Dental Terminology and Professional Knowledge

Nancy Hemingway, RDH, MS; Mary Ann Haisch, RDH, MPA
Continuing Education Units: 1 hour


Disclaimer: Participants must always be aware of the hazards of using limited knowledge in integrating new techniques or procedures into their practice. Only sound evidence-based dentistry should be used in patient therapy.

The purpose of this course is for the learner to gain understanding and enhanced vocabulary of dental terminology and overall professional knowledge by training through example, context, engagement and multiple representations of content.

Conflict of Interest Disclosure Statement
• Ms. Hemingway is a full-time employee of P&G.
• Ms. Haisch is a member of the dentalcare.com Advisory Board.

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Overview
In this course the learner assumes the role of a student and shadows a dentist throughout her day. Like learning a foreign language by immersion, the module exposes the learner to dental terminology and professional practices in a reality-based context. The learner gains understanding and enhanced vocabulary by training through example, context, engagement and multiple representations of content. This course is a part of Procter & Gamble's Professional Oral Health’s “Oral Health University”

Learning Objectives
Upon completion of this course, the dental professional should be able to:
• Utilize proper dental terms that describe oral anatomic structures.
• List terminology that is used to identify location of hard and soft oral structures and surfaces.
• Describe the different branches of dentistry.
• Identify roles and responsibilities of various dental professionals.
• Explain the basic dental diseases, as well as the basic causes and treatments for these diseases.
• Understand what causes change in tooth color and techniques to prevent or change tooth color.

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Case Study 1: Routine Check-up
Introduction: Meet Dr. Lee
My name is Dr. Lee, and I practice General Dentistry. Today I will be giving you an idea of what a typical day is like for me. As you are a student here, I will be sure to explain basic information as we go from patient-to-patient.
I expect to see a diverse group of patients with a variety of issues and concerns, giving you a thorough lesson on general oral health.

Lesson 1: Adult Teeth

Introduction
My first patient today is John, a 55-year-old male, in for a routine checkup and cleaning. He is a nonsmoker, does not take medication, and has no history of periodontal disease.

Dr. Lee to John: “Hi John. Today we will be examining your teeth, and then you will receive a thorough cleaning. I hope you don’t mind me using your mouth to train these future oral health care providers.”

Like everyone, John has had two sets of teeth. His first set of teeth, or primary dentition, contained 20 teeth. These “baby teeth” were replaced by 32 adult teeth, called permanent dentition or secondary dentition. Most adults have 32 teeth; however, some have more and some have less. Permanent teeth erupt around age 6 as the baby teeth (deciduous teeth) are exfoliated.

Dr. Lee to John: “Would you give us a big smile?”

Notice how the teeth are generally arranged in upper and lower semicircles around the mouth.

The upper jaw, or maxilla, forms a semicircle of teeth called the maxillary arch and contains the maxillary teeth. The lower jaw, or mandible, forms a semicircle of teeth called the mandibular arch and contains the mandibular teeth. The occlusion, or bite, is the contact between the upper and lower sets of teeth.

So that John doesn’t have to keep his jaw open through this lesson, I’ll use a diagram to illustrate and explain oral anatomy.

There are four quadrants of teeth, as shown in this diagram—the upper right, upper left, lower right, and lower left.

To review the adult teeth locations, we will start from the back of the mouth and move forward.
The molars are grinding teeth. There are usually six in each of the two jaws—the mandible and the maxilla.

A bicuspid is a tooth that has two cusps, or rounded parts. It is also known as a premolar. Molars and bicuspids are located in the posterior, or back, of the mouth.

Canines are sharp, pointed, tearing teeth. There are two in each jaw, and they are also known as cuspids or eye teeth.

Incisors are the front cutting teeth. There are four in each jaw: two central incisors (front) and two lateral incisors (side). Canines and incisors are found in the front, or anterior, of the mouth.

John had his wisdom teeth removed in his early 20s, but you can see on the diagram where they normally appear. “Wisdom teeth” is actually the lay term for the third molars. Wisdom teeth are located in the posterior part of the mouth.

**Lesson 2: Major Sections of a Tooth**

Each tooth consists of two major sections: the crown and the root. The crown is about 1/3 of the tooth, the root is about 2/3.

The crown is the visible part of the tooth above the gum line.

*Dr. Lee to John:* “Could you do us a favor and demonstrate with a big smile?”

Those pearly whites are the crowns.

The root is not normally visible in the mouth. In healthy teeth, the root is below the gum line and anchors the tooth to bone. The root canal runs down the tooth’s root and contains pulp.

A “root canal” also refers to a procedure dentists perform to treat diseased pulp in the root canal. The treatment involves removing the diseased root tissue and filling the canal with an inert material.

**Lesson 3: Tooth Structures**

*Dr. Lee to John:* “John, show us that big smile again.”

Enamel is the hard, white, protective material that covers the outside of the crown of the tooth. Enamel is the hardest substance in the human body. We can see that the enamel is the outer covering of his teeth.
Dentin, (dentine outside the U.S.), is the sensitive, calcified tissue underneath the enamel. Dentin forms the bulk of tooth structure and surrounds the pulp.

Pulp is the soft mass of tissue in the center of the tooth that is surrounded by dentin. The pulp contains nerves and blood vessels that nourish the tooth. Pulp is located in the center of the tooth and resides in both the crown and root.

Cementum is the thin, calcified bone-like tissue that covers the roots of John’s teeth. It provides an attachment point for periodontal fibers within the periodontal ligament.

John’s teeth are surrounded by supporting structures collectively known as periodontium. These tissues include the gingiva, cementum, periodontal ligament, and alveolar bone.

The periodontal ligament, also called the periodontal membrane, attaches to the cementum, which covers the root of each tooth. This connects John’s teeth to the underlying alveolar bone. The alveolar process is the thickened ridge of the alveolar bone that contains the tooth sockets.

Each tooth is nourished by blood vessels and innervated by nerves that pass through the root canal into the pulp.

Lesson 4: Supporting Structures
The gingiva is an important part of the periodontium. In a healthy mouth, the gingiva is the only exposed periodontal tissue. The gingivae are visible, these fleshy structures are commonly called “gums.” The gingivae cover and protect the tooth-bearing bones of the jaw (the mandible and maxilla).

The gingival margin is the top edge of the gingiva surrounding each tooth. The gingiva extending between two neighboring teeth is the interdental papilla.

The gingival sulcus, or gingival crevice and also called the “gum pocket,” is the crevice or pocket between the neck of the tooth and the top of the gums, or gingival crest.

Dr. Lee to John: “John, since you’re in for your six-month check-up, we will be checking the size of your gingival pockets as a measure of your gingival health.”

Here we can see John’s gingiva. Healthy gingivae have a salmon or coral-pink color, like his do. Upon closer examination, the tissue of John’s gingiva is stippled and firm, without embrasure, and the bone level is at the normal height.

Dr. Lee to John: “You must have been flossing regularly, because your gingivae look nice and healthy.”
Dr. Lee to John: “You have missed a little bit of plaque. The hygienist will educate you on proper oral hygiene and better ways to reach these areas. To help you remember to brush regularly, you may want to listen to my explanation of plaque, to understand its connection to inflammation.”

Plaque is a dense, soft mass of microbial colonies attached to teeth and tissues of the oral cavity, or mouth, that consists of a nonmineralized mass containing over 700 species of bacteria in a gel matrix.

Plaque adheres to the teeth and other surfaces, like in the fissure of this molar, in the oral cavity that is both above (supragingival) or below the gum line (subgingival). Supragingival plaque and subgingival plaque need to be removed regularly.

Over time, plaque hardens into a mineralized substance known as calculus, which is also covered with nonmineralized bacterial plaque. The lay term for calculus is tartar.

We classify the health of gingiva by measuring the depth in millimeters of each gingival sulcus with a periodontal probe.

Shallower probing measurements are an indication of good health, whereas deeper measurements can indicate disease.

Probing each gingival sulcus reveals that they are between 1 mm and 3 mm in depth, a healthy amount.

Dr. Lee to John: “Your gingival pockets look healthy and firm ... keep up the good oral care!”

Lesson 5: Dental Plaque
Although John’s gingivae and teeth look healthy, we can’t forget about plaque.

Dr. Lee to John: “Did you know there are hundreds of bacteria present in your mouth? This image is a magnified close-up view of calculus, commonly called tartar, on the lingual surfaces of the lower front teeth.”

Although a great number of bacteria are found in each person’s oral cavity, there is a distinctive bacterial flora found in a healthy mouth compared to one with disease.

Summary
Dr. Lee to John: “Now you will receive a thorough cleaning to remove accumulated calculus as well as polish your teeth.”
expressed concern about cavities because Sara likes to eat candy and does not know how to brush very well.

*Dr. Lee to Sara:* “Hi Sara. Today we will be examining your teeth, and then the dental hygienist will thoroughly clean them. The other people with us today are future oral health care providers, who are also going to learn about your mouth.”

Like other children her age, Sara still has her 20 baby teeth, or primary dentition. Deciduous dentition are the first set of teeth to erupt (eruption) in humans and many other animals. They form during prenatal development and erupt during infancy. They are usually lost and replaced by secondary dentition.

**Challenge Yourself Quiz**
Add each consumer term next to its corresponding professional term in the table.

<table>
<thead>
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<th>Professional Term</th>
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<tr>
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<td>Tartar</td>
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<tr>
<td>Maxillary Arch</td>
<td>Upper Jaw</td>
</tr>
<tr>
<td>Calculus</td>
<td>Front Teeth</td>
</tr>
<tr>
<td>Mandible</td>
<td>Lower Jaw</td>
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**Case Study 2: Pediatric**

**Introduction**
My second patient today is Sara, a 5-year-old female, in for a routine checkup and cleaning. She does not take medication. Her parents have
The first primary teeth typically appear at six months. At age five, deciduous tooth loss begins to make room for the secondary teeth. Many times the first permanent molars are thought to be primary teeth and do not get the restorative attention needed.

Lesson 2: Carious Lesions
Dr. Lee to Sara: “Now I am going to examine each of your teeth. Please open wide. Let me know if your mouth gets sore or tired.”

To review the surfaces of each tooth, we will start from the midline. A good point to keep in mind is that each tooth has five surfaces. To start, the mesial surface of any tooth is the surface that is closest to the midline. The distal surface is furthest away from the midline. So, keep in mind that each tooth has both a mesial surface and a distal surface. Facial is a general term that refers to the surface of the tooth on the outside, or nearest the lips and cheeks. There are also a couple of specific terms to describe the outside surfaces of the posterior and anterior teeth. For example, buccal describes the outer surfaces of posterior teeth (molars and premolars) closest to the cheek. The other term for outside surfaces is labial, which describes the outside surface of the anterior teeth nearest the lips. Know that you can use the term facial for ease when referring to any outside surface of any tooth. However, when speaking with a dental professional, using the terms buccal and labial refer to more specific areas in the mouth.

Now that we’ve covered three of the five surfaces — mesial, distal, and facial — let us go to our fourth surface which is closest to the tongue. All surfaces, of all teeth, that are closest to the tongue are called the lingual surface. Lastly, let us learn the two different names for the tops of the teeth, which are the fifth surface. To start, incisal is the name of the biting edge of the anterior teeth. For the posterior teeth, the top surface is called the occlusal surface. The occlusal surface typically makes first contact with food and the other teeth.

Now that we have covered the five distinct surfaces of the teeth, let us discuss what we
call the areas where the teeth come together. Proximal surfaces are those that are close together. Interproximal is the area between two proximal surfaces. The small area where the proximal surfaces of two adjacent teeth touch each other is called the contact point.

Dr. Lee to Sara: “I heard that you like to eat candy. Even though candy tastes good, it can hurt your teeth, and I am going to explain how.”

Sugary foods, like candy, or fermentable carbohydrates (sucrose and fructose) form acid that combines with certain bacteria to buildup on teeth.

Dr. Lee to Sara: “I want to show you why it’s so important to clean your teeth thoroughly every day. We’ve asked you to chew a colored tablet that contains a dye that binds to plaque. Take a look in this mirror. The colored areas of your teeth are those with plaque build-up.”

Because plaque is a sticky substance composed of millions of bacteria, it collects around and between the teeth. Plaque is a major cause of tooth decay and gum disease.

Dr. Lee to Sara’s Parents: “Disclosing tablets are useful at home to help improve Sara’s brushing and flossing by highlighting missed areas.”

Dr. Lee to Sara: “These pictures contain types of cavities. Do you see the white spot on that molar in the middle frame? That is the first sign of trouble.”

Plaque bacteria form acid that erodes the white enamel on teeth in a process known as demineralization.

At this stage, the decay process is reversible. Using various forms of fluoride—such as fluoridation of public water supplies and in toothpastes. There are dental rinses that contain Sodium monofluorophosphate, neutral sodium fluoride (stannous fluoride), in addition to regular plaque removal—can help the tooth repair itself.

Fluoride promotes remineralization because the incorporated fluoride makes enamel more resistant to demineralization and, thus, more resistant to decay.

Dr. Lee to Sara: “Do you see the dark spots in the teeth in this picture? They are cavities, which are holes in the teeth. Cavities can be very painful.”

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Dr. Lee to Sara: “Do you see the dark spots in the teeth in this picture? They are cavities, which are holes in the teeth. Cavities can be very painful.”
Once the enamel has decayed, a carious lesion, which is also known as caries or a cavity, leaves the enamel unable to repair itself. The decay can spread further into the dentin, further weakening the enamel. This process is not reversible, and requires intervention by a dentist, usually in the form of cleaning and filling.

Untreated, the dentin decay can spread to the tooth’s pulp, and the nerve can become exposed, painful, or infected. This pain can be worsened by hot, cold, or sweet food.

Once enamel and dentin have decayed, the tooth is drilled out and filled with either metal amalgam or composite resin. Dental fillings preserve the structural integrity of the tooth, prevent further damage from decay, and potentially save the tooth from extraction.

**Lesson 3: Saliva**

*Dr. Lee to Sara:* “Have you ever wondered why your mouth makes spit? It is very important for healthy teeth.”

The liquid in your mouth is called saliva, or spit. Healthy saliva is pH neutral or slightly alkaline. pH is a term used to indicate acid or alkaline, 7 is neutral, below 7 is acid and above 7 is alkaline. Saliva has five major functions:

1. Lubrication of the mouth, tongue, and teeth.
2. Self-cleansing.
3. Digestion of carbohydrates.
4. Neutralization of acid caused by plaque bacteria.
5. Remineralization, which is the opposite of demineralization, whereby tooth enamel is restored.

Oral rinse products that improve remineralization include those containing acidulated phosphate fluoride, neutral sodium fluoride, or stannous fluoride. Oral irrigation and interdental brushing are two more plaque removal methods that we could use if needed. In addition, there are Sealants, (tiny bits of plastic) that can be placed on the tops of the molars to prevent cavities.

*Dr. Lee to Sara:* “After brushing your teeth, it is important to spit out the toothpaste rather than swallow it, just like the girl in this cartoon is doing.”

**Summary**

*Dr. Lee to Sara:* “Now the dental hygienist will thoroughly clean and polish your teeth. She will also show you the best way to brush, floss, and rinse so that you get your teeth really clean.”

The amount of protective saliva in the mouth decreases at night, which makes brushing well before bed especially important.

**Lesson 4: Cavity Prevention**

*Dr. Lee to Sara:* “Now I am going to teach you how to take care of your teeth. Brush and floss twice a day and after sugary snacks, being careful not to brush too hard. And remember, brushing thoroughly before bedtime is very important.”

*Dr. Lee to Sara’s Parents:* “I recommend that you help Sara avoid frequent sugary snacks, and brush with a fluoride toothpaste, being careful to avoid gingival abrasion, or damaged gums, through over brushing. Expectorate, or spit out, the toothpaste and follow with an antibacterial fluoride rinse.”
Radiographs can be exposed on film or can be taken digitally and then can go into the patients paperless charts. In the U.S., a dental assistant also assists during examinations and procedures according to local regulations.

Lesson 1: Characteristics of Gingivitis
Gingivitis is inflammation of the gingiva surrounding the teeth, with no radiographic evidence of bone loss. It is caused primarily by bacterial plaque.

Probing Nina’s gingivae reveals gingival sulci slightly deeper than normal. The gingivae show signs of inflammation marked by erythema, edema, and bleeding. Looking at the image, each silver or black segment represents 3 millimeters (mm), meaning that this probe is measuring a sulcus depth of 3 mm. If the gingiva was not swollen, the depth would be closer to 2 mm, which is normal. Because of inflammation, the pocket appears deeper than it really is.

Plaque and calculus can extend below the gingival margin into the gingival sulci, causing infection. The radiographs show that Nina’s supporting bony structures are normal.
Dr. Lee to Nina: "Your teeth are healthy and normal. However, you have quite a bit of swelling and redness, called "gingivitis," which is causing your symptoms."

**Lesson 2: Causes of Gingivitis**

*Dr. Lee to Nina: "Gingivitis is caused by buildup of bacterial colonies in your mouth, as illustrated here, which causes mild infection. Part of the body's response to infection is pain and swelling. Recent changes in your hormones from the oral contraceptive may also affect the sensitivity of your gums."*

Studies both *in vitro* and *in vivo* have shown that gingivitis is an inflammatory process caused by poor oral hygiene; gingival abrasion; stress; general illness; uncontrolled diabetes; smoking; or hormonal changes, such as during pregnancy or puberty.

Plaque biofilm formation is the first phase of the process. The microorganisms that form biofilm are almost entirely gram-negative bacteria. Inadequate interdental plaque removal allows a thick layer of bacteria to accumulate.

**Lesson 3: Progression and Prevention**

In some cases, when gingivitis is left untreated, it can lead to a more serious gum disease called periodontitis, which causes tooth loss. The good news is that gingivitis is reversible and preventable when treated with proper oral hygiene and the elimination of risk factors.
This photo gives you an idea of what healthy gingivae will look like before and after treatment.

**Challenge Yourself Quiz**
Add each consumer term next to its corresponding professional term in the table.

<table>
<thead>
<tr>
<th>Professional Term</th>
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<td>Gingiva</td>
<td>Tooth Cleaning</td>
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<tr>
<td>Periodontium</td>
<td>Supportive Structures</td>
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**Case Study 4: Periodontitis**

**Introduction**
My fourth patient today is Martin, a 47-year-old male nonsmoker with a history of gingivitis. He reports a loose tooth, bad breath, and bleeding gingivae. His last visit was several years ago. We will perform an examination and evaluate for treatment and possible referral if appropriate.

**Summary**

*Dr. Lee to Nina:* “Although your teeth are healthy, your gums are inflamed and bleed easily. Today, we are going to treat your gingivitis with a thorough cleaning and have you continue with a program of meticulous oral hygiene at home.”

Because gingivitis is caused by build up of bacterial colonies in your mouth, I recommend twice-daily plaque removal followed by an antibacterial mouth rinse. Our hygienist will demonstrate the proper techniques.

We will also schedule another cleaning for six months from now. There is no evidence your oral contraceptive has any effect on your gingival inflammation. A recent review of the literature strongly supports oral contraceptives no longer place users at any increased risk for gingivitis or periodontitis.

**Dr. Lee to Martin:** “Hi Martin. The last time I saw you, your gums were swollen and painful. Today we will take a careful look at your gums and teeth, and then the dental hygienist will perform a thorough cleaning and review proper oral care with you. The other people with us today are future dentists, who are here to observe.”

Martin receives an updated set of dental radiographs, or x-rays, before the examination.

**Lesson 1: Characteristics of Periodontitis**

*Dr. Lee to Martin:* “Please open wide so we can take a closer look at this loose tooth and the surrounding gum tissue.”

Probing reveals that Martin’s gingival sulci are > 4 mm, compared to his average baseline measurements of 2 mm, indicating periodontal pocketing (periodontal pocket). There is also bleeding, attachment loss, alveolar bone loss, and halitosis.
Periodontitis is usually preceded by gingivitis, except in smokers as an example, where preceding gingivitis may not be evident.

Dr. Lee to Martin: “This brochure is for you to keep, and it illustrates what is happening to your teeth and gums. In a healthy mouth, the supporting bone level is high and the gum pockets are not very deep. There is very little plaque or tartar. Poor oral hygiene habits cause plaque and calculus to accumulate, and the periodontal disease process begins. Bacterial infection causes the gum pockets to become...

Lesson 2: Patient Education

Periodontitis, or periodontal disease, is a form of irreversible gingival disease that affects the tissues and structures surrounding and supporting the teeth, and it requires professional treatment.

Dr. Lee to Martin: “You have some supporting bone loss, which is causing the loose tooth. Your gums are receding, and your gum pockets are deeper than normal. The gingivitis that we saw at your last visit has become a more serious form of gum disease called “periodontitis”.”
People with periodontal disease may be treated by dentists specializing in Periodontics. There are many other specialties in dentistry, such as: Endodontics, Orthodontics, Oral and Maxillofacial Surgery, and Prosthodontics. Children may be seen by a dentist practicing Pedodontics.

**Dr. Lee to Martin:** “Let’s review the nonsurgical treatment options for periodontitis.”

Nonsurgical treatments are minimally invasive and generally effective for controlling periodontal disease.

Scaling removes calculus and plaque attached to the tooth surfaces below the gingival margin on the root surface. Periodontal scaling is usually performed one quadrant at a time.

Root planing smoothes out irregularities on the cementum that attract plaque and removes any remaining calculus left after scaling.

For some patients, a local anesthetic (anesthesia) may be needed to numb the area receiving treatment. Local antimicrobial agents may be used as an adjunct to scaling and planing.

After nonsurgical treatment, most patients do not require additional procedures as long as periodontal health is maintained with a program of regular oral hygiene.
Lesson 5: Repair

Dr. Lee to Martin: “The appearance of longer teeth caused by some surgical periodontal therapies and also the replacement of lost teeth can be handled using several treatment options.”

Cosmetic restoration improves the esthetic appearance of damaged teeth, and veneers are one example. Other restorations (restoration) include crown and bridge, dental implants (implant), or dentures and partials.

A crown restoration restores a damaged tooth back to the original form and function, while a bridge replaces one or more teeth. These restorations are cemented onto the teeth and are referred to as “fixed” dentistry.

An implant is an artificial tooth root placed into the jaw bone that holds a replacement tooth or bridge. This procedure works only if there is adequate amounts of healthy bone.

Dentures are removable, artificial sets of teeth in plastic frameworks that rest directly on the gingiva. Partially are used when several teeth are missing and the remaining teeth are not strong enough to support a bridge.

Dr. Lee to Martin: “Surgical treatments are more invasive and generally used only when nonsurgical methods are insufficient, typically when periodontal disease is more advanced.”

Let’s review the four most common surgical procedures for periodontitis:

1. Pocket reduction procedures involve folding back the gum tissue and removal of the disease-causing bacteria before securing the tissue into place.
2. Regenerative procedures follow pocket reduction and involve membranes, bone grafts, or tissue-stimulating proteins that encourage the body's natural ability to regenerate bone and tissue.
3. Crown lengthening procedures reshape excess gum and bone tissue to expose more of the natural tooth.
4. Soft tissue grafts cover roots or develop gum tissue where missing due to gingival recession. Gum tissue is typically taken from the palate to cover the exposed root.

Dr. Lee to Martin: “When you meet with the Periodontist, she will help you decide which treatment options are right for you.”

Summary

Dr. Lee to Martin: “Individuals with periodontal disease achieve better oral health when a long-term maintenance program is practiced regularly.”

In addition to regular visits to a dentist, several procedures at home augment professional treatment that center around daily mechanical plaque removal. These include tooth brushing, interdental cleaning, antimicrobial oral rinses, and fluoride treatment. Improper interdental cleaning is a major contributor to poor oral health.
Dr. Lee to Martin: “Proper flossing is an essential part of keeping your teeth clean and healthy. I am going to show you the proper technique. When the floss is at the gum line, curve it into an arc around each tooth until there is mild resistance. Gently move the floss over the tooth’s surface and beneath the gum line where plaque collects. Ideally, use a fresh stretch of floss for each tooth.”

Challenge Yourself Quiz
Add each consumer term next to its corresponding professional term in the table.

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<td>Anesthetic</td>
<td>Freezing</td>
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<td>Extraction</td>
<td>Filling</td>
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<td>Crown</td>
<td>Cap</td>
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Case Study 5: Whitening

Introduction
My fifth and final patient today is Mary, a 30-year-old female in for cosmetic tooth whitening. She reports dissatisfaction with tooth color and increasing smile shyness. She does not smoke or take medication and has no history of periodontal disease. She reports drinking coffee daily.

Dr. Lee to Mary: “Hi Mary. I understand that you would like your teeth whitened. I have some future dentists alongside me today, and I hope you don’t mind if they observe. We’re going to take a closer look at your mouth and then review the whitening options.”

Because Mary was in last month for a routine examination and cleaning, we will not perform those today.

Lesson 1: Anatomy of Tooth Color

Dr. Lee to Mary: “Please open wide so I can have a good look at the enamel on your teeth.”

Tooth enamel is the hardest substance in body. About 95% of enamel consists of calcium phosphate molecules that pack together forming highly organized apatite crystals. Apatite crystals can be hydroxyapatite, which has an attached oxygen and hydrogen group, or fluorapatite, which has a fluoride ion attached to the calcium phosphate molecule. Fluorapatite forms a stronger crystalline lattice than hydroxyapatite that is more resistant to acid attack.

This tightly packed mass of crystals forms an enamel rod, which is the basic functional unit of enamel. Enamel rods are found in rows, and
within each row, the long axis of the enamel rod is perpendicular to the underlying dentin and pulp. The greatest thickness of enamel is at the crown, or biting surface.

*Dr. Lee to Mary:* “Your enamel appears thick and well-mineralized. You must be using fluoridated oral hygiene products.”

Natural tooth color comes from enamel, which is semi-translucent, and dentin, which ranges from yellowish white to grayish white.

*Dr. Lee to Mary:* “Flash us a smile again so we can look the thickness of your enamel on different types of teeth.”

The thickness of healthy enamel varies by tooth. Enamel is thinnest on incisors (about 2 mm) and thickest on molars (2.5 to 3 mm).

Dentin is also a major contributor to overall tooth color. Genetically determined, dentin color ranges from yellowish white to grayish white.

Dentin is the largest tooth structure. It is calcified with tubules filled with plasma-like fluid, as shown here. As a living tissue, dentin conducts thermal sensitivity and pain from enamel to the nerve root, resulting in hypersensitivity when exposed through decay.

**Lesson 2: Changes in Tooth Color**

Intrinsic stains cause color changes within the tooth. These include staining from aging, oral disease, trauma, medications, and systemic conditions.

As teeth grow older, the pulp shrinks and dentin becomes thicker, which can cause teeth to look more yellow. Oral diseases, such as exposed root surfaces from gingival recession or restorations, also affect tooth color.

During trauma, vital pulp can die. If trauma does not destroy the tooth, bleeding into tooth structures can occur, causing darkening over time. Enamel defects can result from trauma during tooth formation or inherited dental disorders, such as amelogenesis imperfecta.

Medications taken during tooth formation can result in enamel defects. A common culprit is the antibiotic tetracycline. Fluorosis, or excess fluoride consumption, can also cause mottled and spotted teeth, as shown here.

*Dr. Lee to Mary:* “In-office whitening can effectively treat both intrinsic and extrinsic stains (extrinsic stain).”

Enamel color is also affected by extrinsic, or external, factors. Extrinsic stains on the tooth’s surface can penetrate into the enamel matrix. Superficial stains are caused most commonly by several extrinsic factors, including coffee, tea, red wine, tobacco, and chromogenic, or color-producing, bacteria.

*Dr. Lee to Mary:* “Your teeth have superficial stains. The tooth whitening procedures available to you will remove the stains on your teeth, leaving them potentially up to five to ten shades whiter. However, we don’t know exactly how your teeth will respond to treatment. These before and after photos will give you a better idea of the results that you might expect today. Because you are a coffee drinker, you should be aware that whitening will not prevent future staining.”

**Lesson 3: Tooth Whitening**

*Dr. Lee to Mary:* “There is a spectrum of options for extrinsic stain removal that range from short-
Continuing a regular program of proper oral hygiene will help to maintain the result.

Challenge Yourself Quiz
Add each consumer term next to its corresponding professional term in the table.

<table>
<thead>
<tr>
<th>Professional Term</th>
<th>Consumer Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halitosis</td>
<td>Cavities</td>
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<tr>
<td>Xerostomia</td>
<td>Dry Mouth</td>
</tr>
<tr>
<td>Caries</td>
<td>Bad Breath</td>
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Glossary

Amalgam
*Lay term:* Silver filling
*Definition:* An alloy of metals which includes mercury; generally used to “fill” cavities.
*Usage:* Amalgam can be used to fill cavities in the back teeth.

Anesthesia
*Definition:* The loss of sensation, especially loss of tactile sensitivity with or without loss of consciousness.
*Usage:* An injectable local anesthetic may be administered to patients who are undergoing treatment, such as filling cavities, preparing teeth for crowns, or treating periodontal disease, to reduce the sensation of pain.

Anterior Teeth
*Lay term:* Front teeth
*Definition:* The six front teeth of either arch; the central and lateral incisors and the cuspids.
*Usage:* When brushing behind the lower anterior teeth, using the toe or tip of the toothbrush allows better access than using the whole brush.

Baseline
*Definition:* Values at the beginning of a study before any treatment has started.
*Usage:* The ADA acceptance program calls for the clinical efficacy data for a powered toothbrush to show a 15% statistically significant reduction versus baseline in gingivitis as well as a statistically significant reduction in plaque.

Bicuspid
*Alternate term:* Premolar
*Definition:* A tooth having two cusps or rounded parts.

to long-term, and from low to high efficacy. Some of these you can perform at home, while others are performed here in the office.”

You can remove surface stains with a toothbrush and whitening toothpaste and/or dental prophylaxis. You can further lighten your tooth enamel color by chemical tooth bleaching using gel trays. This can be done at home over a series of weeks to months. You can also use whitening strips at home, which typically require less time than gel trays.

The short-term option is an in-office whitening procedure that takes about an hour. You've indicated that you would like the in-office whitening, and we will do that today.

Summary
*Dr. Lee to Mary:* “Give us a big smile and show us those pearly whites. Wow! I think you are going to be pleased with the results. The whitening procedure lightened your teeth by six shades.”

Hypersensitivity of the teeth and gingivae are common side effects of teeth bleaching. Using a dentifrice for sensitive teeth relieves the symptoms, which subside in three to five days.
Usage: Plaque can accumulate between the two points on a bicuspid tooth.

Bleaching
Alternate term: Tooth whitening
Definition: A process in which tooth-bleaching chemicals are applied to the surface of the teeth resulting in a lighter tooth color.
Usage: Bleaching may whiten teeth, but it does not prevent future staining.

Bridge
Definition: A fixed replacement for missing teeth comprised of a false tooth or teeth in between two crowns.
Usage: Natural teeth or implants support a dental bridge.

Buccal
Alternate term: Facial
Definition: The outer surfaces of premolars and molars (posterior teeth) facing towards the cheek; pertaining to the cheeks.
Usage: The buccal surfaces of the premolars and molars are closest to the cheeks.

Calculus
Lay term: Tartar
Definition: Hard, calcium-like deposits which form on the teeth.
Usage: Supragingival calculus accumulates most easily on the lingual surface of the lower anterior teeth.

Canines
Alternate term: Cuspids
Lay term: Eye teeth
Definition: Sharp, pointed, tearing teeth. There are two located in each jaw.
Usage: Maxillary canines have the longest roots of any teeth.

Caries
Lay term: Cavity or cavities
Definition: Dental disease that refers to tooth decay.
Usage: Strategies to reverse or arrest caries include fluoridated dentifrices, mouthwashes, and remineralization agents.

Caries
Lay term: Cavity
Definition: An area of demineralized or decalcified enamel.
Usage: Dentists use radiographs and visual-tactile inspection to detect carious lesions.

Cementum
Definition: Thin, calcified bone-like tissue covering the root of the tooth and providing an attachment for periodontal fibers within the periodontal ligament.
Usage: Cigarette smoking has been shown to reduce cementum formation and impair the self-healing capacity of periodontal tissues. Additionally, it is important to note that cementum is a softer material than enamel and can be more susceptible to decay.

Central Incisors
Lay term: Two front teeth
Definition: First teeth in the front center of the mouth with flat edges for biting.
Usage: Adults typically have two maxillary central incisors and two mandibular central incisors.

Composite
Lay terms: White filling, tooth-colored filling, bonding
Definition: A tooth-colored filling, usually made of resins and other filler materials, used mostly as a substitute for amalgam that is either cured with light or self-cures chemically.
Usage: Composites are made to match natural tooth color.

Contact Point
Definition: The small area where the proximal surfaces of two adjacent teeth touch each other.
Usage: A small amount of pressure or a slight back-and-forth motion can help guide dental floss through the contact point.

Cosmetic Restoration
Alternate term: Esthetic restoration
Definition: A composite, crown, veneer, or other treatment that improves the appearance of a patient’s teeth.
Usage: Cosmetic restorations may improve self-esteem and body image.

Crown
Lay term: Tooth
**Definition:** The visible, external portion of the tooth above the gum line that is either natural or artificial.

**Usage:** A porcelain crown may be placed when a tooth’s natural crown has decayed.

**Crown Restoration**

**Lay term:** Cap

**Definition:** An artificial replacement that restores missing tooth structure by surrounding part or all of the remaining structure with a material, such as metal, porcelain, or a combination of materials.

**Usage:** The materials used for optimal crown restoration depend on how the natural crown was fractured.

**Cusps**

**Definition:** The "hills" on the occlusal surface of posterior teeth.

**Usage:** Because the cusps on human teeth are areas of thickened biting and grinding forces to food, plaque easily accumulates on the occlusal surface.

**Deciduous Dentition**

**Alternate term:** Primary teeth

**Lay term:** Baby teeth

**Definition:** The 20 teeth that erupt from the age of six months and are gradually replaced by the permanent dentition of the adult.

**Usage:** Because the deciduous dentition hold the spaces for the permanent successors, children should receive a program of regular oral hygiene to maintain these teeth.

**Deminerelization**

**Alternate term:** Decalcification

**Definition:** Loss of minerals from the tooth.

**Usage:** Dental caries begin when acids produced by bacteria erode the enamel surface resulting in demineralization.

**Dental Assistant**

**Definition:** Professional trained to support in the clinical practice of dentistry, including basic tray setups, mixing common dental materials, maintaining dental equipment, exposing and processing dental x-ray film, cleaning instruments, taking dental impressions, and educating patients in proper oral hygiene.

**Usage:** Dental assistants have administrative, chairside, and laboratory skills.

**Dental Hygienist**

**Definition:** Professional trained and licensed to provide preventive dental services, such as cleanings, radiographs, sealants, scalings, and root planings, usually with a dentist’s supervision.

**Usage:** A dental hygienist is a licensed dental care professional with formal education who specializes in preventive care.

**Dentin**

**Alternate term:** Dentine (outside the U.S.)

**Definition:** Sensitive, calcified tissue which forms the bulk of tooth structure and surrounds the pulp.

**Usage:** Dentin is composed of tubules that act as portals for sensitivity stimuli such as cold or hot temperatures.

**Dentifrice**

**Lay term:** Toothpaste

**Definition:** Paste or powder for teeth containing cleaning and polishing agents.

**Usage:** Fluoridated dentifrice has been shown to clinically reverse caries.

**Dentures**

**Definition:** Partial or full dentures consist of artificial teeth attached to a gum-colored plastic base.

**Usage:** Full dentures can be fixed via implants, or completely removable from the mouth to replace an entire arch of teeth.

**Distal**

**Definition:** The tooth surface away from the midline, towards the back of the mouth.

**Usage:** The premolars are distal to the canines.

**Embrasure**

**Definition:** The V-shaped, or triangular, space between two teeth created by the sloping away of the mesial and distal surfaces.

**Usage:** Open gingival embrasures are common in adults who have undergone orthodontic treatment.

**Enamel**

**Definition:** The hard, white, compact material that covers the outside of the crown of the tooth.

**Usage:** Enamel is the hardest substance in the human body, forms the outermost layer of a tooth’s crown, and protects the underlying dentin.
Endodontics  
*Definition:* Branch of dentistry concerned with the etiology, diagnosis, and treatment of diseases of the dental pulp and their sequelae.  
*Usage:* Endodontists primarily perform root canals.

Eruption  
*Definition:* The act of breaking out or appearing.  
*Usage:* Impaction is an unerupted or partially erupted tooth that does not fully emerge because it is blocked by another tooth, bone, or soft tissue.

Expectorate  
*Lay term:* Spit  
*Definition:* Spit something out of your mouth.  
*Usage:* Fluoride ingestion from toothpaste is reduced by rinsing or expectorating during toothbrushing.

Extrinsic Stain  
*Definition:* Stain on the surface of the tooth which is removable.  
*Usage:* Extrinsic stains can be caused by drinking coffee, tea, soda, and smoking.

Facial  
*Definition:* The surface of the tooth nearest the lips and cheeks; pertaining to the face.  
*Usage:* Probing the facial regions of the teeth is part of periodontal screening and recording.

Fissure  
*Definition:* A groove or trough in the enamel of the tooth that is most prominent on the occlusal (biting) surfaces of molars.  
*Usage:* Pit and fissure caries are common in early childhood.

Fluorapatite  
*Alternate term:* Fluoroapatite  
*Definition:* A type of apatite crystal with a fluoride ion attached to the calcium phosphate molecule.  
*Usage:* Fluorapatite forms a stronger crystalline lattice than hydroxyapatite, making teeth more resistant to decay.

Fluoridation  
*Definition:* Adjustment of the level of fluoride in a public water supply so that the community receives the maximum benefit without side effects.  
*Usage:* Because water fluoridation has the advantages of equity, distribution, compliance, and cost-effectiveness over other fluoride-delivering methods, it remains the fundamental base for caries prevention in many communities.

Fluoride  
*Definition:* A naturally occurring inorganic ion of fluorine which renders teeth less susceptible to dental decay that is most effective in children and younger adults. It is also used in older adults to prevent root caries.  
*Usage:* Fluoride may be added to dentifrice, mouth rinses, and water supplies where it does not occur naturally, and applied topically by dentists.

Fluorosis  
*Alternate term:* Enamel hypoplasia  
*Lay term:* Mottled teeth  
*Definition:* Condition of the teeth that occurs when a person has ingested too much fluoride over a period of time giving the appearance of chalky white spots or as severe brown staining with pitting.  
*Usage:* Fluorosis can only occur while teeth are still developing.

General Dentistry  
*Definition:* Branch of dentistry that treats all forms of dental ailments to some degree without specialization in one particular branch.  
*Usage:* General Dentists are practitioners of dentistry who are primary dental care providers for patients of all ages.

Gingiva  
*Lay term:* Gums  
*Alternate term:* Gingival tissue. The plural for gingiva is gingivae.  
*Definition:* The fibrous, fleshy structure covering the jawbone which, when healthy, is salmon or coral-pink color.  
*Usage:* Infection in the gingiva increases blood flow, creating swelling and discomfort.

Gingival Abrasion  
*Definition:* Grazing or scratching of the gingiva, which may result from the action of aggressive toothbrushing or eating hard, crusty foods.  
*Usage:* Brushing with too much pressure over time can cause gingival abrasion.
Gingival Margin
Definition: Part of the gingiva surrounding the tooth and nearest to its crown.
Usage: The toothbrush head should be placed at about a 45-degree angle tilted toward the gingival margin, where plaque tends to accumulate.

Gingival Recession
Lay term: Receding gums
Definition: Describes the gingival margin if it migrates towards the apex of the tooth and can be measured as the distance between the cemento-enamel junction and the gingival margin.
Usage: One cause of gingival recession is brushing too hard or incorrectly over a period of time.

Gingival Sulcus
Alternate term: Gingival pocket; gingival crevice
Lay term: Gum pocket
Definition: A shallow depression between the gingival crest and the neck of the tooth.
Usage: In a healthy state, the gingival sulcus may be up to 2 mm in depth, but this deepens in periodontal disease to form a periodontal pocket.

Gingivitis
Alternate term: Gingival inflammation
Lay term: Swollen gums
Definition: Inflammation of the gums characterized by a swollen and inflamed appearance. Gums exhibiting gingivitis will be tender and will easily bleed, especially upon probing.
Usage: Gingivitis may be reversed by good oral hygiene (toothbrushing, flossing, regular cleanings) and sometimes by the use of an antibacterial mouthwash.

Halitosis
Lay term: Bad breath
Definition: "Bad breath" caused by the bacterial decomposition of leftover food particles around the teeth, tooth decay, periodontal disease, bacterial buildup associated with a dry mouth, or a medical condition.
Usage: Halitosis can negatively affect social relationships and, when untreated, may lower quality of life.

Hydroxyapatite
Definition: The principal mineral component of teeth, bones, and calculus.
Usage: Hydroxyapatite crystals are the natural and dominant form of tooth enamel produced by humans and other mammals.

Hypersensitivity
Definition: A sharp, sudden painful reaction when teeth are exposed to hot, cold, chemical, or mechanical stimuli.
Usage: Dentifrice containing desensitizing agents, such as potassium nitrate or stannous fluoride, may reduce pain associated with hypersensitivity.

Implant
Definition: An artificial post or splint that is surgically placed in the jawbone to be used as an anchor for replacement crown and bridge or dentures.
Usage: Dental implants are used to restore lost or missing teeth due to trauma or periodontal disease.

Incisal
Definition: The biting or cutting edge of the anterior teeth.
Usage: The incisors and canines have an incisal edge instead of an occlusal surface.

Incisors
Definition: The front cutting teeth, of which there are four in each jaw (maxilla and mandible): two central and two lateral.
Usage: Incisors are teeth with straight, cutting edges whose function is to bite and shear food, articulate speech, and support the lips.

Interdental Papilla
Alternate term: Gingival pocket; gingival crevice
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Hydroxyapatite
Definition: The principal mineral component of teeth, bones, and calculus.
**Usage:** Microabrasion has been shown to remove intrinsic stains caused by fluorosis.

**In vitro Study**

*Alternate term: Laboratory study*

*Definition:* A study carried out without human subjects, typically a laboratory study.

*Usage:* The results of an in vitro study of dental erosion progression in extracted healthy deciduous teeth showed that acid softens enamel.

**In vivo Study**

*Alternate term: Clinical study*

*Definition:* A study carried out with human subjects.

*Usage:* The results of an in vivo study of dental erosion progression in healthy children demonstrated that high intake of acidic or sugary drinks and frequent medications are associated with severe dental erosion.

**Labial**

*Alternate term: Facial*

*Definition:* The surface of an anterior tooth nearest the lips; pertaining to the lips. This term should only be used when referring to anterior teeth.

*Usage:* The labial surfaces of the central incisors, lateral incisors, and canines are closest to the lips.

**Lateral Incisor**

*Definition:* A front tooth located just distal, or to the outside, of the central incisor.

*Usage:* Congenitally missing lateral incisors is a common dental condition that may be treated with implants.

**Lingual**

*Alternate term: Palatal surface (maxilla)*

*Definition:* The surface of any tooth nearest the tongue; pertaining to the tongue.

*Usage:* Supragingival calculus accumulates most easily on the lingual surfaces of teeth.

**Mandible**

*Alternate term: Mandibular arch*

*Lay terms:* Bottom or lower jaw

*Definition:* The movable lower jaw.

*Usage:* The mandible is a common site for fractures due to accidents, assaults, or disease.

**Mandibular Teeth**

*Lay terms:* Bottom or lower teeth

*Definition:* The teeth in the mandible.

*Usage:* Mandibular teeth crowding is related to arch and crown dimensions.

**Maxilla**

*Alternate term: Maxillary arch*

*Lay terms:* Top or upper jaw

*Definition:* The fixed upper jaw.

*Usage:* Standard treatment for patients with facial clefts is bone grafting in the dental ridge of the maxilla.

**Maxillary Teeth**

*Lay terms:* Top or upper teeth

*Definition:* The teeth in the maxilla.

*Usage:* Posterior maxillary teeth roots can be located in the sinuses and may cause sinus headaches.

**Mechanical Plaque Removal**

*Definition:* The process of rubbing something, like a toothbrush or floss, directly on the tooth surface.

*Usage:* A toothbrush mechanically removes plaque when the bristles of the brush move along the surface of the tooth.

**Mesial**

*Definition:* The tooth surface toward the midline.

*Usage:* The cuspid is mesial to the bicuspid.

**Midline**

*Alternate term: Dental midline*

*Definition:* An imaginary line that divides the head and dental arches into two halves.

*Usage:* A symmetric midline position is an important diagnostic feature in orthodontic treatment planning.

**Molars**

*Definition:* The grinding teeth, of which there are typically six in each jaw, located in the posterior mouth with four cusps.

*Usage:* Preformed metal crowns are one treatment option for restoring severely decayed primary molar teeth in children.

**Neutral Sodium Fluoride**

*Alternate term: NaF*

*Definition:* A pH-neutral salt of sodium and fluoride that reduces demineralization and promotes remineralization.

*Usage:* Neutral sodium fluoride is the remineralizing agent of choice for most patients.
with esthetic restorations, reduced salivary flow, and who cannot tolerate acidic fluorides.

**Occlusal**  
*Definition:* The chewing surface of posterior teeth.  
*Usage:* The molars have the largest occlusal surfaces of all the teeth.

**Oclusion**  
* Lay term:* Bite  
*Definition:* The contact between the maxillary and mandibular teeth in all mandibular positions and movements.  
*Usage:* Teeth grinding is a common sign of problems with occlusion.

**Oral and Maxillofacial Surgery**  
*Alternate term:* OMS  
*Definition:* Branch of dentistry that deals with conditions, defects, injuries, and esthetics pertaining to the mouth, teeth, jaws, and face.  
*Usage:* Problematic wisdom teeth, facial pain, and misaligned jaws are common conditions treated by oral and maxillofacial surgeons.

**Oral Irrigation**  
*Definition:* Targeted delivery of water or solution to specific locations within the mouth.  
*Usage:* For orthodontic patients, oral irrigation is an effective method of removing plaque and reducing gingivitis.

**Orthodontics**  
*Definition:* Branch of dentistry that deals with the movement of tooth structure within the jaw bones and growth of the jaw structure itself.  
*Usage:* A dentist who specializes in orthodontics is called an Orthodontist.

**Partials**  
*Definition:* A partial set of artificial teeth either fixed (permanently attached) or removable for either the upper or lower jaw.  
*Usage:* Partials are attached to the mouth via clasps that attach to the remaining natural teeth.

**Pedodontics**  
*Definition:* The practice, teaching of, and research in comprehensive, preventive, and therapeutic oral health care of children from birth through adolescence.  
*Usage:* A dentist who specializes in pedodontics is called a Pediatric Dentist.

**Periodontal Disease**  
* Lay term:* Gum disease  
*Definition:* Inflammatory and degenerative disease of the supporting structures of the teeth.  
*Usage:* If untreated, infection present in periodontal disease spreads to the periodontal ligament and the alveolar bone, causing the teeth to become loose and eventually nonfunctional.

**Periodontal Ligament**  
*Alternate term:* Periodontal membrane  
*Definition:* Fibrous connective tissue that attaches the cementum of the tooth root to the alveolar bone of the jaw.  
*Usage:* The periodontal ligament feels and sends pressure information to the brain, which is used to coordinate chewing.

**Periodontal Pocket**  
* Lay term:* Gum pocket  
*Alternate term:* Gingival pocket  
*Definition:* A deepening of the gingival sulcus which occurs in response to periodontal disease.  
*Usage:* Periodontal pockets may reach as much as 10mm in depth.

**Periodontics**  
*Definition:* Branch of dentistry that deals with the diagnosis and treatment of diseases and conditions of the supporting and surrounding tissues of the teeth or their implanted substitutes.  
*Usage:* A dentist who specializes in periodontics is called a Periodontist.

**Periodontitis**  
*Definition:* Inflammation of the periodontium affecting the periodontal ligament, cementum, and supporting bone.  
*Usage:* If untreated, gingivitis can progress to a more serious form of disease called periodontitis.

**Periodontium**  
*Definition:* Collective term for four supporting tissues surrounding a tooth, including the gingiva, cementum, alveolar bone, and periodontal ligament.  
*Usage:* The periodontium is the functional unit of tissues that surrounds and supports the tooth.
Permanent Dentition
Alternate term: Secondary dentition
Definition: The 32 teeth present in an adult mouth.
Usage: If untreated, teeth crowding in primary dentition is often retained in permanent dentition.

Plaque
Alternate term: Dental plaque or plaque biofilm
Definition: A sticky, whitish deposit or film (consisting of approximately 70% micro-organisms) which forms on the surface of teeth, both supragingivally and subgingivally.
Usage: The bacteria in plaque are responsible for causing both dental decay (caries) and periodontal disease.

Plaque Biofilm
Definition: Nonmineralized mass of over 700 species of bacteria in a gel matrix that adheres to teeth and soft tissues within the oral cavity.
Usage: Plaque biofilm is a soft, dense mass of microbial colonies attached to teeth that must be removed regularly, using mechanical plaque removal to prevent dental caries.

Posterior Teeth
Alternate term: Back teeth
Definition: The teeth situated behind the anterior teeth.
Usage: Posterior teeth include the premolars and molars.

Premolar
Alternate term: Bicuspis
Definition: Tooth that has both a cutting and grinding function.
Usage: Typically, there are four premolars in each jaw, located in front of the molars and behind the canines.

Probing
Definition: The process of measuring the depth of periodontal pockets using a blunt-ended graduated probe.
Usage: Periodontal probing is an essential tool for diagnosing gingival disease.

Prophylaxis
Alternate term: Prophy
Lay term: Cleaning
Definition: Cleaning by a dental professional that includes removal of plaque, calculus, and stains and polishing of the teeth.
Usage: A dental prophylaxis is performed to clean the teeth as well as evaluate the oral cavity for other problems.

Prosthodontics
Alternate term: Prosthetics
Definition: Branch of dental science that deals with the artificial replacement of missing teeth by means of a denture, crown, or bridge.
Usage: A dentist who specializes in prosthetics is called a Prosthodontist.

Proximal
Definition: Tooth surfaces that are close together.
Usage: The mesial surface of one tooth may touch the distal surface of the adjacent tooth, and if so, they are described as proximal surfaces.

Pulp
Lay term: Nerve
Definition: The soft mass of tissue in the center of the tooth containing nerves and blood vessels, which is surrounded by dentin.
Usage: When the pulp is traumatized, it can cause a tooth to darken in color.

Quadrants
Definition: The four areas created when one imaginary line ("midline") is drawn between the two central incisors of both arches and separates the left and right sides of each arch and a second line is drawn from cheek to cheek.
Usage: Periodontal scaling is usually performed one quadrant at a time.

Radiograph
Alternate term: X-ray
Definition: Image produced on a radiosensitive surface that displays teeth and surrounding tissues. A full mouth series can include 14 periapicals and four bitewings.
Usage: Dental radiographs are taken routinely every two to three years to detect cavities, monitor bone and nerve health, and assess existing dental work.

Remineralization
Definition: The deposition of minerals into previously damaged areas of the tooth. This is a dynamic process that results in reduced enamel solubility.
Usage: Remineralization reverses the caries process.
Restoration
*Definition:* A general term applied to any filling, inlay, onlay, crown, bridge, partial denture, or complete denture that replaces loss of tooth structures, teeth, or oral tissues.
*Usage:* Direct restorations refer to a filling placed into a prepared cavity, and indirect restorations are custom-made fillings created in a dental laboratory according to a prescription.

Root
*Definition:* Lower two-thirds of the tooth below the crown covered by cementum.
*Usage:* Maxillary molars have three roots, while mandibular molars have two roots.

Root Canal
*Definition:* Pulp-filled channel in a tooth’s root.
*Usage:* A “root canal” is a common reference to a procedure performed by Endodontists to treat diseased pulp in the root canal.

Root Planing
*Definition:* Periodontal procedure that smoothes out irregularities on the cementum that attract plaque and removes any remaining calculus left after scaling.
*Usage:* Root planing is a nonsurgical procedure used in conjunction with scaling to remove calculus below the gum line.

Saliva
*Lay term:* Spit
*Definition:* Watery mixture of secretions from the salivary and oral mucous glands that lubricates chewed food, moistens the oral walls, assists with digestion of carbohydrates, neutralizes acids, and assists with remineralization of teeth.
*Usage:* Chemicals in tobacco smoke turn healthy saliva into a damaging agent that can accelerate mouth cancer.

Scaling
*Definition:* Periodontal procedure that removes calculus and plaque attached to the tooth below the gingival margin on the root surface.
*Usage:* Scaling is a nonsurgical procedure used in conjunction with root planing to treat periodontal disease.

Stannous Fluoride
*Alternate term:* SnF$_2$
*Definition:* Agent of choice for patients when both caries control and plaque reduction are primary objectives, including some orthodontic and periodontal patients.
*Usage:* Stannous fluoride is clinically proven to reduce caries with a recommended brush on or custom tray application following regular dentifrice at bedtime.

Subgingival
*Definition:* Below the gingival margin.
*Usage:* Not all subgingival bacteria are pathogenic.

Subgingival Plaque
*Definition:* Plaque below the gum line.
*Usage:* Subgingival plaque removal is essential for controlling inflammatory periodontal disease.

Supragingival
*Definition:* Above the gingival margin.
*Usage:* Supragingival calculus is prevalent in people of all ages, from adolescence to old age, but is more severe in smokers.

Supragingival Plaque
*Definition:* Plaque above the gum line.
*Usage:* In studies of supragingival plaque removal, the manual toothbrush is considered the gold standard against which new technologies are compared.

Third Molars
*Lay term:* Wisdom teeth
*Definition:* The third molars are located at the very back of the mouth, one in each quadrant.
*Usage:* The mandibular third molars exhibit the highest rate of impaction.

Veneers
*Definition:* Considered a cosmetic or esthetic restoration whereby porcelain “facings” are cemented to the labial portion of the tooth, usually to improve esthetics.
*Usage:* Porcelain veneers are wafer-thin, tooth-colored coverings that are placed on the front side of teeth.

Xerostomia
*Definition:* Dry mouth caused by certain drugs, head and neck radiation, and some systemic diseases.
*Usage:* Because patients with xerostomia have reduced levels of protective saliva, dry mouth can lead to an increase in dental caries.
Course Test Preview
To receive Continuing Education credit for this course, you must complete the online test. Please go to:

1. Amalgam fillings are made to match natural tooth color.
   a. True
   b. False

2. Primary dentition consists of 32 teeth.
   a. True
   b. False

3. Pulp contains a tooth's nerves and blood vessels.
   a. True
   b. False

4. Bacteria in plaque create acid from sugar that causes tooth decay.
   a. True
   b. False

5. Tartar tends to accumulate more easily on the lingual surface of teeth.
   a. True
   b. False

6. Tooth enamel is the hardest substance in the body.
   a. True
   b. False

7. Bleaching only changes the color of dentin, it does not change the color of enamel.
   a. True
   b. False

8. Which form of tooth enamel is most resistant to acid attack?
   a. Apatite
   b. Hydroxyapatite
   c. Fluorapatite
   d. Crystalline lattice

9. Which teeth are used for grinding?
   a. Canines
   b. Molars
   c. Bicuspid
   d. Incisors

10. Which is a function of cementum?
    a. Surrounds pulp
    b. Provides attachment point for periodontal ligament
    c. Covers the crown
    d. Provides nourishment and innervation
11. Which supporting structure is not part of the periodontium?
   a. Crown
   b. Gingiva
   c. Cementum
   d. Alveolar bone

12. Which area of the gingiva is probed for pocketing?
   a. Margin
   b. Recession
   c. Papilla
   d. Sulcus

13. What is plaque?
   a. Supragingival tooth decay
   b. Subgingival periodontal disease
   c. Sticky, whitish, superficial film
   d. Watery mixture of secretions from mucous glands

14. Plaque can harden into which substance?
   a. Embrasure
   b. Fissure
   c. Matrix
   d. Calculus

15. What is the correct term for an artificial post or splint that is surgically placed in the jawbone?
   a. Composite
   b. Crown
   c. Veneer
   d. Implant

16. Which are clinical signs of gingivitis?
   a. Radiographic evidence of bone loss, inflammation, sulcus depth 3mm
   b. No radiographic evidence of bone loss but visible evidence of inflammation and slight secular depth
   c. Radiographic evidence of bone loss, bleeding, sulcus depth >4mm
   d. No radiographic evidence of bone loss.

17. Extracted teeth are brushed in a laboratory. Which type of research study is this?
   a. In vivo
   b. In vitro
   c. Retrospective
   d. Prospective

18. The effects of two types of toothbrushes are compared in healthy mouths. Which type of research study is this?
   a. In vivo
   b. In vitro
   c. Retrospective
   d. Prospective
19. **Which clinical signs are associated with periodontitis?**  
   a. Bleeding, sulci <2mm, halitosis  
   b. Painful gums, bleeding, sulci <3mm  
   c. Bleeding, attachment loss, sulci >4mm  
   d. Bleeding, sulci <4mm

20. **Starting anterior and moving posterior, which order of teeth is correct?**  
   a. Molar, premolar, bicuspid, canine  
   b. Third molar, premolar, cuspid, central incisor  
   c. Central incisor, bicuspid, canine, molar, third molar  
   d. Incisor, canine, bicuspid, molar

21. **Primary dentition does not typically develop which type of tooth?**  
   a. Molar  
   b. Bicuspid  
   c. Cuspid  
   d. Lateral incisor

22. **Which tooth surface is closest to the midline?**  
   a. Mesial  
   b. Labial  
   c. Proximal  
   d. Buccal

23. **Which tooth surface of the anterior teeth is nearest the lips?**  
   a. Mesial  
   b. Labial  
   c. Proximal  
   d. Buccal

24. **Which tooth surface of the posterior teeth is closest to the cheek?**  
   a. Mesial  
   b. Labial  
   c. Proximal  
   d. Buccal

25. **Flossing helps to remove plaque in which area?**  
   a. Mesial  
   b. Proximal  
   c. Interproximal  
   d. Crown
References

About the Authors

Nancy Hemingway, RDH, MS
Ms. Hemingway is the Global Training Manager for the Professional Oral Health Division of Procter & Gamble. She is responsible for creating, managing, and implementing a globally consistent curriculum for the Division.

Email: hemingway.n@pg.com

Mary Ann Haisch, RDH, MPA
Mary Ann Haisch is an assistant professor in the School of Dentistry at Oregon Health & Science University. She received her dental hygiene education from Clark College, Vancouver, WA, her Bachelor of Science in Health Education, certification in gerontology and her master in Public Administration from Portland State University. Her areas of interest include the use of technology in dental and dental hygiene education, interactive distant learning, the use of the internet for dental continuing education and is actively involved in the development of faculty tools to incorporate interactive technology in dental and dental hygiene curriculums. She is also involved in the recruitment and retention of dental and dental hygiene students. She is an educational consultant and speaker for Procter & Gamble, has held offices in the American Dental Education Association and is on the editorial board for the Journal of Practical Hygiene.

Presently Ms. Haisch is faculty emeritus in the School of Dentistry and coordinates community outreach activities and continues to see patients.

Email: haischm@ohsu.edu