

## Dental Plaque and Gum Disease

A build-up of plaque and calculus can lead to inflamed and infected gums. Mild gum disease is called gingivitis and is not usually serious. More severe gum disease, called periodontitis, can lead to teeth falling out. Good oral hygiene which includes regular tooth brushing and cleaning between teeth (eg by flossing) can usually prevent gum disease, and treat mild-to-moderate gum disease. Specialist dental treatments may be needed for severe gum disease.

### What is dental plaque and calculus?

- **Dental plaque** is a soft deposit that forms on the surface of teeth. It contains many types of bacteria (germs). You can usually remove plaque quite easily by tooth brushing and cleaning between teeth.
- **Calculus** is hardened calcified plaque. It is sometimes called tartar. It sticks firmly to teeth. Generally, it can only be removed by a dentist or dental hygienist, with special instruments.

### What is gum disease?

Gum disease (periodontal disease) means infection or inflammation of the tissues that surround the teeth. Depending on the severity, gum disease is generally divided into two types - gingivitis and periodontitis.

#### Gingivitis

Gingivitis means inflammation of the gums. Most cases of gingivitis are caused by plaque. This is then called plaque-associated gingivitis.

#### Periodontitis

Periodontitis literally means 'inflammation around the tooth'. It occurs if gingivitis becomes worse and progresses to involve the tissue that joins the teeth to the gums (the periodontium), and/or the supporting bone.

As a consequence of periodontitis, a gap (pocket) develops between the tooth and gum. If left untreated, the tooth may slowly loosen and eventually fall out.

Dentists assess the severity of periodontitis by measuring the depth of the pockets that form between the gum and tooth.

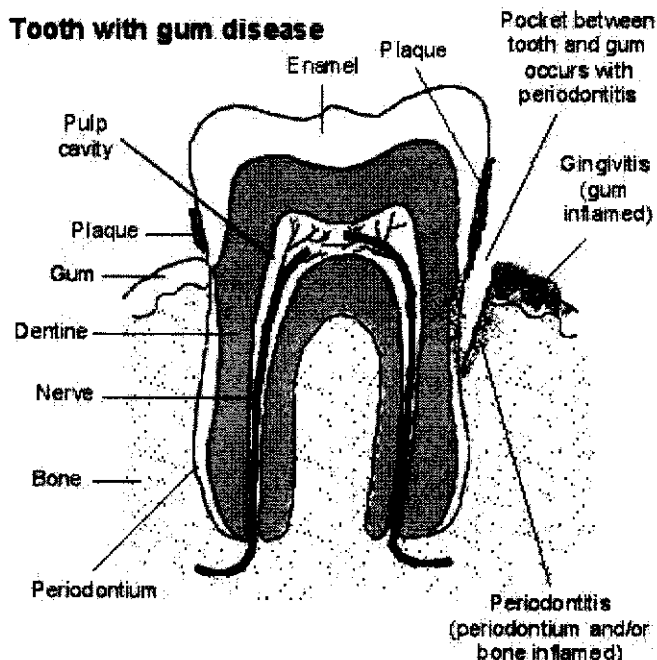
Plaque can be removed from shallow pockets (up to about 3 mm deep) by brushing and cleaning teeth in a normal way. However, deeper pockets need to be treated by a dentist, as normal brushing and cleaning will not reach the bottom of the pocket.

The rest of this leaflet is about plaque, and plaque-associated gum disease (plaque-associated gingivitis and plaque-associated periodontitis). There are other uncommon types and causes of gingivitis and periodontitis which are not dealt with further.

### How common is plaque and plaque-associated gum disease?

They are very common. Surveys in the UK in the late 1990s found that:

- Plaque and/or calculus was visible in more than 7 in 10 adults who had teeth.
- Plaque was visible in just over 4 in 10 of those aged 15-18.
- Some degree of gingivitis was present in more than half of adults and in about 4 in 10 of those aged 15-18.
- Periodontitis with pocketing was present in about half of adults and in nearly 2 in 10 of those aged 15-18. Most cases of periodontitis were moderate with pockets up to 4-5 mm deep. However, 8 in



100 adults were found to have severe periodontitis with pockets 6 mm or deeper.

### What causes plaque-associated gum disease?

Most people develop some dental plaque, but not everyone with plaque develops gum disease. Dental plaque contains many different types of bacteria (germs) and some types of bacteria are associated with developing gum disease. The gums can often resist, or limit, the invasion of bacteria. It is thought that a more marked gingivitis, which leads to periodontitis, is more likely to develop if you have a lot of plaque and/or your defence or resistance against bacteria is reduced in some way.

The following increase your risk of developing marked plaque-associated gum disease:

- Poor oral hygiene when a lot of plaque and large numbers of bacteria build up.
- Smoking (which may alter your resistance to gum infection).
- Having a poor immune system. For example, if you have an illness which makes your immune system less effective, or if you are on chemotherapy, etc.
- If you have diabetes.

### What are the symptoms of plaque-associated gum disease?

- **Mild gingivitis** does not cause any symptoms and so you may not realise that you have it. The gums look slightly swollen and reddened.
- **Moderate gingivitis** can cause more marked swelling and reddening of the gums. The gums often bleed a little when you clean your teeth. Discomfort or pain from the gums is rare if you only have gingivitis.
- **Periodontitis** often does not cause any symptoms until an affected tooth becomes loose. However, in some cases, symptoms develop and may include:
  - Halitosis (bad breath).
  - A foul taste in your mouth.
  - Some pus formation in small pockets between the teeth and gums.
  - Pain and difficulty eating.
  - Affected teeth becoming loose and eventually falling out if not treated.

An examination by a dentist to detect the presence and depth of gum pockets is needed to confirm the diagnosis of periodontitis.

### How can I prevent plaque-associated gum disease?

Good oral hygiene (mouth hygiene) helps to keep plaque down and usually prevents gum disease. (Good oral hygiene also helps to prevent tooth decay.) Good oral hygiene means:

- Brushing your teeth - for two minutes, at least twice a day. Ideally, brush your teeth either just before eating, or at least an hour after eating. (See separate leaflet called 'Oral Hygiene' for reasons why.) Studies suggest that powered toothbrushes with a rotation-oscillation action (where the brush rapidly changes direction of rotation) remove plaque and debris better than manual brushes.
- Cleaning between your teeth after brushing once a day, but ideally twice a day. This is to remove plaque from between teeth. Dental floss is commonly used to do this. However, some studies suggest that small interdental brushes may do a better job than floss.

Also:

- See a dentist or dental hygienist for advice if you cannot use a toothbrush.
- Children should be taught good oral hygiene as young as possible.
- Have regular dental checks. A dentist can detect excessive build-up of plaque and remove calculus. Early or mild gingivitis can be detected and treated to prevent the more severe periodontitis.
- If you smoke, you should aim to stop smoking.

The measures above are usually sufficient. However, many people also use an antiseptic mouthwash each day which may help prevent gum disease.

### What is the treatment of plaque-associated gum disease?

#### If you have gingivitis

The measures described above to prevent gum disease will often clear mild gingivitis. If gingivitis is more

severe, in addition your dentist or doctor may advise an antiseptic mouthwash (and/or antiseptic toothpaste, gel, or spray). These help to kill bacteria in the mouth and help to clear up any gum infection.

Chlorhexidine is a commonly used antiseptic mouthwash. If you are advised to use chlorhexidine, you should rinse your mouth well with water between brushing your teeth and using chlorhexidine. This is because some ingredients in toothpaste can inactivate chlorhexidine. Chlorhexidine may also stain teeth brown when used regularly. This staining is likely to need to be removed by a dentist or dental hygienist. Staining can be reduced by:

- Brushing teeth before (but not after) using the chlorhexidine.
- Avoiding drinks that contain tannin, within 2-3 hours of using chlorhexidine (for example, tea, coffee, and red wine).
- Using the 1.2% solution instead of higher-strength solutions.

### **If you have periodontitis**

You should see a dentist. In addition to the measures described above to treat gingivitis you may need specialist dental treatment. Various procedures may be done, depending on the severity of the condition and other factors. For example, in one procedure a dentist may clean a pocket next to a tooth where infection is present. Following this, a dentist may smooth out the surface of the tooth next to the gum. This helps the gum to close back on to the tooth, and for any pocket to disappear.

### **Gum disease and heart disease**

In addition to the benefits to your teeth, good mouth hygiene may have even further benefits. There is some evidence to suggest that poor oral hygiene is associated with an increased risk of developing heart diseases such as heart attack and angina, and other blood vessel-related problems (cardiovascular disease). One research trial followed over 11,000 Scottish people. The trial found that those who reported poor oral hygiene (never or rarely brushed their teeth) had an increased risk of developing a cardiovascular disease. It is not clear if this is a direct cause and effect or simply an association or chance finding. That is, it is not proved that poor oral hygiene can actually increase your risk of cardiovascular disease. However, there is a plausible theory in that mild inflammation and infection in the mouth can get into the bloodstream to trigger mild inflammation in the blood vessels which, over time, can lead to cardiovascular diseases.

Further research is needed to clarify this possible link. But, in the meantime, it may be an additional reason to look after your teeth and gums.

### **Further help and advice**

#### **British Dental Health Foundation**

Helpline: 0845 063 1188 Web: [www.dentalhealth.org.uk](http://www.dentalhealth.org.uk)

A national charity that provides free impartial advice on all aspects of oral health.

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