

Chapter 1 : Periodontium: Cementum, Alveolar Bone, and Periodontal Ligament | Pocket Dentistry

B, alveolar bone; CEJ, cemento-enamel junction; DGF, dentogingival fibers; PDL, periodontal ligament fibers. Fig. Magnified view of Fig, half-way down the root. The future periodontal ligament space (PDL) is composed of connective tissue fibers orientated primarily parallel to the tooth surface.

Cementum is the only one of these that is a part of a tooth. Alveolar bone surrounds the roots of teeth to provide support and creates what is commonly called a " socket ". Periodontal ligaments connect the alveolar bone to the cementum, and the gingiva is the surrounding tissue visible in the mouth. Specific events leading to the formation of the periodontal ligament vary between deciduous baby and permanent teeth and among various species of animals. These fibroblasts secrete collagen, which interacts with fibers on the surfaces of adjacent bone and cementum. The occlusion , which is the arrangement of teeth and how teeth in opposite arches come in contact with one another, continually affects the formation of periodontal ligament. This perpetual creation of periodontal ligament leads to the formation of groups of fibers in different orientations, such as horizontal and oblique fibers. Throughout the body, cells that form bone are called osteoblasts. In the case of alveolar bone, these osteoblast cells form from the dental follicle. Like any other bone in the human body, alveolar bone is modified throughout life. Osteoblasts create bone and osteoclasts destroy it, especially if force is placed on a tooth. An area of bone receiving tension from periodontal ligaments attached to a tooth moving away from it has a high number of osteoblasts, resulting in bone formation. Thus, the tooth or teeth are slowly moved along the jaw so as to achieve a dentition that works in harmony. In this way, the width of the space between the alveoli and the root is kept about the same. This junction has three epithelial types: These three types form from a mass of epithelial cells known as the epithelial cuff between the tooth and the mouth. Once this occurs, junctional epithelium forms from reduced enamel epithelium, one of the products of the enamel organ, and divides rapidly. This results in the perpetually increasing size of the junctional epithelial layer and the isolation of the remnants of ameloblasts from any source of nutrition. As the ameloblasts degenerate, a gingival sulcus is created. Nerve and vascular formation[edit] Frequently, nerves and blood vessels run parallel to each other in the body, and the formation of both usually takes place simultaneously and in a similar fashion. However, this is not the case for nerves and blood vessels around the tooth, because of different rates of development. Once there, the nerves develop around the tooth bud and enter the dental papilla when dentin formation has begun. Nerves never proliferate into the enamel organ. The number of blood vessels reaches a maximum at the beginning of the crown stage, and the dental papilla eventually forms in the pulp of a tooth. Throughout life, the amount of pulpal tissue in a tooth decreases, which means that the blood supply to the tooth decreases with age. Tooth eruption Tooth eruption occurs when the teeth enter the mouth and become visible. Although researchers agree that tooth eruption is a complex process, there is little agreement on the identity of the mechanism that controls eruption. This theory postulated that a ligament below a tooth, which Sicher observed under a microscope on a histologic slide, was responsible for eruption. Later, the "ligament" Sicher observed was determined to be merely an artifact created in the process of preparing the slide. Theorists hypothesize that the periodontal ligaments promote eruption through the shrinking and cross-linking of their collagen fibers and the contraction of their fibroblasts. Typically, humans have 20 primary baby teeth and 32 permanent teeth. The first, known as deciduous dentition stage, occurs when only primary teeth are visible. Once the first permanent tooth erupts into the mouth, the teeth are in the mixed or transitional dentition. After the last primary tooth falls out of the mouthâ€”a process known as exfoliationâ€”the teeth are in the permanent dentition. Primary dentition starts on the arrival of the mandibular central incisors , usually at eight months, and lasts until the first permanent molars appear in the mouth, usually at six years. Mixed dentition starts when the first permanent molar appears in the mouth, usually at six years, and lasts until the last primary tooth is lost, usually at eleven or twelve years. Maxillary teeth erupt in the following order: Mandibular teeth erupt in the following order: Since there are no premolars in the primary dentition, the primary molars are replaced by permanent premolars. Orthodontics may be required in such circumstances for an individual to achieve a straight set of teeth. During this stage, third molars also called "

wisdom teeth " are frequently extracted because of decay, pain or impactions. The main reasons for tooth loss are decay and periodontal disease.

Chapter 2 : Oral Histology Digital Lab: Periodontium: Formation of Periodontal Ligament (Image 1)

The Periodontal Ligament: Development, Anatomy and Function Rabia Dean King's College London, United Kingdom
Abstract This paper will explore the origin and development of the periodontal ligament (PDL), its anatomical structure and function.

While the idea is simple, there are a few techniques that you need to master in order to maximize the return on the time you spend flossing. Here are ten common mistakes that people make when they floss: When you move the floss up between two teeth, you need to make sure that you are cleaning the side of both teeth. One of the favorite places for plaque to hide is between teeth. Find out about six common places where you are most likely to get cavities. If you use the same section of floss for all of the teeth in your mouth, you are spreading around a lot of bacteria. Snapping the floss down between the teeth can not only injure your gums in the short-term, but the trauma can cause your gums to recede. It may be easiest to start in the upper right and go to the upper left, then come down to the lower teeth in the bottom left and move across to the bottom right. Personally, I start right in the middle of my upper teeth and work my way back on one side and then on the other. Then I do the same thing on the lower teeth. For example, if you have a bridge, it is necessary to use a floss threader, or get something similar to Oral-B Superfloss. I had braces on my lower teeth when I was a teenager. After I had them removed, the orthodontist cemented a wire that connects to each of my six lower front teeth. This stabilizes them, but also makes it impossible to use conventional floss due to the wire. Because of this, I have to use Superfloss or floss threaders to get under the wire so I can floss and maintain my gum health. This is a condition known as gingivitis and it occurs because the body is sending more blood to the gum. This is to help the tissue fight all of the plaque that is accumulating. When you floss, you are removing that plaque, and since the tissue is inflamed and engorged with blood, you are causing some of the blood to leak out. After a few days, your gums should return to health and you can floss normally without any bleeding. When you floss, you need to get both sides of the teeth even the most posterior teeth – see mistake 4. That means that there are 56 sides that you need to get. You should be spending a couple of seconds with each side, scraping up and down against the tooth a few times before moving onto the next surface. That means that it will probably take you around two minutes to floss your entire mouth if you have a full set of teeth. However, when you are flossing against the side of a tooth, you want to make sure that you are pushing the floss against the tooth surface enough to be able to remove the plaque. When you floss, your primary goal should be to scrape against each tooth to remove as much plaque as you can. As long as you are doing this, you should be getting rid of the food between your teeth without even thinking about it. Floss Correctly and Keep Your Teeth For Your Whole Life By avoiding these ten common mistakes, you will be able floss more efficiently which will lead to greater oral health. Since many cavities start out between two teeth, you will be able to prevent many cavities by regularly flossing and avoiding these ten flossing mistakes. Do you have any questions or comments about flossing? Just leave them below in the comments section.

Chapter 3 : Periodontium: Periodontal ligament | Pocket Dentistry

The periodontal ligament development is a highly organized process [71]. The PDL is a highly vascular and cellular connective tissue situated between the tooth and the alveolar bone. The PDL is a highly vascular and cellular connective tissue situated between the tooth and the alveolar bone.

He has malaise, fever and bilateral cervical lymphadenopathy. A blood examination reveals Hb: This condition was caused by inadvertent injection into the Which disorder is associated with hypercementosis of teeth? The full palatal major connector is indicated where Question was removed from public access A 70 year old insulin-dependent patient has just completed a 7 day course of ampicillin for a respiratory infection. He presents with signs and symptoms consistent with a diagnosis of oral candidiasis. Which of the following is the most appropriate management for this patient? Which of the following local anesthetics is classified as an ester? Which of the following does NOT describe the energy of x-ray photons exiting the x-ray unit? The first drug used for the management of anaphylaxis is An opioid, like Fentanyl, can be prescribed in conjunction with Which form of hepatitis does NOT have a known carrier state? A 50 year old woman has a history of rheumatoid arthritis, bilateral enlargement of one or more salivary glands and lacrimal glands, as well as dryness of the eyes, nose, mouth and throat. The diagnosis is Objects that absorb x-ray radiation are referred to on a radiographic image as being Which of the following describes the radiation produced by high voltage? Which source delivers the highest dose of radiation to humans? Examination reveals angular cheilitis and a smooth redness on the entire dorsal surface of the tongue. The most likely diagnosis is Which microorganism does NOT contribute significantly to the progression of dentinal caries? Odontoblast gap junctions One of the mechanisms of bacterial adherence to the dental pellicle is through The periodontal ligament is constantly remodeled due to the activity of In the keyhole model of the enamel prism When odontoblasts are destroyed as a result of cavity preparation The protective role of junctional epithelium is aided by its increased number of Failure of bone resorption over an erupting tooth is due to lack of Lack of ramus height is caused by faulty development of Abnormal development of the first pharyngeal arch may produce defects in the Accessory root canals develop because root odontoblasts fail to A small hinge articulator was used for the fabrication of a cast gold onlay for tooth 4. Which of the following movements will result in the greatest discrepancy between the articulator and the patient? Which statement is true with respect to Class II composite resin preparations? Which of the following statements is FALSE with respect to rounded internal line angles in preparations When light-cured composite resins are placed An amalgam coronal-radicular core build-up for endodontically treated molar teeth requires Pins for cusp replacement should ideally be placed Mercury content in an amalgam can be reduced by using Tooth 1. Which of the following is true with respect to the preparation for the restoration? A 4 year old child presents with a history of trauma and an asymptomatic discoloured primary maxillary left incisor. A periapical radiograph reveals no abnormalities. Which of the following is a reason to perform initial periodontal debridement before periodontal surgery? Clinically, the progression of periodontitis can be determined best by the increasing Which of the following is NOT suggestive of a diagnosis of necrotizing ulcerativ egingivitis NUG? With respect to local anesthetic, which of the following will elicit the most rapid response in a patient? Which of the following medications can cause gingival enlargement? A 29 year old patient has had multiple painful ulcerated lesions on the buccal attached gingiva for one day. No fever, malaise or lymphadenopathy is present. The most appropriate initial management is a Guided tissue regeneration is a surgical procedure to A patient that has been prescribed metronidazole should avoid The subgingival microbial flora isolated from sites of peri-implantitis is most similar to the flora of A patient who is a hepatitis B carrier presents for an extraction. The extraction should be delayed and Which one of the following factors is LEAST important in determining the appropriate dose of drug for a patient? Tetracycline therapy instituted either in the second trimester or post partum to the infant is responsible for all the following EXCEPT Which of the following drugs should NOT be administered to a patient in order to alleviate symptoms of an acute asthmatic attack? The pulpal floor of an occlusal amalgam preparation on a mandibular first premolar should slope apically from Aspiration prior to a local anesthetic injection reduces the An

anterior bite plane will NOT result in The pterygomaxillary fissure is formed by the maxilla and which other bone? The occlusal parameter that is most useful to differentiate between an overbite of dental or skeletal origin is the Following radiation therapy to the mandible, extraction of mandibular teeth is most likely to result in Which of the following applies to gutta-percha? In which of the following pathological conditions would a lower central incisor tooth be expected to respond to heat, cold and an electric pulp test? The most appropriate way to disinfect gutta-percha cones prior to obturation is to Which of the following is consistent with a diagnosis of complete pulpal necrosis? Which of the following agents is most effective in cold testing? Which of the following statements is true regarding endodontically treated teeth? A thermal hot or cold test is used to test the response of nerves in the Which of the following teeth is most likely to have two roots and two canals? Hyperplastic pulpitis is All afferent impulses from the pulp result in the sensation of Which permanent maxillary molar root has a higher incidence of two canals? Two weeks following the placement of a restoration, a patient complains of pain to hot and cold in the restored tooth. The most likely diagnosis is Who we are Quizzn is a young service that bears only one goal - to make the learning process as enjoyable, social, and easy as possible. It is a free application that has the ability to connect people that are eager to learn, share knowledge and just have fun.

Chapter 4 : Human tooth development - Wikipedia

The periodontal ligament, commonly abbreviated as the PDL, is a group of specialized connective tissue fibers that essentially attach a tooth to the alveolar bone within which it sits. It inserts into root cementum one side and onto alveolar bone on the other.

At the time of tooth eruption the cells and collagen fibers in the dental follicle, i. Developing primary tooth in its crypt, at the time of eruption. Although the crown of the tooth is fully formed, the root is still incomplete with a wide-open foramen. The dental follicle around the developing root has been reduced to a thin capsule of connective tissue that will be remodeled into the periodontal ligament PDL. Some of the pluripotential cells of the dental follicle that are capable of producing bone, cementum and the ligament will be preserved as undifferentiated cells in the mature periodontal ligament, usually in a perivascular location. Magnified view of Fig. Remodeling of the dental follicle into a periodontal ligament PDL begins near the cemento-enamel junction following the formation of the dentogingival fibers DGF. Remodeling begins with the fibers that are closest to the root surface and the bone B. The process then proceeds in an apical direction until the entire follicle is remodeled into a periodontal ligament, with fibers more or less perpendicular to the root surface. The future periodontal ligament space PDL is composed of connective tissue fibers orientated primarily parallel to the tooth surface. Very little, if any, cementum can be detected at this time over the dentin D which abuts the periodontal ligament space. Transmission electron micrograph of the root surface at the onset of cementogenesis. Most cells, including fibroblasts F , and fibers of the dental follicle DF are orientated parallel to the root surface. Small collagen fiber bundles EF adjacent to the root dentin D are becoming arranged perpendicularly to the root dentin surface. These fibers are part of the extrinsic fibers that will be incorporated into the cementum. Higher magnification of a region similar to that of Fig. Bundles of extrinsic collagen fibers are arranged with their long axis perpendicular to the root surface which, at this stage of development, consists of dentin. The interdigitation of the collagen fibrils from the dentin and the cementum will form the future dentino-cemental junction. This is a diagrammatic illustration of the remodeling process in the dental follicle that leads to the formation of the mature periodontal ligament. The earliest remodeling takes place along the tooth T and the alveolar bone AB side of the dental follicle Figs. Small bundles of collagen align themselves perpendicularly to the tooth and bone surface. On the tooth side, the fiber bundles become incorporated into the developing cementum layer and on the bone side into new bone. Remodeling of fibers proceeds from the mineralized surfaces toward the central part of the ligament which is last to be remodeled. It is recognized today that rapid tooth movement takes place because of continuous remodeling of the structural elements of the ligament at the molecular level, and not by mechanical accommodation of the fibrous elements.

Chapter 5 : Periodontal fiber - Wikipedia

The periodontal ligament is a fibrous connective tissue between the alveolar bone proper and the cementum covering the root. This ligament covers the root of the tooth and connects with the tissue of the gingiva. The periodontal ligament occupies the periodontal space and is composed of fibers, cells, and intercellular substance.

Cementum has no nerve supply and is also avascular, receiving its nutrition through its own imbedded cells from the surrounding vascular periodontal ligament. Like other the dental hard tissue of both dentin and alveolar bone, cementum can form throughout the life of the tooth see Table , including after eruption. This crystalline formation of mature cementum consists of mainly calcium hydroxyapatite, with the chemical formula of $\text{Ca}_{10}\text{PO}_4\text{OH}_2$. The calcium hydroxyapatite found in cementum is similar to that found in higher percentages in both enamel and dentin, but more closely resembles the percentage found in bone tissue such as alveolar bone. Other forms of calcium are also present. In certain situations, when cementum is initially exposed from gingival recession, such as occurs during periodontal disease, it is Clinical Considerations about Cemental Pathology When cementum is exposed through gingival recession, it quickly undergoes abrasion by mechanical friction because of its low mineral content and thinness. Figure ; see Chapter The exposure of the deeper dentin can lead to problems such as extrinsic staining and dentinal hypersensitivity. FIGURE Phase-contrast image of the cements enamel junction interface where cementum and enamel do not meet, leaving a gap where dentin is exposed arrow , which may lead to dentinal hypersensitivity. Studies are showing that such morphology may result in an increased risk of cemental caries. The incidence of cemental caries increases in older adults as gingival recession occurs from either trauma or periodontal disease. Because dental pain is a late finding, many lesions are not detected early, resulting in restorative challenges and increased tooth loss. Pulpal involvement is a late finding due to the initial shallowness of the lesions. Xerostomia dry mouth , poor manual dexterity for adequate home care, and poor nutrition in older adults can complicate caries, and all these issues must be addressed during dental treatment of these patients. Increased controversy surrounds treatment of periodontal disease that involves the removal of the outer layers of cementum during scaling of the roots. Dental biofilm and the related hardened calculus are associated with the cemental surface of the root deep inside a diseased periodontal pocket Figures and ; see also Chapter Note that dental biofilm or plaque P then overlies the rough calculus. Many times the calculus on the root is more mineralized than the cementum or even dentin. Now it is believed that these toxins are loosely adherent to the cementum and that the cementum does not need to be scaled off to remove them, but, instead, ultrasonic devices can flush these toxins from the cementum without removing any of the hard tissue. More studies in this area are necessary as new treatments of periodontal disease are considered. When instruments are used, cementum feels grainy compared with the harder dentin and the even harder, smoother enamel surfaces. Because of its mineral level, cementum appears more radiolucent or darker than either enamel or dentin, but more radiopaque or lighter than pulp tissue when viewed radiographically; however, any cemental layer s near the CEJ may not be viewable on radiographs due to its thinness. This disintegration allows the undifferentiated cells of the dental sac to come into contact with the newly formed surface of root dentin, inducing these cells to become cementoblasts. The cementoblasts then disperse to cover the root dentin area and undergo cementogenesis, laying down cementoid. Unlike ameloblasts and odontoblasts, which leave no cellular bodies in their secreted products, during the later steps within the stage of apposition, many of the cementoblasts become entrapped by the cementum they produce, becoming cementocytes Figure Thus again, cementum is more similar to alveolar bone, with its osteoblasts becoming entrapped osteocytes. FIGURE Microscopic appearance of cellular cementum with its cementocytes within their lacunae arrows , and the canaliculi oriented toward the periodontal ligament PDL for nutrition. When the cementoid reaches the full thickness needed, the cementoid surrounding the cementocytes becomes mineralized, or matured, and is then considered cementum. Because of the apposition of cementum over the dentin, the dentinocemental junction DCJ is formed. This interface is not as defined, either clinically or histologically, as that of the dentinoenamel junction, given that cementum and dentin are of common embryological background, unlike that of enamel

and dentin. Microscopic Appearance of Cementum Cementum is composed of a mineralized fibrous matrix and cells see Figures and These fibers are organized to function as a ligament between the tooth and alveolar bone. The intrinsic nonperiodontal ligament fibers of the cementum are collagen fibers made by the cementoblasts and laid down in a nonorganized pattern, yet all these fibers still run parallel to the DCJ. The cells of cementum are the entrapped cementoblasts, the cementocytes see Figure Each cementocyte lies in its lacuna plural, lacunae , similar to the pattern noted in bone. These lacunae also have canaliculi or canals. Unlike those in bone, however, these canals in cementum do not contain nerves, nor do they radiate outward. Instead, the canals are oriented toward the periodontal ligament and contain cementocytic processes that exist to diffuse nutrients from the ligament because it is vascularized. After the apposition of cementum in layers, the cementoblasts that do not become entrapped in cementum line up along the cemental surface along the length of the outer covering of the periodontal ligament. These cementoblasts can form subsequent layers of cementum if the tooth is injured discussed later. Three possible types of transitional interfaces may be present at the CEJ. The traditional view was that certain interfaces dominated in certain oral cavities. Novice clinicians may have difficulty discerning the CEJ from calculus deposits around the cervix with this situation. However, compared with the usually spotty placement and roughness of calculus, cementum exhibits a more uniform placement and roughness when using an explorer. Cementum may overlap enamel O ; may meet end-to-end M ; may be a gap between enamel and cementum, leaving dentin exposed G. Ground sections of the same three interfaces, with gap exposing dentin highlighted in last section arrows. Thus, patients may experience dentinal hypersensitivity see Figure Similar to bone tissue such as alveolar bone, cementum can undergo removal within the tissue as a result of trauma Figure This removal involves resorption of cementum by the odontoclast, resulting in reversal lines. When viewed in a stained section of cementum, these reversal lines appear as scalloped lines, just as in bone. However, cementum is less readily resorbed than bone, an important consideration during orthodontic tooth movement discussed later. FIGURE Reversal lines and arrest lines in cementum with embedded cementocytes white arrows that has undergone repair due to severe trauma. On the surface of the cementum are the cementoblasts dark arrows within the surrounding periodontal ligament P. Note that the alveolar bone B has similar lines noted as a result of bone remodeling. At the same time, there can be repair of traumatic resorption area by involving the apposition of cementum by cementoblasts in the adjacent periodontal ligament. Apposition of this recently formed protective cementum is noted by layers of growth, or arrest lines, which, when viewed in a stained section, look like smooth growth rings in a section of a tree similar to what occurs in bone tissue such as alveolar bone. Both reversal and arrest lines are prominent in cementum subjected to occlusal trauma or to orthodontic tooth movement, as well as during the shedding of primary teeth and eruption of the permanent tooth. However, unlike bone, cementum does not continually undergo remodeling or repair as part of its makeup, but only when severely traumatized. Types of Cementum Two basic types of cementum are formed by cementoblasts: Acellular cementum consists of the first layers of cementum deposited at the DCJ, and thus is also considered primary cementum. It is formed at a slower rate than other types and contains no embedded cementocytes. At least one layer of acellular cementum covers the entire outer surface of each root with many more layers covering the cervical one third near FIGURE Two types of cementum on the root surface. Acellular cementum AC without cementocytes makes up the first layers deposited at the dentinocemental junction over the dentin D. Cellular cementum, CC which contains embedded cementocytes, arrows are the last layers deposited over the thin layer of acellular cementum AC adjacent to the dentin D. Cells adjacent to the periodontal ligament P are cementoblasts. Clinical Considerations about Cemental Formation Cementsicles are mineralized bodies of cementum found either attached to the cemental root surface or lying free in the periodontal ligament see Figure They become attached or fused from the continued apposition of cementum, and thus may interfere with periodontal treatment, as well as being noted on radiographs. Cemental spurs can be found at or near the CEJ. These are symmetrical spheres of cementum attached to the cemental root surface, similar to enamel pearls. Cemental spurs result from irregular deposition of cementum on the root. They can present some clinical problems in differentiation from calculus and may be noted on radiographs; yet, because they are hard dental tissue, they are not easily removed, and thus may also interfere with periodontal treatment.

Hypercementosis is the excessive production of cellular cementum, which mainly occurs at the apex or apices of the tooth Figure It may be noted on radiographs as a radiopaque or lighter mass at each root apex. It may also be a compensatory mechanism in response to attrition to increase occlusal tooth height. However, such deposits form bulbous enlargements on the roots and may interfere with extractions, especially if adjacent teeth become fused concrescence. It may also result in pulpal necrosis by blocking blood supply via the apical foramen see Chapter

Chapter 6 : The periodontal ligament - Quizzn

The periodontal ligament is a group of specialized connective tissue fibers that essentially attach a tooth to the bone within which it sits.

Learn about healing cavities with the book "Cure Tooth Decay" I had several very painful cavities postpartum after having twins that kept me up all night in pain and made it so I could barely eat After following the advice in this book accruately my tooth pain subsided within 24 hours and no longer hurt at all, my teeth also look nicer and my gums no longer bleed and are a nice pink color. Steuernol, Canada "The practical advice in this book really seems to be reversing my tooth decay!!! The dentist wanted me to have two major root canals immediately and two other teeth filled. When I asked him if there was anything I could do with nutrition or supplements to get mu teeth to heal, he said "maybe you could slow the decay down a little bit" but that essentially the answer was no. That dental visit was three mobnths ago and my teeth have stopped aching all together, are way less temperature sensitive, and feel generally stronger. Most of us have been totally disempowered regarding the health of our teeth. This information has changed that for me. Talk about a biased perspective!!! I would also highly recommend this book to people who are looking for things they can do to protect their bones, and their overall health, as they age. In other words, this book is a must read for everyone interested in improving their health. Was supposed to get a root canal which I had no money to pay for. Tooth was in pain. Once you are set free from being a slave to modern foods of commerce author continues to explain how the ancient people ate. They were healthy, strong and good looking. They had no cavities. They had no illness until familiar western culture came to visit them. If you are reading this review I am sure you understnad something is not right in the world. That we are born to live under a certain hypnosis. That we are taught to give away our responsibility to "people with authority", and those people cannot even take care of themselves. I recommend this book if you want the way out.

Chapter 7 : Periodontal Ligament (PDL): What Is It? | Colgate® Oral Care

Formation of Periodontal Ligament During tooth development, the dental follicle embraces the dental organ and the mesenchyme (A) gives rise to fibroblasts and macrophages. Capillaries (B) and nerves invade the region by the time the dental organ is forming the crown of the tooth.

Structure[edit] The PDL consists of principal fibres, loose connective tissue, blast and clast cells, oxytalan fibres and Cell Rest of Malassez. Principal fibers other than the alveolodental ligament are the transseptal fibers. All these fibers help the tooth withstand the naturally substantial compressive forces which occur during chewing and remain embedded in the bone. The ends of the principal fibers that are within either cementum or alveolar bone proper are considered Sharpey fibers. Alveolar crest fibers Alveolar crest fibers I run from the cervical part of the root to the alveolar bone crest Horizontal fibers Horizontal fibers J attach to the cementum apical to the alveolar crest fibers and run perpendicularly from the root of the tooth to the alveolar bone.. Oblique fibers Oblique fibers K are the most numerous fibers in the periodontal ligament, running from cementum in an oblique direction to insert into bone coronally. Interradicular fibers Interradicular fibers are only found between the roots of multirooted teeth, such as premolars and molars. They extend from radicular cementum to interradicular alveolar bone. Transseptal fibers[edit] Transseptal fibers H extend interproximally over the alveolar bone crest and are embedded in the cementum of adjacent teeth; they form an interdental ligament. These fibers keep all the teeth aligned. These fibers may be considered as belonging to the gingival tissue because they do not have an osseous attachment. The extracellular compartment consists of Type 1, 3, and 5 collagen fibers bundles embedded in intercellular substance. The PDL collagen fibers are categorized according to their orientation and location along the tooth. The cells include fibroblast, defence cells and undifferentiated mesenchymal cells. Cell Rest of Malassez[edit] These groups of epithelial cells become located in the mature PDL after the disintegration of Hertwig epithelial root sheath during the formation of the root. Cell Rests of Malassez might cause cyst formation in later life. Oxytalan fibres[edit] Oxytalan fibres is unique to PDL and elastic in nature. It inserts into cementum and runs in 2 directions; parallel to root surface and oblique to root surface. The function is thought to maintain the patency of blood vessels during occlusal loading. Further research is needed to determine the function of oxytalan fibres. The completeness and vitality of the PDL are essential for the functioning of the tooth. The PDL ranges in width from 0. The PDL is a part of the periodontium that provides for the attachment of the teeth to the surrounding alveolar bone by way of the cementum. The PDL appears as the periodontal space of 0. Development[edit] PDL cells are one of the many cells derived from the dental follicle and this occurs after crown formation is completed and when the roots start developing. These cells will remodel the dental follicle to form the PDL.

Chapter 8 : Periodontal Ligament - Cure Tooth Decay

The ligament will enlarge with a development of mobility or loosening of the tooth. Once the excessive forces on a tooth are reduced, it will heal and allow the mobility to decrease. The Periodontal Ligament and Overall Oral Health. Advanced gum disease may lead to the destruction of bone and with it the loss of the periodontal ligament. Thus, in areas where the ligament has been lost, the adjacent bone is no longer attached to the tooth and cannot provide any support.

Chapter 9 : Periodontology: Periodontal anatomy. The Periodontal Ligament : Verifiable CPD Online - Dent

(Jan Lindhe 5th ed) The periodontal ligament occupies the periodontal space, which is located between the cementum and the periodontal surface of alveolar bone and extends coronally to the most apical part of the lamina propria of the gingiva.