

Claculus (Dental)

A. What is calculus?

Calculus or **tartar** is a form of hardened **dental plaque**. It is caused by precipitation of minerals from **saliva** and gingival crevicular fluid (GCF) in plaque on the **teeth**. This process of precipitation kills the bacterial cells within dental plaque, but the rough and hardened surface that is formed provides an ideal surface for further plaque formation. This leads to calculus buildup, which compromises the health of the **gingiva** (gums). Calculus can form both along the gumline, where it is referred to as supragingival ("above the gum"), and within the narrow **sulcus** that exists between the teeth and the gingiva, where it is referred to as subgingival ("below the gum").



B. Calculus formation

The processes of calculus formation from dental plaque are not well understood. Supragingival calculus formation is most abundant on the buccal surfaces of the maxillary molars and on the lingual surfaces of the mandibular incisors. These areas experience high salivary flow because of their proximity to the parotid and sublingual salivary glands. Subgingival calculus forms below the gumline and is typically darkened in color by the presence of black-pigmented bacteria, whose cells are coated in a layer of iron obtained from heme during gingival bleeding. Dental calculus typically forms in incremental layers that are easily visible using both electron microscopy and light microscopy. These layers form during periodic calcification events of the dental plaque, but the timing and triggers of these events are poorly understood.



C. Why you should care about it

Tooth decay and **cavities** are the first two problems that can occur if plaque on teeth is left to build up. Acids that wear away your teeth's enamel lead to tooth decay, and if these acids aren't cleaned off, they can continue through the dentin to the pulp of the tooth. Ignoring this plaque can eventually lead to the development of an abscess or bacterial infection inside the teeth, according to Mayo Clinic. Preventing cavities or an abscess is simple, but it starts with removing plaque on a daily basis.

If you don't brush or floss regularly, plaque can also harden into tartar – which doesn't need much time to form. Tartar can develop in just a day if you forget to brush, and although plaque isn't usually visible on the teeth, tartar does stain and turn brown or yellow. Along with being aesthetically unpleasant, tartar can irritate your gums, leading to gingivitis. It's also a lot more difficult to remove than plaque, as brushing and flossing alone won't take it off. You'll need to see a dentist to remove any tartar buildup.

D. How Can I Prevent Plaque Buildup?

It's easy to prevent plaque buildup with proper care. Make sure to:

1. Brush thoroughly at least twice a day to remove plaque from all surfaces of your teeth
2. Floss daily to remove plaque from between your teeth and under your gumline, where your toothbrush may not reach
3. Limit sugary or starchy foods, especially sticky snacks
4. Schedule regular dental visits for professional cleanings and dental examinations
5. Scaling

During scaling, plaque and tartar are removed from the crown and root of the tooth.



References

1. [https://en.wikipedia.org/wiki/Calculus_\(dental\)](https://en.wikipedia.org/wiki/Calculus_(dental))
2. <https://www.colgate.com/en-us/oral-health/conditions/plaque-and-tar-tar/plaque-on-teeth-causes-and-treatment-0515>
3. <https://www.colgate.com/en-us/oral-health/conditions/plaque-and-tar-tar/what-is-plaque>