeps the gum tissue from growing into the area where the bone should be, allowing the bone and connective tissue to regrow.

Since each case is different, it is not possible to predict with certainty which grafts will be successful over the long-term. Treatment results depend on many things, including how far

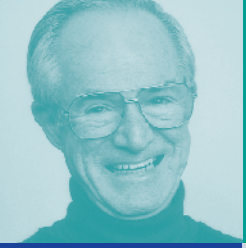
Second Opinion

When considering any extensive dental or medical treatment options, you should think about getting a second opinion. To find a dentist or periodontist for a second opinion, call your local dental society. They can provide you with names of practitioners in your area. Additionally, dental schools may sometimes be able to offer a second opinion. Call the dental school in your area to find out whether it offers this service.

the disease has progressed, how well the patient keeps up with oral care at home, and certain risk factors, such as smoking, which may lower the chances of success. Ask your periodontist what the level of success might be in your particular case.

Can gum disease cause health problems beyond the mouth?

In some studies, researchers have observed that people with gum disease (when compared to people without gum disease) were more likely to develop heart disease or have difficulty controlling blood sugar. Other studies showed that women with gum disease were more likely than those with healthy gums to deliver preterm, low birth weight babies. But so far, it has not been determined whether



gum disease is the cause of these conditions.

There may be other reasons people with gum disease sometimes develop additional health problems. For example, something else may be causing both the gum disease and the other condition, or it could be a coincidence that gum disease and other health problems are present together.

More research is needed to clarify whether gum disease actually causes health problems beyond the mouth, and whether treating gum disease can keep other health conditions from developing.

In the meantime, it's a fact that controlling gum disease can save your teeth – a very good reason to take care of your teeth and gums.

Clinical Trials

Clinical trials are research studies of new and promising ways to prevent, diagnose, or treat disease. If you want to take part in a clinical trial about periodontal disease, visit www.clinicaltrials.gov. In the box under "Search Clinical Trials," type in: periodontal diseases. This will give you a list of clinical trials on gum disease for which you might be eligible.

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