Disclaimer

This movie is an educational resource only and should not be used to manage your health. All decisions about the management of tooth abrasion, erosion and attrition must be made in conjunction with your dentist or a licensed health care provider.
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INTRODUCTION

Tooth abrasion, erosion and attrition refer mainly to the loss of tooth structure not caused by tooth decay. These conditions can affect the enamel, dentin, or pulp of a tooth. In order to learn more about tooth abrasion, erosion and attrition, it is important to understand normal tooth anatomy.
Normal Tooth Anatomy

A tooth has two main parts: a crown portion and a root portion. The difference parts of the tooth consists of:

- Crown
- Root

Crown is the part of the tooth which is seen in the mouth.

Root is the part of the tooth which is inside the jaw bone.

(Refer fig. 1 to 3)

The different parts of a tooth consist of:

(Refer fig. 4)

- Enamel
- Dentin
- Cementum
- Pulp

(Continued in next page)
**Enamel**

Enamel is the highly mineralized and hard outer substance of the tooth. Its color varies from light yellow to grayish white.

*(Refer fig. 5)*

**Dentin**

Dentin is that part of the tooth which is present between enamel or cementum and pulp chamber. It is softer than enamel and therefore decays more rapidly.

*(Refer fig. 6)*

**Cementum**

Cementum is a bony substance covering the root of the tooth. Its color is yellowish and is softer than dentin or enamel. The main function of cementum is to serve as a medium for periodontal ligaments to attach to the tooth for stability.

*(Refer fig. 7)*
**Pulp**

The dental pulp is the center portion of the tooth. It is filled with soft connective tissue which contains blood vessels and nerves. It is commonly called the “nerve of the tooth”.

*(Refer fig. 8)*

**Gum or Gingiva**

Also known as periodontium, the gums are composed of bone and pink gummy tissue. It is a part of the soft tissue lining of the mouth. The gums surround the teeth and provide a seal around them. Healthy gingiva is usually coral pink in color. Any change in color, increased redness, swelling and increased tendency to bleed may suggest an inflammation, possibly due to accumulation of bacterial plaque.

Tooth abrasion, erosion and attrition can occur on various tooth surfaces including the outer enamel layer and even exposed root surfaces. These problems can change the normal anatomy of a tooth.

*(Refer fig. 9)*
What are Tooth Abrasion, Erosion and Attrition?

Tooth Abrasion: This is the wearing away of tooth structure by mechanical causes such as brushing too hard, clenching your teeth habitually and can also be age related.

Tooth Erosion: This is the wearing away of tooth structure by chemical processes not involving bacteria.

Tooth Attrition: This is the wearing down of the chewing surfaces of teeth caused by excessive tooth to tooth contact.

Signs and Symptoms

Tooth Abrasion

Teeth are more sensitive to heat or cold
Loss of outer enamel layer
Teeth affected are pre-molars and canines

V-shaped indentation in the lower third of the teeth
Gums recede
Appears unsightly yellow in color
Unit 2: Overview of Disease

Tooth Erosion

Teeth are sensitive to heat and cold
Eroded teeth are more likely to suffer from tooth decay
Light yellow patch on the tooth surface

The back surfaces of front teeth are first affected
Poor aesthetic look

(Fig. 12)

Tooth Attrition

Facet formation (flat surface with well defined border)
Back teeth become flat
Front teeth become shorter

(Fig. 13)

(Continued in next page)
What causes tooth abrasion, erosion and attrition?

**Tooth Abrasion causes include the following:**

- Using a hard bristle toothbrush
- Improper use of dental floss and tooth picks
- Sensitive teeth
- Weak teeth
- Tobacco chewing
- Occupational abrasions may occur among tailors who sever thread with their teeth, shoe makers who hold nails between their teeth, and musicians who play wind instruments.
Tooth Erosion causes include the following:

- Highly acidic foods and drinks
- Eating disorders such as Bulimia can cause tooth erosion because of repeated vomiting of stomach acids.
- Chlorine and other chemicals
- Certain diseases cause acid produced in the stomach to come into contact with the teeth, including acid reflux or heart burn, over eating, morning sickness in early pregnancy, or chronic indigestion.

Tooth Attrition causes include the following:

- Bruxism (involuntary grinding of teeth) is the most common cause of attrition.
- Habits such as clenching the teeth and clicking the teeth together place a greater amount of force on opposing teeth and lead to wear.
Diagnosis

Early diagnosis is important to prevent serious damage to the dentition. Your dentist will perform the following:

- History
- Oral Exams
- Dental X-rays

History

Your dentist will ask about your diet and any oral habits you may have.

Oral Exams

Your dentist will examine your teeth to assess for tooth abrasion, erosion or attrition and to determine if the pulp cavity has been exposed. If a central brown area is detected, this indicates the pulp has been exposed.

Dental X-rays

X-rays are taken to determine the involvement of the pulp portion of the tooth.

Treatment

Treatment for Tooth Abrasion

Treatment for tooth abrasion depends on damage to the tooth. For sensitive teeth fluoride gel or varnish may be applied to the tooth. To replace the loss of tooth structure tooth colored restorative materials are used such as:

(Refer fig. 17 to 21)

(Continued in next page)
Composites: These are tooth colored plastic or resin material that is applied to the tooth. It is then bonded with the tooth using a special kind of light.

(Refer fig. 17 to 21)
Glass Ionomers: These are restorative materials made from acrylic and a component of glass. These fillings form a chemical link with the tooth and also release fluoride which helps to prevent further tooth decay.

(Refer fig. 22 to 25)
Treatment for Tooth Erosion

Treatment for tooth erosion involves eliminating the cause, restoring lost tooth structure, and fluoride treatment to reduce tooth sensitivity. If loss of tooth structure is extensive then the tooth colored composite restoration is done.

(Refer fig. 26 to 29)
In severe loss of tooth enamel dental porcelain veneers are used. Veneers, also referred to as porcelain veneer or porcelain laminate, are a thin wafer like material which is tooth colored that is designed to cover the front portion of the teeth.

(Refer fig. 30 to 33)
Treatment for Tooth Attrition

If pulp exposure is present in tooth attrition, root canal treatment and crown placement is indicated, or alternately, removal of the tooth is recommended.

- Root canal treatment: This involves removal of the decayed pulp and then the space is filled with a paste and the tooth is covered with crown.

- Crowns: Crowns restore the size of shortened teeth, restore a patient's bite, eliminate sensitivity and improve the aesthetics of the teeth.

(Refer fig. 34 to 37)
If Bruxism is the cause of tooth attrition then a night guard should be used. Night guards are bite pads that are to be worn at night while sleeping. These guards are made of high grade plastic and will fit the teeth and mouth perfectly preventing the upper teeth from grinding onto the lower teeth.

**Prevention**

Prevention of abrasion, erosion and attrition is always recommended over treating the conditions. Some measures your dentist may suggest include the following:

- Always use a soft bristle tooth brush and brush in a gentle and circular manner.
- Reduce the intake of highly acidic foods or drinks.
- Change your diet, oral hygiene or any damaging oral habits.
- See your doctor for treatment of diseases and conditions that contribute to tooth erosion from stomach acid reflux.
- Use a night guard in the case of Bruxism
Disclaimer

Although every effort is made to educate you on tooth abrasion, erosion and attrition and take control, there will be specific information not discussed. Talk to your dentist or health care provider about any concerns you have about tooth abrasion, erosion and attrition.