



## Dental Erosion

Dental erosion (tooth erosion) is the irreversible loss of tooth enamel due to chemical processes that do not involve bacterial action. Tooth enamel is a mineralized hard tissue that covers and protects the tooth. It is the hardest tissue of the human body but it can be chemically dissolved in an acidic environment over long periods of time. The acids that cause dental erosion may come from intrinsic (e.g., gastroesophageal reflux, vomiting) or extrinsic sources (e.g., acidic beverages, citrus fruits). Dental erosion can cause mild tooth problems, such as tooth discoloration and mild sensitivity, to more severe dental problems, such as indentions in the teeth, severe tooth sensitivity, cracked teeth and tooth loss.

When a tooth is exposed to acidic environment, the enamel starts to lose minerals in a process called de-mineralization. Healthy saliva neutralizes the acidity in the mouth and repairs the enamel using minerals such as calcium from saliva through the reverse process, called re-mineralization. If the two processes are balanced any damage to the tooth enamel is totally repaired. Unfortunately, there are many factors that disturb this delicate balance in favor of de-mineralization resulting in irreversible tooth enamel loss. Increased intensity and frequency of acid attacks may not allow enough time to repair and restore tooth enamel through re-mineralization, or the saliva may be deficient in quantity or quality to buffer and restore the minerals.

### **Causes of tooth erosion due to extrinsic acids (from outside the body):**

Frequent consumption of acidic foods and drinks is the main cause of tooth enamel loss.

Even though fruit juices and fresh fruits are considered as healthy foods, their over-consumption is not the best option for teeth because they are too acidic (very low pH). Most of the popular carbonated drinks, soft drinks, sports drinks and diet drinks are also very acidic. Even fizzy mineral water can be acidic. Common extrinsic dietary acids include citric acid, phosphoric acid, ascorbic acid, malic acid and carbonic acid.

The erosive potential of acidic drinks does not depend on pH alone. Also, factors such as frequency and method of intake of acidic beverages as well as proximity of tooth brushing after intake may influence susceptibility to teeth erosion. Drinking through a straw lessens the contact time of the acids with the teeth. On the contrary, swishing the drink around the teeth increases their exposure to acids.

Some medicines are acidic and, therefore, erosive. They can cause dental erosion on direct contact with the teeth when the medication is chewed or held in the mouth prior to swallowing.

Environmental factors such as the chlorine and other chemicals in swimming pools can cause erosion over time.

### **Causes of tooth erosion due to intrinsic acids (from inside the body):**

Gastroesophageal reflux disease (GERD) or acid reflux, in which stomach acids come up into the oesophagus and mouth, can cause severe tooth erosion. Gastric acids are highly acidic with pH levels that can be less than 1.

Eating disorders that cause frequent vomiting are also responsible for tooth enamel loss caused by the gastric acids.

Bulimia (anorexia nervosa) is another frequent cause of eroded teeth due to chronic excessive vomiting. Besides vomiting, persons who suffer from bulimia tend to consume larger quantities of fresh fruits and acidic beverages that worsen the problem.

Alcoholism could also cause vomiting related loss of tooth enamel.

Low salivary flow rate is a significant risk factor for dental erosion due to reduced pH buffering capacity (its ability to neutralize changes in mouth's pH)