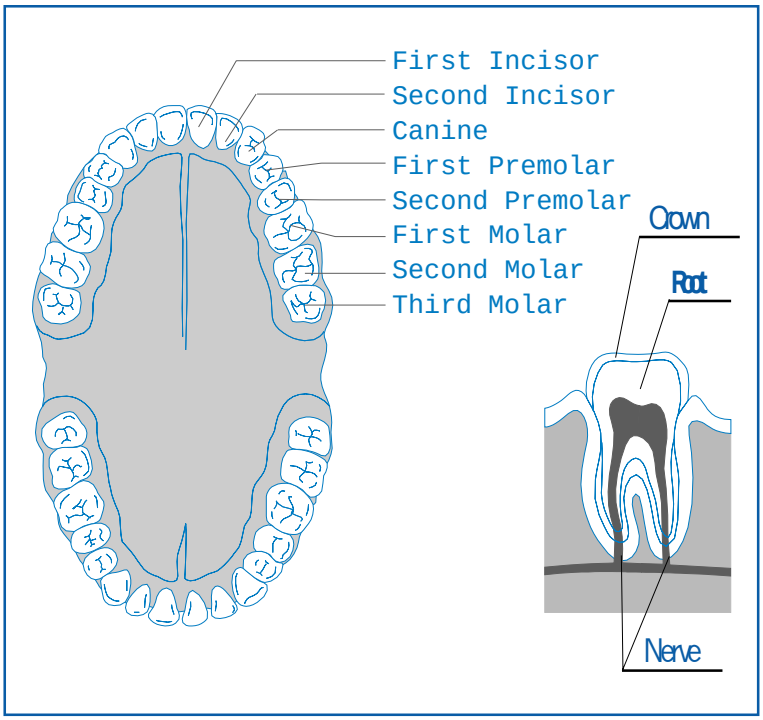
MOUTH AND TEETH

One's self expression is very dependent on healthy teeth — such as smiling, speaking, or singing. The teeth are important to shape the sounds and compliment the appearance. The teeth and chewing are responsible for the first phase of digesting our food. All dental problems and complications can be significantly reduced, or possibly prevented, if self-administered home care, including proper brushing and flossing of the teeth, is done along with routine dental hygiene provided by a dentist.

TOOTH DEVELOPMENT

Although most people are born toothless, a baby's teeth start developing months before birth. They are actually well-advanced by the third month of pregnancy. By the time the baby is born, all 20 of the primary teeth (that will be appearing over the next 2-1/2 years) are already present in the jawbone. Beginning at five or six years of age, these "baby" teeth are gradually replaced by permanent teeth, which should be complete by 14 years of age.



Each tooth is made up of a crown above the gum; two to four roots in the sockets; and a neck stretching between the crown and the root. Each tooth also has an internal chamber filled with pulp tissue composed of blood vessels and nerves that enters the chamber from a small opening at the base of each root. The hard part of the tooth is made up of dentin, enamel, and cementum, a thin layer on the surface of the root. The dentin (sensitive to temperature and touch) makes up the largest part of the tooth and the enamel (no sensation and cannot heal after an injury) covers the part of the tooth that is visible (the crown). The crown extends from just beneath the gum line to the top of the tooth. Below the gum level, the dentin is covered by cementum. A connective tissue (periodontal ligament) connects the cementum to the bone.

DENTISTS AND THEIR SPECIALTIES

Dentistry has seven subspecialities. Other than some dental surgery, which requires general anesthesia in a surgical facility, virtually all dental care occurs in the dental office.

General Dentistry General dentists receive training in all areas of dentistry and are qualified to treat all dental pathology but generally limit the scope of dentistry to professional interests and additional training. The more difficult pathology is usually treated by dental specialists.

Periodontist A periodontist diagnoses and treats diseases of the tissues supporting and surrounding the teeth (gums and bones).

Pediatric Dentist A pediatric dentist specializes in treating children from birth through adolescence.

Orthodontist An orthodontist diagnoses and corrects malpositioning of the teeth and jaws.

Oral and Maxillofacial Surgeon These dentists have advanced training and use surgical techniques to extract teeth. They also are skilled to diagnose and treat injuries of the teeth, jaws, mouth, and face.

Prosthodontist A prosthodontist creates and fits artificial replacements for defective or missing teeth, including crowns, bridges (fixed partial dentures), removable/partial dentures, and whole mouth dentures.

Endodontist An endodontist treats disease of the nerve (pulp) of a tooth and adjacent bone, commonly known as root canal therapy.

DENTAL HEALTH INSURANCE AND BENEFITS

Dental care insurance is available through a variety of plans and may be included or separate from health insurance benefits. Most plan benefits have a specific scope of coverage for dental services and may include variable benefits from 100 percent (less common) or an 80 percent or 50 percent benefit. The cost will vary with the coverage. There also may be deductibles, copayments and yearly maximums for dental services. It is advisable to read the contract or benefit book before committing to expensive dental services.

DENTAL PROBLEMS AND DISORDERS

The most common dental problems are dental caries (tooth decay), periodontal disease, nerve pathology, and tooth loss. Others are less common, such as bacterial-fungal infections, oral cancers, salivary gland problems, malformed/misaligned teeth, and facial trauma.

TOOTH DECAY

Tooth decay is the result of three interacting factors: bacteria, dietary sugar, and vulnerable tooth surface. Bacteria covert some of the sugars and other carbohydrates into acid and form a sticky deposit called dental plaque. Plaque adheres most often on the molars and attaches to enamel of the tooth causing erosion, then cavities. Once the enamel has been penetrated, the softer dentin beneath becomes vulnerable. Most often it affects children and young adults, although it may occur throughout life. It is one of the major causes of tooth loss and in most cases is preventable and can be easily treated if found early.

SIGNS AND SYMPTOMS Pain in the affected tooth, sensitivity to hot, cold, or sweets; but often, no symptoms, so regular checkups are important.

TREATMENT The treatment varies, depending on the time it is discovered. A dentist or dental hygienist can remove the plaque, which takes away the source of the decay (preventive treatment). Most tooth decay is found at a regular dental examination. Early cavities are detected by x-rays. If decay is present, the dentist may remove the decay and fill the hole with a permanent filling or restoration (silver amalgam, gold, plastic resin, or porcelain). If the tooth is extensively damaged, a root canal (removal of the diseased portion of the tooth including part of the root) is done with restoration or placement of a crown. A local anesthetic is used for this procedure.

TOOTH ABSCESS

When an infection invades the pulp and the root of the tooth, it may spread to the surrounding tissue and bone. This is known as an abscess. If the infection reaches the bone, the tooth may loosen and the infected root and tissue cause pain.

SIGNS AND SYMPTOMS A persistent aching or throbbing tooth; sensitivity to hot and cold foods or liquid; pain with chewing; swollen lymph nodes in the neck; fever; general malaise.

TREATMENT Aspirin, ibuprofen (Tylenol, Motrin), or NSAID will help with the discomfort before getting dental treatment. Rinsing the mouth with warm, salted water every hour may be soothing, but is not curative.

DRUG TREATMENT Antibiotics are prescribed to control the infection.

SURGICAL TREATMENT Occasionally, the only treatment is extraction. Many times, however, the dentist can save the tooth. To save the tooth, the dentist may anesthetize the area and then open a hole into the pulp chamber of the tooth. This will release the pressure and the pulp chamber can then be cleaned out, disinfected, and filled.

PERIODONTAL DISEASES

The tissue affected is called the periodontium, which includes the gums, ligaments, and tooth sockets. These structures support the teeth. Periodontal disease results from a combination of bacterial plaque and its long-term effects on the periodontium. The result is weakened tooth support. The two most common forms are gingivitis and periodontitis.

■ GINGIVITIS

This is inflammation of the gums. Most gingivitis is the result of poor dental hygiene and the buildup of plaque on the teeth. It can be prevented with daily brushing and use of dental floss. Once gingivitis occurs, a strict program of oral hygiene is necessary to keep the disease from getting worse.

SIGNS AND SYMPTOMS	Swollen, soft, and sore red gums that bleed easily.
TREATMENT	Professional cleaning of the teeth to remove plaque and tartar should be done. The removal procedure is called scaling and is designed to remove the deposits of bacteria, plaque, and calculus. Antibacterial rinses are also helpful.

■ PERIODONTITIS

If gingivitis goes untreated or the treatment is delayed, periodontitis may develop (also known as pyorrhea). Not only the gums are affected, but also the periodontal ligaments and bone (tooth sockets), which help hold the teeth in place. Acute inflammation and abscess formation may develop. People who grind their teeth are more prone to the problem.

SIGNS AND SYMPTOMS	Swollen or recessed gums; unpleasant taste in the mouth; bad breath; tooth pain, particularly to pressure, when eating hot, cold, or sweet foods; loose teeth.
TREATMENT	Cleaning the root surface of the teeth must be done by a dentist. Thorough brushing and flossing is important. If the condition responds, and good hygiene is continued, surgery may not be necessary. Antibacterial rinses will likely be recommended during and after treatment.
SURGICAL TREATMENT	Surgery, if necessary, is done by using a flap procedure to clean the teeth, remove infected tissue, and reshape the bone. Gingivectomy (gums are trimmed to decrease pocket depth) may be performed under local anesthesia. Gingivoplasty (removal of excessive gum tissue) sometimes is performed to reshape the gums. Occasionally, surgery on the bones to correct anatomic deformities or damage is necessary.

■ TRENCH MOUTH

This is also known as acute necrotizing ulcerative gingivitis and is very painful. Today, trench mouth is very rare. The condition was named when soldiers fought in the trenches in World War I where conditions of poor hygiene and nutrition were rampant. The condition is an infection with the bacteria that normally inhabits the mouth. It is not passed from one person to another and the onset is usually sudden.

SIGNS AND SYMPTOMS	Profuse bleeding at the slightest pressure or irritation. The gums between the teeth (the papillae) are usually damaged, leaving craters that collect plaque and food debris.
TREATMENT	Professional cleaning of the gums is necessary. Irrigation of the mouth with salt water or peroxide solution often helps to relieve symptoms. Rest, a balanced diet, with avoidance of smoking or eating hot and spicy food, is also important.
DRUG TREATMENT	Antibiotics are only used with an associated high fever, however, new antibacterial rinses will likely be prescribed to treat this disease.

DEVELOPMENTAL DISORDERS

Impacted teeth occur with the last emerging teeth (wisdom teeth) in the late teens or early 20s. Occasionally, the wisdom teeth are too large for the jaw and become rotated, displaced, or tilted. This can cause pain at the gums, recurrent infection of a partially buried tooth, bad breath, and an unpleasant taste. While waiting to see the dentist, mild analgesics, such as aspirin, ibuprofen or NSAID may be taken for pain relief. Rinsing the mouth with warm salted water may also relieve the symptoms.

■ MISSHAPEN OR DISCOLORED TEETH

Early childhood illness, trauma, hereditary or environmental factors (excessive fluoride, or the mother taking tetracycline drugs during pregnancy) may cause such abnormalities. They may affect both the primary and secondary teeth. Misshapen teeth are most often caused by infection, high fever, malnutrition during infancy and early childhood, or genetic problems. The misshapen teeth can be treated by adding restorative material or by covering them with crowns.

INFECTIOUS DISEASES OF THE MOUTH

Canker sores or aphthous ulcers are common and annoying infections of the mouth. There may be just one, or clusters on the inside surface of the lips and cheeks. The cause seems to be associated with food allergies, herpes infection, vitamin deficiencies, and stress. In some women, they appear with the onset of menses. They develop quickly and last for 10 to 14 days. If they persist longer than two weeks, consult a doctor or dentist.

■ GINGIVOSTOMATITIS

This is a common viral mouth infection in children that often accompanies an upper respiratory infection, such as a cold or the flu.

SIGNS AND SYMPTOMS Sores on the gums or inside of the cheeks; fever; bad breath; malaise.

TREATMENT Treatment of the underlying disorder will help clear the infection. A medicated oral rinse may help. Good oral hygiene and a nutritious diet of soft foods and plenty of fluids are important. A mouthwash made of one teaspoon of salt in 8 oz. of water, or a commercial mouthwash may be soothing.

■ ORAL THRUSH (YEAST)

Oral thrush is an infection caused by a fungus that is found elsewhere in the body. This fungus is the same microbe responsible for vaginal thrush. The infection is most common in babies or persons with diabetes mellitus, immunodeficiencies (eg, AIDS, or from chemotherapy), or those treated with long-term antibiotics.

SIGNS AND SYMPTOMS Creamy white sores and patches in the mouth and on the tongue.

TREATMENT An antifungal medication is taken orally or used as a rinse. The infection responds quickly to treatment if there is no underlying disorder.

■ LEUKOPLAKIA

Leukoplakia appears as thick, hardened, white patches in the mouth. It may be caused by loose dentures, smoking, or chewing tobacco. It is most common in the elderly. If a patch is seen, it may be biopsied as it could represent cancer.

SIGNS AND SYMPTOMS Hardened white patches in the mouth.

TREATMENT Once the diagnosis is established, removing the irritant causing the change is the best treatment.

■ ORAL LICHEN PLANUS

These are small, pale pimples that form a lacy pattern on the tongue or cheeks. Occasionally it progresses to an ulcer. The cause is not known, but stress seems to trigger the response in some people. It occurs more frequently in women.

SIGNS AND SYMPTOMS	Small pimples on the tongue or cheeks; dry mouth; metallic taste in mouth.
TREATMENT	Treatment is usually not necessary. If the cause is suspected to be the result of a prescribed drug, the medication may have to be changed.

TONGUE DISORDERS

■ GLOSSITIS (INFLAMMATION OF THE TONGUE)

This can be caused by a bacterial or fungal infection, or iron deficiency anemia. The small papillae cover the tongue and cause discoloring.

■ ACUTE GLOSSITIS

This can result from a burn, trauma, or an infection. The tongue becomes swollen, tender, and may cause difficulty with talking or swallowing. The swelling can be reduced with corticosteroid treatment.

■ GEOGRAPHIC TONGUE

This tongue disorder is characterized by the lack of papillae in patches, which makes the tongue appear smooth and bright red within the patches. Avoiding irritants such as hot and spicy foods and drinks, tobacco, and alcohol may help relieve the soreness.

■ HAIRY TONGUE

This disorder is overgrowth of the hairlike papillae covering the tongue. The tongue is not sore, but the appearance is alarming. It is often related to antibiotic treatment, excessive use of mouthwashes, decreased saliva flow, or inadequate oral hygiene. The condition is

not serious and will disappear after removing the cause. Brushing the tongue while brushing the teeth will help.

DISCOLORED TONGUE

This occurs when bacteria in the mouth grows excessively and accumulates on the papillae. The tongue appears black or dark brown. Bismuth-containing medication can cause a dark tongue. The discoloration can also be caused by antibiotics, smoking, a fungal infection, or chewing tobacco. Removal of the discoloration can be helped by brushing the tongue with a toothbrush and/or dip the toothbrush in an antiseptic mouthwash.

ORAL CANCER

Cancer of the mouth is common and early detection is important to successfully treat this condition. The cause is not always known but the use of tobacco and excessive alcohol consumption are well known risk factors. Most oral cancers appear along the side or bottom of the tongue, or on the floor of the mouth. The tumors are painless at first but are often visible or can be felt with a finger. Periodic examination of the soft tissues of the mouth is important for early diagnosis. If any persistent change in the mouth is noticed, consult your doctor or dentist. If cancer is suspected, a biopsy can be done under local anesthesia. If treated early, it can usually be eliminated. In advanced stages, it spreads to the surrounding tissues and lymph nodes, requiring more extensive treatment.

SIGNS AND SYMPTOMS	Persistent change, such as white discoloration or an ulcerated sore anywhere in the mouth; often occurring on the side of the tongue, under the tongue, or on the cheeks.
SURGICAL TREATMENT	Early surgical removal of the tumor gives the best chance of survival with the fewest side effects. After surgery, rehabilitation programs help restore comfort, speech, chewing ability, and a more normal appearance.
DRUG TREATMENT	Radiation therapy is useful for large tumors that cannot be surgically removed.

SALIVARY GLAND DISORDERS

Saliva is produced by the salivary glands and aids in the cleaning of the mouth, teeth, and in swallowing. Secretions from the salivary glands drain into the mouth and problems occur with excessive salivation or decreased salivation (dry mouth). Excessive salivation is seen in many mentally handicapped persons. Drug use, radiation treatment, systemic diseases (arthritis), and aging are some causes for decreased salivation.

■ SALIVARY GLAND INFECTIONS

These infections may be caused by a virus, such as mumps. Bacterial infections are often related to obstructions in the gland or the ducts and are treated with antibiotics and warm saline mouth washes.

■ SALIVARY DUCT STONES

This occurs when the saliva hardens into small hard particles. If swelling is noted under the chin or in front of the ear, especially at mealtimes, a blocked salivary gland may be the problem. The treatment is manipulation or surgical removal.

■ SALIVARY DUCT TUMORS

These tumors are rare and usually occur in the parotid gland. The treatment involves surgical removal. If the tumor spreads to other body sites, more extensive surgery may be needed.

FACIAL AND MANDIBULAR TRAUMA AND FRACTURES

Most jaw trauma involves the mandible (lower jaw). Medical assistance should be immediate to avoid obstructed breathing and swallowing. Jaw dislocation can be manipulated back into place under anesthesia. If jaw dislocation is recurrent, consultation with an oral surgeon is advised.

■ JAW FRACTURES

Jaw fractures will be immobilized by a physician, using a bandage. Surgery is often necessary to realign and allow the jaw to heal. Talking may be difficult and food may be limited to soft or liquid foods.

■ LOSS OF A TOOTH (TOOTH AVULSION)

This should be treated as an emergency. If the tooth is recovered and not fragmented, it may be reimplanted. Without attempting to clean the tooth, wrap the tooth in a clean, moist tissue or gauze and contact your dentist. The success of this procedure decreases dramatically the longer the tooth is out — time is of the essence.

TEMPOROMANDIBULAR JOINT (TMJ) SYNDROME

The temporomandibular joints are hinged joints that connect both sides of the lower jaw (mandible) to the skull. The bony surfaces, as with all joints, are covered with cartilage and are separated by a small disk that prevents the bones from rubbing against one another. Most cases of TMJ disorders are the result of inflammation within the joint. Overuse of the joint (eg, grinding the teeth), or trauma to the side of the face can aggravate the problem.

SIGNS AND SYMPTOMS	Limitation of jaw movement; some clicking with jaw movement; slight discoloration around the jaw. Pain with opening the mouth, headaches, neck pain, and ear problems are often present.
TREATMENT	Physical therapy and aspirin, ibuprofen, and nonsteroidal anti-inflammatory drugs (NSAID) are helpful. A malaligned TMJ may be due to malalignment of the jaws. These may be treated with a splint or other corrective devices.
DRUG TREATMENT	Occasionally, a corticosteroid may be injected directly into the joint.

PROSTHODONTICS

Today, fewer and fewer people need to have their teeth removed and replaced with dentures. If an adult tooth is lost, a replacement tooth can be made. Partial dentures (bridges) may be placed permanently in the mouth or may be removable.

FIXED BRIDGES

These are used to replace one or multiple missing teeth. They are supported by the adjacent healthy teeth and are cemented permanently.

REMOVABLE PARTIAL DENTURES

If a permanent tooth is lost, it should be replaced as soon as possible to avoid malalignment of the surrounding teeth. A removal partial denture is a prosthetic device that replaces multiple missing teeth and is supported by a combination of surrounding teeth plus tissue.

DENTURES

Dentures are artificial teeth which are used when all of the teeth are removed, usually for serious periodontal disease or decay. The denture may be complete or a partial denture if a few healthy teeth can be saved.

DENTAL IMPLANTS (OSSEOINTEGRATION)

This is a new technique where artificial teeth are attached to the bones of the lower or upper jaw. One or all teeth in either jaw can be replaced in those who cannot tolerate dentures for physical or psychological reasons. Chewing pressure can be near normal.

PREVENTING TOOTH PROBLEMS

Maintaining a set of healthy teeth is a lifelong program of good dental hygiene — one that begins early in life and is practiced consistently throughout the years. This is also helped by reducing the amount of sugar and carbohydrates in the diet. Brushing and flossing, are the best ways to reduce the risk of decay and periodontal disease. The ideal way is to floss first, brush second.

Use a floss that you like — waxed, unwaxed, flavored, unflavored, string, or tape. Take 18 inches of floss and wind most of it around the middle finger of one hand. Wind a turn or two around the middle finger of the other hand so that there is two to three inches of floss between these fingers. Guide the floss between the teeth. When the floss reaches the gum line, curve it into a "C" shape around your tooth and move the floss up and down, gently scraping the wall of the tooth. Now, curve it around the other tooth and do the same thing.

Brush your teeth — the friction from a toothbrush disrupts the plaque growth on the teeth — as long as you do it correctly. Up and down and back and forth is not correct. Brush your teeth so the bristles are at a 45 degree angle to the area where your tooth and gum meet (the gum around the tooth). Then, very gently wiggle your brush in small circles, covering one or two teeth at a time. The new kind of electric toothbrush that rotates while the stem stays still has proven to remove more plaque than hand brushing.

Get the back lower teeth — this is where plaque most often settles. Concentrate on the teeth that come in contact with the cheeks and tongue, not just the teeth that show when you smile.

Spend two minutes brushing your teeth — as studies have shown that most people brush their teeth for approximately 30 seconds. Dentists recommend two to four minutes of brushing.

Always brush at night — if you can only brush once a day. Don't let all of the day's debris remain in your mouth all night. Ideally, attempt to brush three times a day — morning, noon, and night (after every meal).

Buy a toothbrush that fits your mouth — preferably a small one. A big toothbrush does not reach all of the germ's hiding places.

Choose a soft brush with rounded bristles — they are easier on enamel and equally hard on plaque.

Use a fluoride toothpaste — recommended by the American Dental Association. Some toothpastes may not contain fluoride or may be too abrasive. This is particularly important for children.

Use just water — if the tube of toothpaste is empty, simply wet the toothbrush and brush. All of the plaque can be removed without the use of toothpaste.

Swish a mouthful of water after every meal — if you don't have a toothbrush. It will get rid of a lot of debris, especially the obvious leftovers between your front teeth. Or, chew some sugarless gum for 20 minutes. As you chew, the saliva will neutralize the acid in the plaque before it settles on your teeth.

Give fluoride to children — it has been proven to significantly reduce tooth decay. It can be delivered to the teeth in two ways:

1. Topically, meaning applying to the tooth directly using a gel or rinse. This is routinely done by your dentist on children twice a year. In addition, it may be used on those who are particularly prone to dental decay or to reduce tooth sensitivity.
2. Systemically, meaning through the blood stream in the form of a vitamin supplement. This is done in areas where water is not fluoridated and the dose depends upon the person's age and amount of fluoride that is in the water naturally. Consult your dentist to determine the proper use.

An important step in preventing tooth decay is visiting your dentist regularly for a thorough checkup. Everyone, beginning at age three (or earlier if symptoms develop) should visit their dentist every six to twelve months. Some adults only need to make a yearly visit. Your dentist, however, should determine an examination schedule according to your special needs.

ON THE HORIZON

British scientists have created a vaccine to prevent tooth decay. The American Dental Association has announced that the initial results in clinical trials look promising. The vaccine is painted on the teeth, and is intended to produce antibodies that prevent bacteria from sticking to teeth and causing cavities. The company that developed this vaccine is hopeful that it will be available for consumer use in 2001 or 2002.