

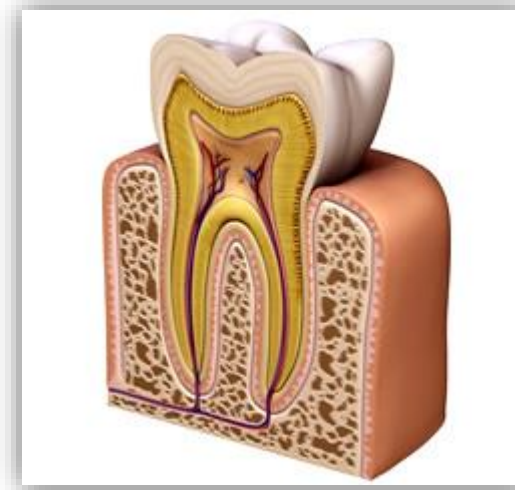
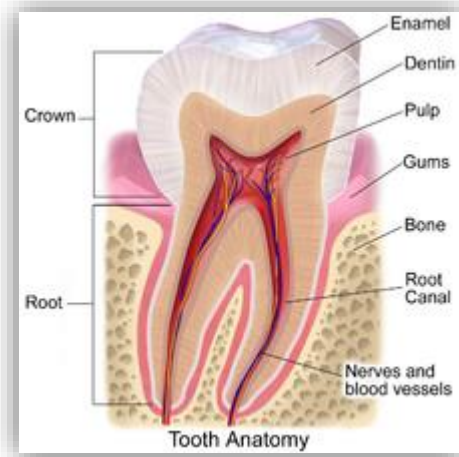


THE MOUTH

DENTALELLE TUTORING

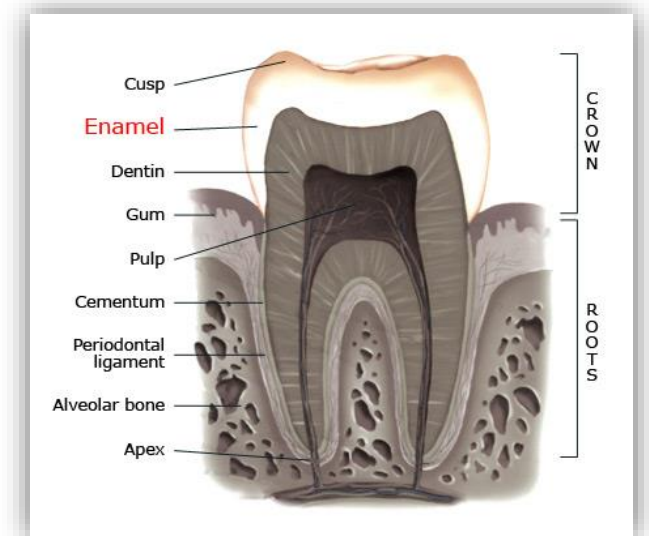


TOOTH ANATOMY



ENAMEL

- Enamel is the outermost layer of the tooth structure of the crown, the part of the tooth that is above the gums. Dental enamel is the hardest and most mineralized substance in the human body. It looks like bone but it is much harder, denser, and its composition is 96% inorganic.
- Dental enamel offers a protective cover to the entire top of the tooth with its thickest point at the cusps of the tooth. It becomes thinner at the edges of the tooth closer to the gum line, up to the cement-enamel junction (CEJ) where it is substituted by the cementum that covers the root.
- It is slightly translucent, so any change in the color of the underlying dentin, either due to the development of tooth decay, or due to discoloration usually becomes visible through the enamel. Its natural color can vary from grayish white to yellowish.
- Although dental enamel is the hardest tissue of the human body, it is very vulnerable. Due to its very dense mineral structure, it is highly susceptible to acidic damage (demineralization), the main cause of tooth decay. Enamel is also very brittle, especially when not supported by sound underlying dentin. The main disadvantage of dental enamel is that it lacks the ability of repairing itself, as bones have. Any structural damage to the tooth enamel is permanent and can't be repaired naturally by our body.



THE CEMENTUM

- Cementum is the outer layer of the tooth structure for the root part of the tooth which lies under the gum line. It is a bonelike material, almost as hard as enamel, but with a less inorganic composition. Cementum is light yellowish in color, slightly lighter than dentin. It is not translucent as the enamel.
- The main function of cementum is to protect the roots and anchor the teeth in their sockets inside the jaw bone. A network of fibers made of connective tissue (known as periodontal ligament) connects the cementum with the alveolar bone and keep the tooth steady in its socket (for more details see 'periodontium').
- It is more susceptible than enamel to tooth decay, especially due to the higher accumulation of bacterial plaque and dental calculus along the gum line, or underneath it (sub-gingival plaque). Unlike enamel, cementum is formed continuously throughout the life of the tooth to compensate for the substance loss due to tooth wear, and to allow for the attachment of new fibers of the periodontal ligament to the surface of the root.

THE DENTIN

- Dentin is a bone-like material that makes up most of the tooth's structure. It is covered by the enamel in the crown and by the cementum in the root area of the tooth. It engulfs and protects the living part of the tooth, the pulp tissue.
- Dentin has a light yellow color, which gives the tooth its natural color prevailing through the almost translucent enamel. It consists of **70% inorganic materials**, with a spongy, porous structure made of tubules extending from the enamel to the pulp chamber. Nerve endings enter the dentinal tubules and may transmit signals such as pain in response to external stimuli.
- Dentin is harder than bone but softer than enamel. It becomes very vulnerable to tooth decay if the protective cover of enamel or cementum is lost or weakened. However, the dentin is a living tissue, so it has the ability for some degree of growth and repair in response to certain physiologic and pathologic conditions.

THE PULP

- The dental pulp is the soft living tissue of the tooth. It can be found in the pulp chamber, a cavity in the center of the crown of each tooth, and inside the root canals which connect the pulp cavity with the opening at the root tip (apex) and through that with the rest of the body. **The pulp contains blood vessels, connective tissue, nerves, and other cells including odontoblasts, fibroblasts, macrophages and lymphocytes.**
- The main function of the pulp is providing sensation and nourishment to the tooth, and the formation of dentin and cementum. The pulp tissue responds to irritation either by forming reparative secondary dentin for protection against the source of irritation or by becoming inflamed.
- The pulp, as the living part of the tooth, has a high risk of infections. If bacteria manage to reach the pulp, e.g. due to tooth decay or through a crack of the tooth, they cause inflammation which is usually very painful due to the high pressure that is developed inside the enclosed space of the pulp chamber. If the pulp is infected and a dental abscess has developed, a root canal therapy is necessary to prevent further damage.

PLAQUE

- Dental plaque is a sticky, soft and almost colorless layer of bacteria that constantly builds up on the surfaces of teeth and gums. It is comprised of colonies of bacteria and other microorganisms mixed with bacteria by-products, saliva, dead cells and food residuals. In addition to the bacterial cells, plaque contains a small number of epithelial cells, leukocytes, and macrophages. Inorganic components are also found in dental plaque; largely calcium and phosphorus which are primarily derived from saliva.
- A variety of different bacterial forms (cocci, rods, filaments) can be found. It is estimated that dental plaque contains 10¹⁰ bacteria per mg. In the initial phases of dental plaque formation, most of them are harmless bacteria, naturally found in the mouth's normal microbial flora.
- If dental plaque is not removed with proper oral hygiene, the bacterial layer becomes thicker and its composition changes. Bacteria strains, related with causing dental diseases, start to become dominant, and the risk of tooth decay and gum disease increases.
- **Types of dental plaque**
 - The most usual classification of dental plaque is based on its relationship to the gingival margin (the line where the crown of the tooth meets the gums):
 - **Supragingival plaque** is the most common type of dental plaque covering the visible part of the teeth, and the gingival tissues.
 - **Subgingival plaque** is accumulated under the gums and is the one most usually causing dental health problems.

DENTAL PLAQUE FORMATION

- Dental plaque formation starts almost immediately after you brush your teeth. Some minutes after brushing teeth, saliva derived glycoprotein deposits start to cover the tooth surface with what is referred to as "pellicle". The formation of pellicle is the first step in dental plaque formation.
- The **pellicle is then colonized by Gram-positive bacteria such Streptococcus mutans** becoming what is known as dental plaque. Bacteria cells interact with pellicle components enabling plaque to firmly adhere to the tooth surface.
- **After 1 to 3 days following the initiation of plaque formation:**
 - the first bacteria colonies start to multiply and expand and new bacteria species start to colonize the tooth plaque. These new species include also Gram-negative bacteria.
 - Substances produced by the already accumulated bacteria enrich the plaque environment making it favourable for the growth of other species of bacteria. **One week after the first plaque accumulation, new Gram-negative species may be found, Actinobacillus actinomycetemcomitans.**
 - **While the dental plaque formation continues Gram-negative species become dominant over the Gram-positive species.** The overgrowth of Gram-negative anaerobic bacteria is considered as one of the main causative factors of gingivitis and periodontitis. This fact increases the importance of regular dental plaque removal with tooth-brushing before the Gram-negative anaerobic bacteria have the time to grow and put your oral health at risk.

CALCULUS

- Dental Calculus (also known as dental tartar) is a yellowish or brown layer of mineral deposits on the teeth surface created by hardened dental plaque. Tartar control is important for your oral health because, besides the cosmetic problem, it promotes further accumulation of dental plaque, and causes inflammation of gums, gum recession and gum disease.
- The **anaerobic bacteria** of dental plaque produce acids as a by-product of their metabolism. These create an acidic environment in the mouth causing the loss of calcium from the tooth enamel (demineralization). Calcium, phosphorus and other minerals from saliva are absorbed into dental plaque and harden its structure. This hardened structure is dental calculus. Its main ingredient is calcium phosphate, a hard insoluble material that adheres to the tooth enamel.
- Dental calculus makes rough the surface of the teeth crown and roots, allowing more bacteria and minerals to attach much more easily on the existing plaque. The roughened surface of dental calculus, in combination with the acids produced by plaque bacteria, provide an ideal medium for further accumulation and growth of dental plaque. These repeating cycles of acid production, calcium loss and calcium phosphate deposits result to the build-up of new calculus layers on teeth.
- **Supra-gingival calculus** - Calculus above the gum margin is the most common and less harmful type as it is visible and can be easily detected.
- **Sub-gingival calculus** - Calculus formation below the gums is more dangerous as it forms pockets between teeth and gums, harboring plaque under the gum margin and preventing it from being brushed off.

TOOTH DECAY IN STAGES

1. White Spots

- Bacteria of the dental plaque metabolize carbohydrates from sugars and starch in our diet producing lactic and other acids. These acids cause the loss of calcium from the tooth enamel, through a process called demineralization of the tooth surface.
- The first sign at this initial stage of tooth decay is a mild decolourization of the enamel, usually called a 'white spot'. At this stage the tooth can remineralize and fix the weakened area itself with the help of minerals in saliva and fluoride.

2. Enamel Lesion

- If the natural remineralisation process is unable to restore the enamel minerals lost by demineralisation, the lesion grows. Over time, the tooth enamel begins to break down beneath the surface while its surface remains intact.
- Once the decay continues and breaks through the surface of the enamel, the damage is difficult to be reversed by the natural remineralization process. Possibly a fissure sealant or fluoride resin application might help prevent decay progressing. The development of a 'brown spot' is a sign that the tooth decay has advanced deeper in the enamel.

3. Cavity

- Without proper control of dental plaque and sugar intake, acids will continue to dissolve the enamel and the lesion will reach the dentine. The tooth becomes sensitive to hot and cold. When enough of the sub-surface enamel is weakened by the loss of minerals, the outer layer of the enamel collapses, forming a dental cavity. The decayed area must be cleaned and the cavity filled by a dentist. At this stage of tooth decay a dental filling is required to restore the tooth and prevent further damage.

CONTINUED

4. Infection

- Dentin is much softer than enamel and tooth decay can now reach easily the living part of the tooth, the pulp. The bacteria invade and infect the pulp of the tooth. Toothache, especially when chewing, is a classic symptom that the tooth decay has reached the pulp. The blood vessels and nerves may die due to the infection. The tooth can only be repaired with root canal treatment followed by a dental restoration. A dental crown may be required if there is extensive damage of tooth structure.

5. Abscess

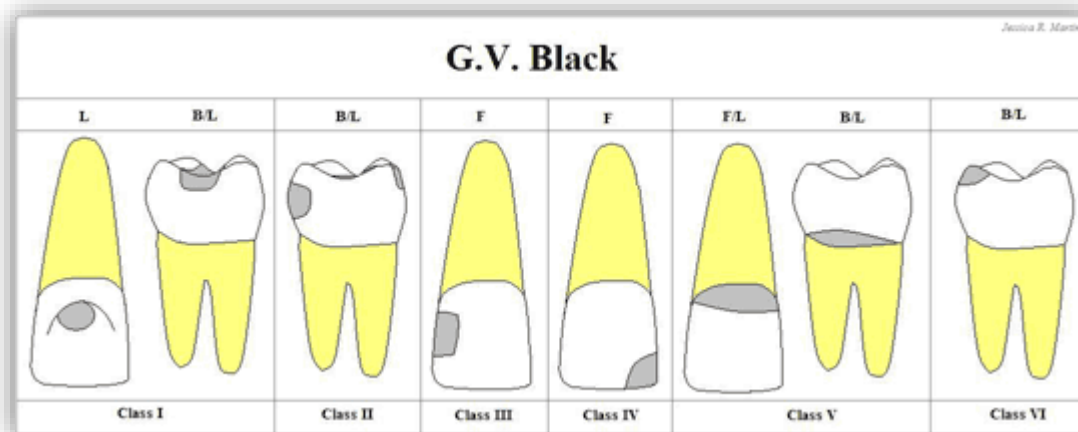
- Without treatment the infection can then spread through the root canals to the area of the root tips. Dying pulp tissue forms pus resulting in a tooth abscess around the root tip (periapical abscess). As the infection inside the tooth's root canal remains, the jaw bone around it gets also infected.
- Swelling, bad breath and/or pus drainage are symptoms that tooth decay has reached an advanced stage and a tooth abscess has developed. The tooth pain is intense and consistent. Immediate treatment is needed.

6. Tooth Loss

- Left untreated, the tooth will be lost or have to be extracted. In cases of advanced stages of tooth decay, even if a root canal treatment is performed in combination with antibiotics, it may not be enough to eliminate the infection. In this case, tooth loss can not be avoided; the dentist will have to extract the tooth to stop the infection.
- Tooth extraction may also be needed when the structural damage of the tooth is so extensive that a restoration is not viable.

BLACKS CLASSIFICATION OF CARIES

Black's classification	Current terminology	www.RefDen.tk
Class I	Affecting pits and/or fissures also termed occlusal lesions	
Class II	Affecting the proximal surfaces of posterior teeth	
Class III	Affecting the proximal surfaces of anterior teeth	
Class IV	Affecting the proximal surfaces of anterior teeth and involving the incisal angle	
Class V	Affecting the cervical surfaces	



RESTORATIONS

- **Tooth decay, also known as dental cavities or dental caries**, is the result of the action of acids produced by dental plaque bacteria, which destroy the hard structures of the tooth (enamel and dentin). If the decayed tooth is not treated early enough, the damage may become so extensive that the tooth will have to be extracted. The ability to eat, chew and speak properly may be seriously affected.
- The purpose of a dental restoration is to replace the destroyed part of the tooth or teeth with a substitute restorative material or structure in order to restore the teeth's integrity, shape and functionality. The development of various dental restoration techniques made possible to save many teeth that would otherwise need to be extracted.
 - **Direct dental restorations** are placed in the dental office directly in the patient's mouth (in situ). They include dental amalgam, glass ionomers, resin ionomers and most composite (resin) fillings. The procedure can be completed in a single dental visit.
 - **Indirect dental restorations** are made in a dental laboratory using impressions of the patient's teeth prepared by the dentist. These usually require multiple (at least two) visits to the dental office. At least one visit is needed to prepare the tooth and take impressions which will be sent to the dental lab. A temporary restoration is usually placed on the prepared tooth to protect it. Another visit is required for the application of the final restoration. Common indirect restorations include inlays and onlays, crowns, bridges, veneers and dentures.

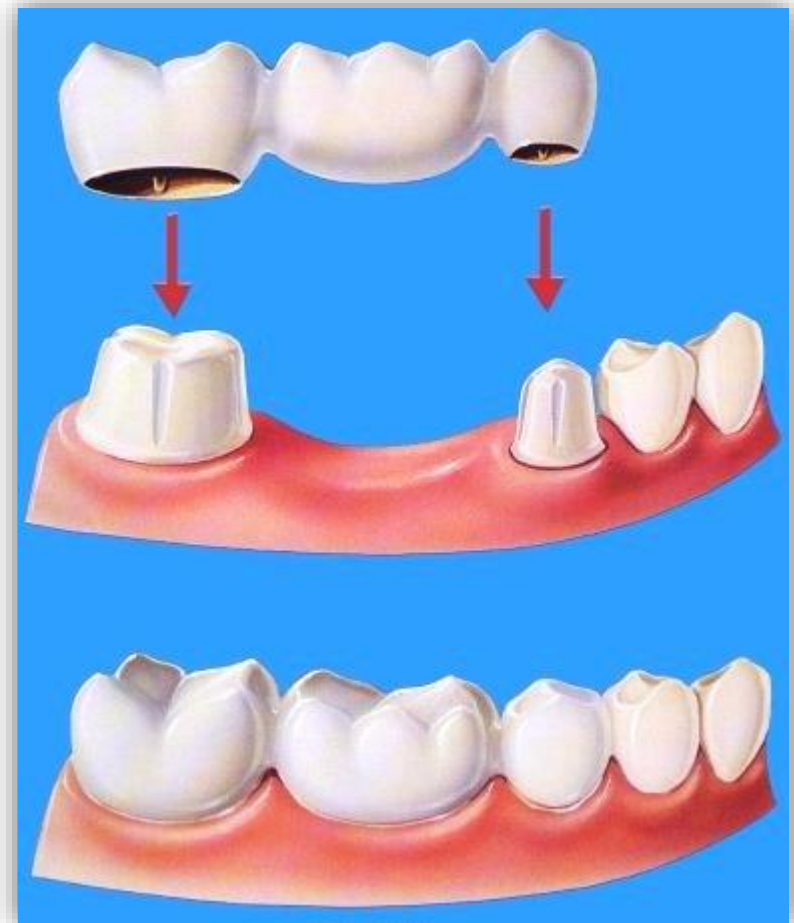
FILLINGS

- Dental fillings are the most frequently used type of dental restoration for repairing dental cavities. They can be used for restoring decayed areas of small or moderate size in primary or permanent teeth. Dental fillings are direct restorations applied directly on the tooth in the dental office in a single dental visit.
 - **Amalgam fillings** (silver fillings) mostly used to fill cavities on the biting surfaces of the back teeth that have to withstand the most pressure of chewing and grinding, and
 - **Tooth colored fillings** (made of composite resin, or glass or resin ionomers) typically used to fill cavities in visible front teeth because they can match to the color of the natural tooth surface.

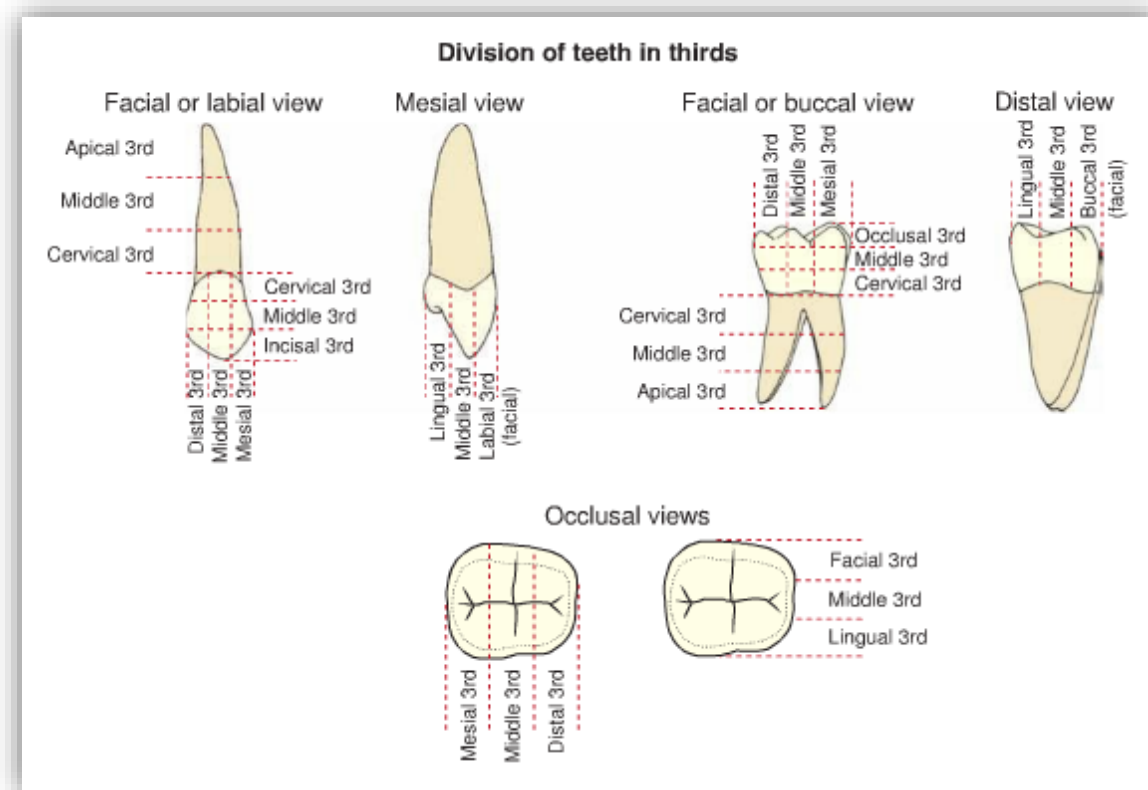
RESTORATIONS

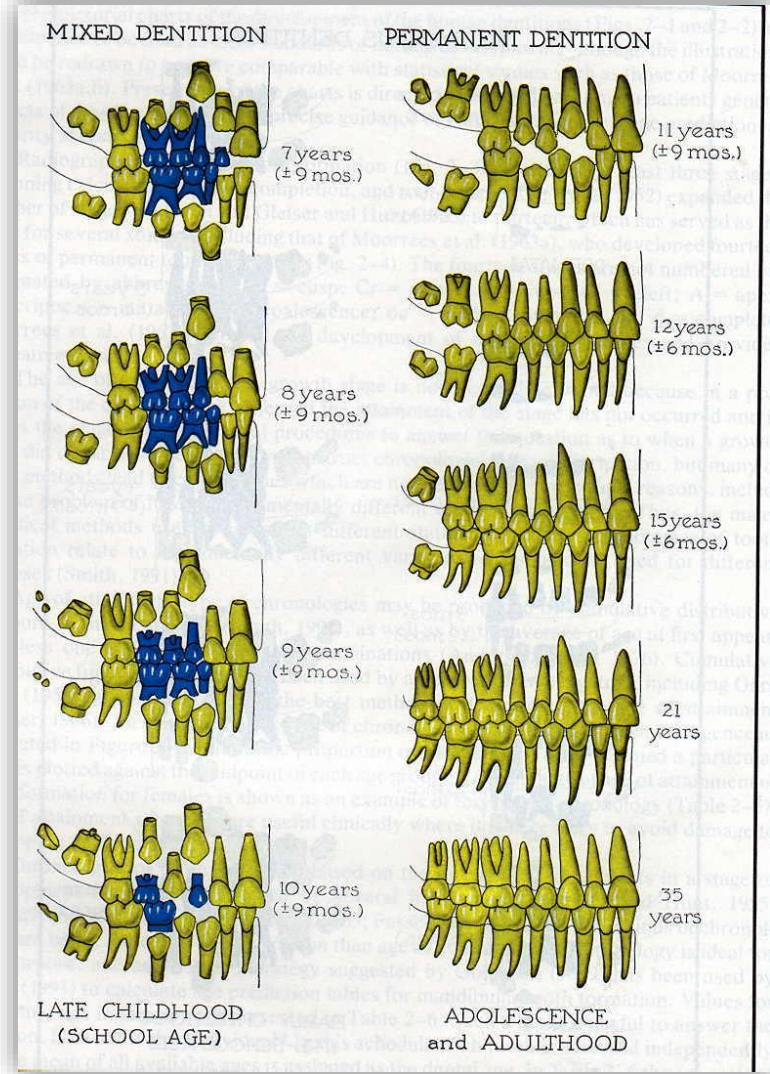
- **Inlays and onlays** are indirect dental restorations used to replace decayed enamel on the chewing surface of molars or premolars. The main difference from dental fillings is that they are prepared in the lab and then placed in the mouth. They are usually used for restorations that are too extensive for a filling but not so much to require a crown.
- **A dental crown** is an indirect dental restoration that replaces the entire visible part of a tooth (crown). Crowns are used to restore teeth severely damaged by tooth decay when filling or inlays cannot be used. They are also applied on bridges and implants used to replace missing teeth. Crowns are prepared in the dental lab from a mold of the tooth, using gold, metal alloys, porcelain or composite resin alone, or a combination of porcelain fused to metal.
- **Dental bridges** are used to fill gaps in the mouth when one or more permanent teeth are lost or extracted. They are fixed restorations of one or more artificial teeth (pontics) anchored by crowns on the adjacent teeth (abutment teeth).
- **Dentures** are removable dental appliances consisting of artificial teeth made of porcelain or acrylic resin mounted in a plastic gum-like base. They can be used to replace all missing teeth (full dentures) or several missing teeth in a row (partial dentures).
- **Dental implants** are small screw-shaped devices made of titanium metal alloy that play the role of artificial tooth roots used for the replacement of missing natural teeth. They are surgically placed in the jawbone to replace the root part of the missing tooth and provide a solid base to support a dental restoration (crown, bridge or denture) that will replace the missing tooth's crown.

RESTORATIONS



TEETH





EARLY CHILDHOOD CARIES

- Early Childhood Caries formerly referred to as Baby Bottle Tooth Decay or Bottle Rot is a chronic, infectious and totally preventable oral disease that affects the primary or baby teeth of young children. Early
- Childhood Caries typically begins on the child's front teeth, but in more severe cases will include back teeth as well.
- Untreated caries may lead to early loss of the primary teeth and affect the growth and maturation of the adult teeth. The prevalence of Early Childhood Caries has been shown to be overwhelmingly high among low-income and minority populations such as Native Americans, Hispanics and African Americans in the United States.
- **Early Childhood Caries is a preventable infectious disease caused by an interaction between the bacteria in your mouth**, plaque (the sticky film on your teeth) and the foods you eat, especially food and liquids that contain high levels of sugar. The bacteria in your mouth uses the sugars as food, and in the process produces an acid that attacks the teeth making them susceptible to decay.

PREVENTION IS KEY!

- The good news is Early Childhood Caries is a total preventable disease! Research shows that your child is not born with the bacteria that causes decay but are infected with by their caregivers. If you ever had a cavity you carry the bacteria that causes cavities. Caregivers with untreated cavities have higher levels of bacteria in their mouth and are more likely to pass it on to their child.² Your child can have a healthy mouth right from the start by simply following a few rules:
 - Limit the amount and time your child consumes sugary drinks including natural fruit juices and milk .
 - Dilute sugary drinks with fluoridated water.
 - Never put your child to bed, even for a short nap with a bottle filled with anything but fluoridated water.
 - After feeding gently clean your child's teeth and gums with gauze or a warm cloth.
 - As soon as you see the first tooth erupt begin gently brushing your child's teeth twice daily.
 - Make sure you are brushing twice daily with fluoridated toothpaste and flossing at least one time each day.
 - Visit your family dentist regularly.

ROOT CARIES

- Tooth decay (caries) is not just a problem for children but can happen at any age. In fact, one type of caries becomes more common the older we get. **It is called by several names: root caries, root decay, or root cavities, to name three.**
- Unlike the type of decay you are probably familiar with that occurs in the top (crown) of the tooth, root caries occurs where the gums have receded (shrunk) away to expose the root of the tooth.
- **Root caries is most frequently detected through a visual and tactile examination.** Oral health care providers initially look for visual changes within the color and contour of the area at the cemento-enamel junction (CEJ). Tactilely, clinicians may notice a leathery notch in the CEJ area of the tooth. Any color changes within the root surface of the tooth may indicate active root caries. The most important clinical sign of root caries is a patient complaining of pain in this area.
- Incipient root caries may begin as a slight discoloration at the CEJ and cause dentinal hypersensitivity. Recurrent root caries may first appear as a discoloration present at or under existing restorations, causing pain. Cementum is more susceptible than enamel because it has less mineral content and is more soluble, therefore, more susceptible to root caries.

PREVENTION TO TELL YOUR PATIENT

- Since root caries is caused from bacteria, the most important thing you can do is to keep your teeth clean every day. If your gums have receded, cleaning can be more difficult. We are trained to develop a method customized for your specific condition that will allow you to be able to clean more thoroughly. Be sure to tell us if you have physical limitations that make it more difficult to clean your teeth. In addition to keeping your mouth clean, fluoride has been shown to be very important in the prevention of root caries.
- **There are now many ways to be sure you receive the proper amount of fluoride depending on your unique needs, and we will customize a fluoride treatment plan just for you.** Your diet is also a very important factor because certain foods and snacks can greatly increase the number of bacteria that forms the decay-causing plaque. Finally, frequent professional cleanings and exams can help prevent root caries or find it early when it can be more easily repaired.

RISK FACTORS

- **Xerostomia is a significant risk factor for root caries** because it creates an oral environment conducive to bacteria proliferation, and reduced salivary flow leaves supporting structures of the oral cavity without protection.
- Patients who have undergone radiation treatment for head and neck cancer are at greater risk of root caries because their normal salivary functions are
- The presence of exposed root surfaces due to periodontal diseases or previous loss of gingival tissue attachment is another risk factor. Exposed root surfaces leave the CEJ and cementum vulnerable to bacteria and demineralization. Gingival recession caused by normal aging, forceful toothbrushing, and/or periodontitis also raises the risk of root caries.
- Physical limitations in the ability to perform effective oral hygiene result in plaque and calculus build-up. Diminished manual dexterity caused by stroke, arthritis, or Parkinson's disease, as well as cognitive deficits due to mental illness, depression, Alzheimer's disease, or dementia, are risk factors for root caries among older adults. The purpose of oral hygiene is to diminish, eliminate, and prevent the formation of plaque and inhibit bacteria production, which are essential to reducing root caries risk.

ENAMEL HYPOPLASIA

- Enamel Hypoplasia is the most common abnormality of development and mineralization of human teeth. The lesion is characterized by a quantitative defect in enamel tissue resulting from an undetermined metabolic injury to the formative cells – the ameloblasts.
- Clinically, enamel hypoplasia is seen as a roughened surface with discreet pitting or irregularities which posteruptively acquire a yellow brown stain. **Enamel hypoplasia is endemic in many countries of the world and is commonly reported in association with disease of childhood.**
- Tooth enamel is over 90% mineral, which dissolves in an acidic environment, such as that found at the root tip of an inflamed or infected primary (baby) tooth. This situation may occur as a result of an injury to, or a large cavity in the primary tooth. When the permanent tooth comes into the mouth, it may have a roughened, irregular, or pitted area in the enamel, corresponding to the defect. This is sometimes referred to as a "Turner's tooth", or "Turner's hypoplasia", and is most commonly observed in (permanent) bicuspid teeth (secondary to infected primary molars) and permanent central incisors (secondary to injury to the primary incisors).
- "Environmental" enamel hypoplasia is a related condition, in which the ameloblast cells that make tooth enamel were affected by an event such as fever, malnutrition, or hypocalcemia in the patient, while the teeth were forming. This may occur during fetal development or early childhood, and a dentist can estimate the timing of abnormal enamel formation by the area and teeth affected. **When the front teeth and six-year molars are affected, the event most likely occurred in the first year of life. When the bicuspids and second molars are affected, the event likely occurred around age three.**
- Another possible explanation for pitted, irregular (hypoplastic) tooth enamel is irregular Vitamin D metabolism, which prevents proper absorption of calcium. This can occur due to a nutritional deficiency of Vitamin D, an X-linked dominant disorder known as Vitamin D-resistant rickets.

ATTRITION



ATTRITION

- Wearing away of the incisal or cusps
- Can be caused by bruxism and usage
- Slight flattening of incisal edge happens in early stages with flattening of occlusal plane in advanced
- Staining may occur and if it does, brown stain (or I have seen deep yellow)
- The pulp chamber and canals may be narrow and sometimes missing due to the result of secondary dentin formation

EROSION



EROSION

- Erosion is the loss of tooth enamel caused by acid attack. Enamel is the hard, protective coating of the tooth, which protects the sensitive dentine underneath. When the enamel is worn away, the dentine underneath is exposed, which may lead to pain and sensitivity.
- Erosion usually shows up as hollows in the teeth and a general wearing away of the tooth surface and biting edges. This can expose the dentine underneath, which is a darker, yellower colour than the enamel. Because the dentine is sensitive your teeth can also be more sensitive to heat and cold, or acidic foods and drinks.
- Chronic vomiting can cause erosion, especially lingual surfaces of anterior teeth
- Extrinsic factors can include industrial workers and diet
- **Veneers** can be placed on top of eroded teeth if needed

PREVENTING EROSION

- Keep acidic products and fizzy drinks to mealtimes, to reduce the number of acid attacks on your teeth.
- Drink quickly without holding in or 'swishing' around your mouth. Or use a straw to help drinks go to the back of your mouth and avoid long contact with your teeth.
- Finish a meal with cheese or milk as this will help cancel out the acid.
- Chew sugar-free gum after eating. This will help produce more saliva to help cancel out the acids which form in your mouth after eating.
- Wait for at least one hour after eating or drinking anything acidic before brushing your teeth. This gives your teeth time to build up their mineral content again.
- Brush your teeth last thing at night and on at least one other occasion with a small-headed brush with medium to soft bristles and fluoride toothpaste.

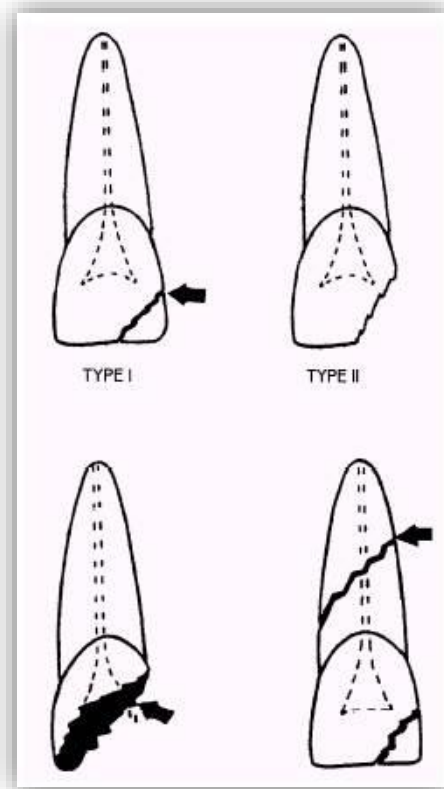
ABRASION



ABRASION

- Happens on exposed root surfaces and at the incisal edge
- Results from mechanical abrasive activity
- The MOST common cause is brushing TOO HARD
- V – or wedge shaped notch

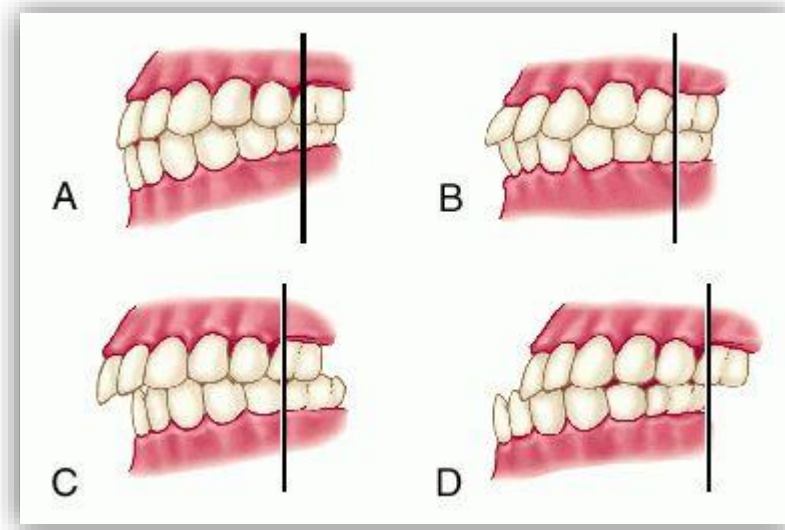
FRACTURES



FRACTURES

- Fractures can happen from any sort of trauma
- Horizontal, diagonal and vertical fractures
- Radiographically can be seen as widening of the periodontal ligament space, radiolucent fracture line, etc.

CLASSES OF OCCLUSION



CLASSES OF OCCLUSION

- Angle's classification system is a method commonly used to classify various occlusal relationships. This system is based upon the relationship between the permanent maxillary and mandibular first molars.
- **Class I (or neutroclusion)** – In this classification, the maxillary first molar is slightly back to the mandibular first molar; the mesiobuccal cusp of the maxillary first molar is directly in line with the buccal groove of the permanent mandibular first molar. The maxillary canine occludes with the distal half of the mandibular canine and the mesial half of the mandibular first premolar. The facial profile is termed **mesognathic**.
- **Class II (or distocclusion)** – In this classification, the maxillary first molar is even with, or anterior to, the mandibular first molar; the buccal groove of the mandibular first molar is distal to the mesiobuccal cusp of the maxillary first molar. The distal surface of the mandibular canine is distal to the mesial surface of the maxillary canine by at least the width of a premolar. The facial profile of both divisions is termed **retrognathic**.
 - *Class II, Division 1* occurs when the permanent first molars are in Class II and the permanent maxillary central incisors are either normal or slightly protruded out toward the lips.
 - *Class II, Division 2* occurs when the permanent first molars are in Class II and the permanent maxillary central incisors are retruded (pulled backward toward the oral cavity) and tilting inwards towards the tongue.
- **Class III (or mesiocclusion)** – In this classification, the maxillary first molar is more to the back of the mandibular first molar than normal; the buccal groove of the mandibular first molar is mesial to the mesiobuccal cusp of the maxillary first molar. The facial profile is termed prognathic.

TERMS





















- **Anterior cross-bite** – an abnormal relationship of a tooth or a group of teeth in one arch to the opposing teeth in the other arch; the maxillary incisors are lingual to the opposing mandibular incisors.
- **Distoversion** – the tooth is distal to the normal position.
- **Edge to edge bite** – the incisal surfaces of the maxillary anterior teeth meet the incisal edges of the mandibular anterior teeth.
- **End to end bite** – maxillary posterior teeth meet the mandibular posterior teeth cusp to cusp instead of in normal manner.
- **Infraversion** – the tooth is positioned below the normal line of occlusion.
- **Labioversion (Buccoversion)** – the tooth is tipped toward the cheek or lip.
- **Linguoversion** – the tooth is lingual to the normal position.
- **Mesioversion** – the tooth is mesial to the normal position.

TERMS CONTINUED

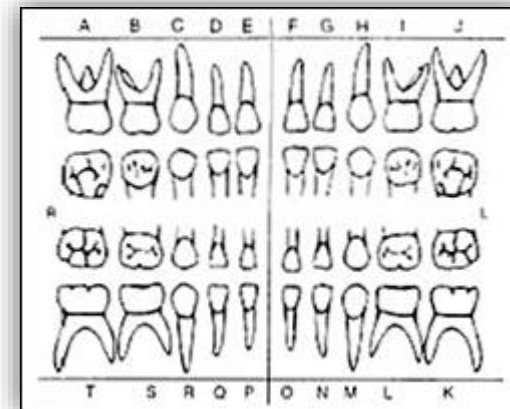
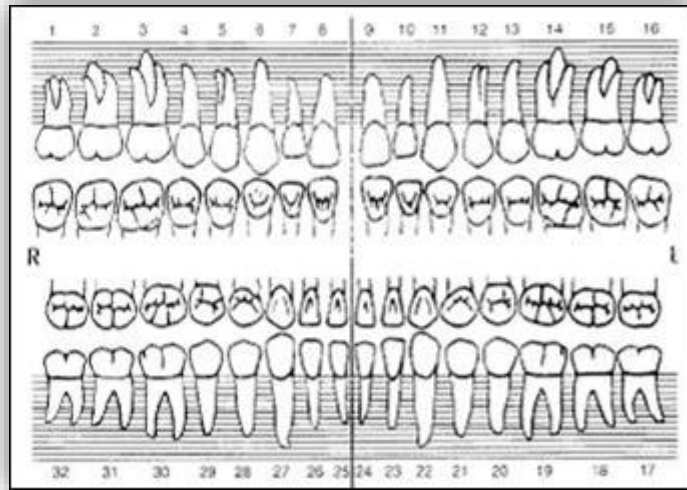
- **Open bite** – failure of the maxillary and mandibular teeth to meet.
- **Overbite** – vertical overlap greater than one-third vertical extension of the maxillary teeth over the mandibular anterior teeth.
- **Overjet** – the horizontal overlap between the labial surface of the mandibular anterior teeth and the lingual surface of the maxillary anterior teeth, causing an abnormal distance.
- **Posterior cross-bite** – an abnormal relationship of teeth in one arch to the opposing teeth in the other arch. The primary or permanent maxillary teeth are lingual to the mandibular teeth.
- **Supraversion** – the tooth extends above the normal line of occlusion.
- **Torsoversion** – the tooth is rotated or turned.
- **Transversion (Transposition)** – the tooth is in the wrong order in the arch.
- **Underjet** – occurs when the maxillary anteriors are positioned lingually to the mandibular anteriors with excessive space between the labial of the maxillary anterior teeth and the lingual of the mandibular anterior teeth.

CAVITY CLASSES

- **Class I** Found in pits and fissures of: occlusal surfaces of premolars and molars; buccal or lingual pits of the molars; lingual pit near the cingulum of the maxillary incisors.
- **Class II** Found on the proximal (mesial and distal) surfaces of premolars and molars.
- **Class III** Found on the proximal (mesial and distal) surfaces of incisors and canines.
- **Class IV** Found on the proximal surfaces of incisors and canines, but also will involve the incisal edge.
- **Class V** Found on gingival third (the area near the gingiva) of the facial or lingual surfaces of any tooth.
- **Class VI** Involve the incisal edges of anterior teeth and the occlusal surfaces of posterior teeth that have been worn away due to abrasion.

Dental Caries Classification			Cavity Preparation Classification		
Class I			Class I		
Class II			Class II		
Class III			Class III		
Class IV			Class IV		
Class V			Class V		
Class VI			Class VI		

NUMBERING



STAINS

- **Extrinsic discoloration.**
 - Coffee; especially black coffee. Coffee stains more than tea does.
 - Tea; again, especially when black.
 - Red wine.
 - Dark cola drinks and some fruit juices (cranberry and grape for example).
 - Certain foods such as curries and dark berries.
 - Smoking (and chewing) tobacco.
 - Chlorhexidine mouthwash; a common example of what stains teeth, but one that you may not be aware of!
 - Poor oral hygiene can result in green or black staining.
 - Iron supplements and some medications.

STAINS

- **Intrinsic discoloration.**
- Here it is the actual tooth substance (mainly the dentin) that changes the outer color.
 - Age. Teeth discolor naturally with age as the (darker) dentin thickens and the enamel thins.
 - Tetracycline. This is a type of antibiotic. If taken when the dentition is forming it can make the them characteristically dark (sometimes severely so). The type of discoloring is often evident on the teeth as 'banding'; horizontal bands of different shades are present. People with tetracycline staining were exposed to the drug when still in the womb or when at a young age.
 - Genetic causes. Some rare conditions can cause tooth discoloration.
 - Nerve damage. If the nerve inside a tooth dies, from decay or the tooth getting a knock (trauma), the dead tooth can darken (see image). This is the most common cause of a single (or a few) tooth becoming discolored on their own.

BLACK LINE, GREEN, YELLOW

- Stain removal can be approached with different methods. The first step is to identify the type of stain present. Common extrinsic stains are brown in color—resulting from food, beverages, tobacco, or chlorhexidine—and are easily removed by light scaling or selective polishing.
- **Black-line stain** has a very different origin and requires an alternate method of removal. This stain is calculus-like and forms along the gingival third of the tooth near the gingival margin. Black line stain is seen in patients of all ages, yet is more common in women and in patients with good oral hygiene. There appears to be a natural tendency to forming black line stain as it often reforms despite regular self-care. The quantity of black line stain may be less when plaque biofilm is meticulously removed. Black line stain is firmly attached to the teeth and often requires moderate scaling to be removed.
- Stains acquired due to poor **oral hygiene are yellow or orange** and they may be removed with tooth brushing or light polishing. The last category is **green stain**, which is found in children with very poor oral hygiene and may be the result of chromogenic bacteria.

REMOVING STAIN

- Hand instrumentation, ultrasonics, air polishing, and rubber cup polishing are all effective at removing stain.
- Additionally, air polishing, which uses a slurry delivered under pressure, is very effective at stain. While air polishing is the least damaging to intact enamel, it can cause significant loss of tooth structure when applied to root surfaces.
- Understanding the etiology of the stain and then choosing the best products and techniques to treat it will help better meet patients' expectations for polishing while limiting the risk to their oral health.

FLUOROSIS

- Fluorosis is not a disease and does not physically harm the dentition, but unfortunately it can cause psychological problems if moderate to severe by spoiling a person's natural smile.
- Fluorosis can vary in its severity and hence in the degree to which it affects the appearance of a tooth. In its mildest form, it appears as barely noticeable tiny white spots or streaks in the surface enamel layer. Very mild, slightly whitish spots in the enamel are thought by some to make teeth look more attractive – but if the marks are actually distinguishable then the effect is considered rather unattractive.
- Dentists classify the **severity of fluorosis** by the degrees of white opacity, the size of affected areas and the percentage of tooth area affected. A typical classification is:
 - **Very mild** – The enamel shows slight changes ranging from a few barely noticeable white flecks to occasional white spots, and less than 25% of the tooth area is affected.
 - **Mild** – There are more extensive white patches visible, but over less than half the tooth surface.
 - **Moderate** – There are white patches over more than half the tooth surface, and some brown patches may also be evident.
 - **Severe** – There are patches on all or most teeth, some of them brownish, and there may also be pitting of the enamel in places. The overall appearance of a tooth can be as if it has been corroded, exhibiting an **irregular surface and loss of shape definition**.

WHAT CAUSES FLUOROSIS

- Fluoride can be taken up by a developing tooth as it forms within the jaw and it can change the chemical structure of the tooth's enamel, leading to a more pronounced white appearance rather than the creamy white of normal enamel.
- It is a fine line between what is considered too much and what is considered to be an acceptable level of fluoride as far as teeth are concerned.
- **Certainly a young child, from a baby through to about eight years of age, should not be exposed to excessive amounts of fluoride.** Otherwise it can be absorbed by the growing teeth within the jaws giving rise to a mottling or discoloration of the tooth surface, which may vary from very mild to quite disfiguring (as explained above). **The period between twenty to thirty months of age is reckoned to be the most critical as regards excessive fluoride intake.**
- **Once the teeth have actually come through and are visible in the mouth the risk is minimal.**
- Fluorosis may occasionally affect the first set of teeth, but is only really of concern when it appears in the second or permanent set of teeth because the discoloration is itself permanent.
- **The likelihood of dental fluorosis in general in the population seems to be directly in proportion to the concentration of fluoride in drinking water. One part per million is the optimum for prevention of dental decay, but anything over three parts per million can induce noticeable enamel flecking.**
- Of course fluoride from toothpastes and mouthwashes can contribute to the amounts consumed, especially by younger children who are more likely to swallow some.

PREVENTION FOR PARENTS

- **The following points of advice are important to reduce any risks:**
 - Parents should supervise their children while they are brushing until the age of about 7.
 - The correct strength of toothpaste should be used as per the child's age.
 - Use only pea-sized smear of toothpaste.
 - Make sure children do not swallow toothpaste when brushing.
 - Keep tubes of toothpaste, bottles of mouthwash and fluoride supplements out of the reach of children.
 - Children under the age of 6 should not be given fluoride mouthwashes.
 - Fluoride supplements should be given in the dose advised by your dentist. They are not needed if the water supply is sufficiently fluoridated in your area.

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