MULTIPLE CHOICE QUESTIONS

PERIODONTOLOGY – PART 1

1. Which periodontal fiber is also known as "Interdental Ligament"?

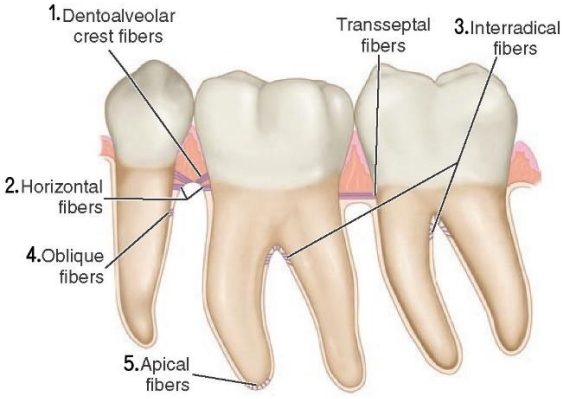
A. Trans-septal fibers

B. Horizontal fibers

C. Alveolar crest fibers

D. Transverse fibers

Answer Detail
Transseptal fibers 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.



2. Which of the following fibers prevents extrusion of the tooth and resists lateral tooth movements?

A. Transverse

B. Alveolar crest

C. Apical

D. Horizontal

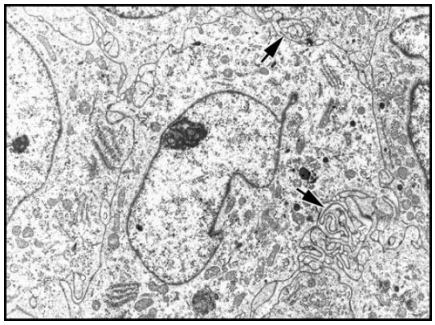
Answer Detail
Alveolar crest fibers run from the cervical part of the root to the alveolar bone crest.

3. Birbeck's granules are seen in which of the following ?

A. Langerhans cells
B. Merkel cells
C. Keratinocytes
D. Melanocytes

Answer Detail

Birbeck granules, also known as Birbeck bodies, are rod shaped or "tennis-racket" cytoplasmic organelles with a central linear density and a striated appearance. First described in 1961 , they are solely found in Langerhans cells.



4. What is the length of Junctional epithelium?

A. 0.25 - 1.35 mm

B. 0.2 - 1 mm

C. 0.5 - 2 mm

D. 1- 3 mm

Answer Detail
The junctional epithelium (JE) is that epithelium which lies at the base of the gingival sulcus. The probing depth of the gingival sulcus is measured by a calibrated periodontal probe. Its length ranges b/w 0.25-1.35 mm.

5. Which of the following are non-keratinized ?

A. Interdental col

B. Junctional epithelium

C. Sulcular epithelium

D. All of the above

6. Which of the following cells serve as “Tactile receptors”?

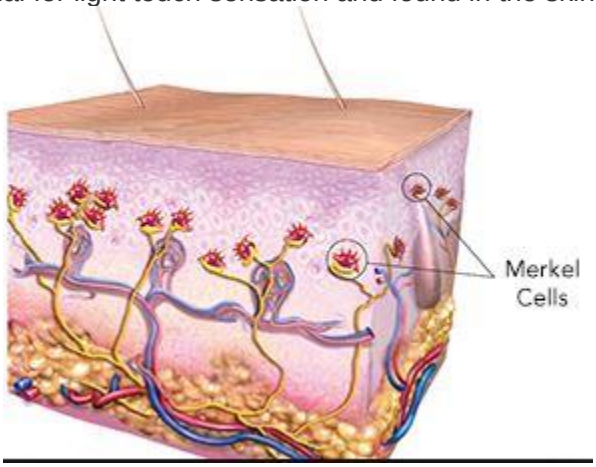
A. Langerhans cells

B. Melanocytes

C. Merkel cells

D. Keratinocytes

Answer Detail
Merkel cells, also known as Merkel-Ranvier cells or tactile epithelial cells, are oval-shaped mechanoreceptors essential for light touch sensation and found in the skin of vertebrates.



7. Where are the Langerhans cells located?

A. Basal cell layer

B. Supra basal cell layer

C. Spinous layer

D. Deep layer of the epithelium

Answer Detail

Langerhans cells are dendritic cells (antigen-presenting immune cells) of the skin, and contain organelles called Birbeck granules. They are present in all layers of the epidermis and are most prominent in the stratum spinosum.

8. What is the principal cell of gingival epithelium?

A. Keratinocyte

B. Merkel cell

C. Melanocyte

D. Langerhans cell

Answer Detail

A keratinocyte is the predominant cell type in the epidermis, the outermost layer of the skin, constituting 90% of the cells found there. They are responsible for forming tight junctions with the nerves of the skin. They also keep Langerhans cells of the epidermis and lymphocytes of the dermis in place.

9. What is the probing depth of the normal gingival sulcus?

A. 1-2 mm

B. 2-3 mm

C. 4-5 mm

D. >5 mm

Answer Detail

It is the measurement of the depth of a sulcus or periodontal pocket determined by measuring distance from a gingival margin to the base of the sulcus or pocket with a calibrated periodontal probe.

10. What is the Histologic depth of the gingival sulcus?

A. 1 mm

B. 1.5 mm

C. 2 mm

D. 4 mm

Answer Detail

Healthy gums generally have a sulcus depth that may range anywhere from 1 to 3mm. Sulcus depths greater than 3mm occur in patients that have varying degrees of periodontal disease. This is referred to as a periodontal pocket.

11. Of the following four bacterial species, which is least likely to be found in plaque ?

A. Actinomyces viscosus

B. Streptococcus mutans

C. Streptococcus salivarius

D. Streptococcus sanguis

Answer Detail :

Streptococcus salivarius is a species of spherical, gram-positive, facultative anaerobic bacteria that is both catalase and oxidase negative.

12. The common etiology of periodontitis is:

A. Occlusal trauma

B. Systemic factors

C. Local irritating factors

D. Hormonal defects

13. Predominant bacteria found in two days old plaque is:

A. Streptococci

B. Bacteroides

C. Spirochaetes

D. Actinomyces

14. In deep older plaque :

A. Streptococci and Actinomyces are replaced by rod-like organism

B. Streptococci are completely replaced by Neisseria

C. Streptococci, Actinomyces and Veilonella remain prominent

D. Actinomyces are completely replaced by Streptococci

15. Actinobacillus actinomycetemcomitans is commonly associated with:

A. Juvenile periodontitis

B. Adult periodontitis

C. Refractory periodontitis

D. All of the above

Answer Detail :

Juvenile Periodontitis is an uncommon condition characterized by severe loss of attachment and destruction of alveolar bone around one or more permanent teeth in otherwise healthy adolescent.

16. Supragingival plaque causes:

A. Gingivitis

B. Periodontitis

C. Pericoronitis

D. Aphthous ulcers

Answer Detail :

Supragingival plaque is bacteria adherent above the gingiva, whereas bacteria below the gingiva is called subgingival plaque. Growth in supragingival plaque mass results from nutrients obtained from ingested simple carbohydrates (glucose), lactic acid and other plaque components.

17. The organism least likely to be found in normal gingival crevices is:

A. Fusobacterium

B. Actinomyces

C. Diptheroids

D. Streptococci

Answer Detail : ***Diphtheroids*** are defined as aerobic, non-sporulating, pleomorphic Gram-positive bacilli which are more uniformly stained than Corynebacterium diphtheriae, lack the metachromatic granules and are arranged in a palisade manner. They are usually commensals of the skin and mucous membranes.

18. The sticky polysaccharide present in dental plaque is:

A. Dextran

B. Dextrin

C. Glycogen

D. Sucrose

Answer Detail :

Dextran is a complex branched glucan (polysaccharide derived from the condensation of glucose). High-molecular weight dextran is a plasma volume expander made from natural sources of sugar (glucose). It works by restoring blood plasma lost through severe bleeding. Severe blood loss can decrease oxygen levels and can lead to organ failure, brain damage, coma, and possibly death.

19. Which of the following organisms is not implicated in the etiology of periodontal disease:

A. Bacteroides

B. Wolinella

C. Neisseria

D. Eikenella

20. Bacteria, which are not found in normal healthy periodontium are:

A. Actinomyces

B. Capnocytophaga

C. Veillonella

D. Eubacterium

21. Most important initiative factor for periodontitis is:

A. Dental plaque

B. Calculus

C. Trauma from occlusion

D. Food debris layer

Answer Detail :

Dental plaque is a biofilm or mass of bacteria that grows on surfaces within the mouth. It is a sticky colorless deposit at first, but when it forms tartar, it is often brown or pale yellow.

22. Dental plaque adheres to the tooth because:

A. Levans are gummy

B. Dextrans are insoluble and sticky

C. Plaque grows into the irregularities

D. Microorganisms produce sticky lipoproteins

23. In which of the following conditions is the role of microbial plaque most obscure:

A. Periodontitis

B. Juvenile periodontitis

C. Desquamative gingivitis

D. Necrotizing ulcerative gingivitis

Answer Detail :

Desquamative gingivitis is an erythematous (red), desquamatous (shedding) and ulcerated appearance of the gums. It is a descriptive term and can be caused by several different disorders. The gingival lesions are usually treated by improved oral hygiene measures and occlusive topical and systemic corticosteroid therapy.

24. "Corn-cub" appearance is seen in:

A. Supragingival calculus

B. Subgingival calculus

C. Supragingival plaque

D. Subgingival plaque

25. Central gram-negative core supporting outer coccal cells are called:

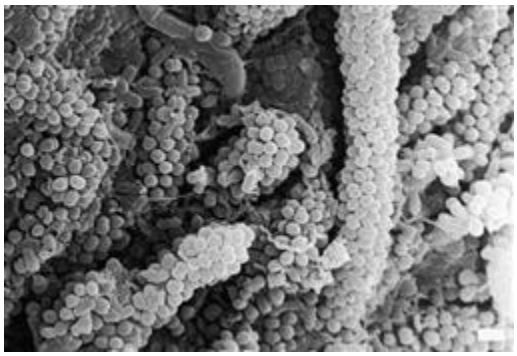
A. Bristle brush arrangement

B. Corncob arrangement

C. Bottlebrush arrangement

D. Hourglass arrangement

Answer Detail : Long-standing supragingival plaque near the gingival margin demonstrates “corncob” arrangement. A central gram-negative filamentous core supports the outer coccal cells, which are firmly attached by interbacterial adherence or coaggregation.



26. Breakdown of periodontal fibers in periodontitis is due to bacterial enzyme:

A. Collagenase

B. Hyaluronidase

C. Coagulase

D. None of the above

27. Pellicle formation involves:

A. Adsorption of acidic glycoproteins from saliva

B. Focal areas of mineralisation

C. Focal areas of necrosis

D. Bacterial colonization

28. Which of the following is the common factor for the initiation of both dental caries and periodontal disease?

A. bacterial plaque

B. lactic acid

C. calculus

D. no common factor

29. Severe alveolar bone loss, as observed in juvenile periodontitis is associated with:

A. Cyclic neutropenia

B. Lysis of neutrophils

C. Increased phagocytosis

D. Impaired neutrophil chemotaxis

31. The inorganic component of plaque is primary:

A. Calcium and fluoride

B. Calcium and sodium

C. Calcium and phosphorus

D. Sodium and calcium

32. Co-aggregation is mainly predominated by:

A. interaction between gram +ve bacteria

B. interaction between gram -ve bacteria

C. interaction between gram +ve and gram -ve bacteria

D. None of the above

33. Which of the following is a periodontal pathogen?

A. S. sanguis

B. S. mutans

C. A. viscosus

D. P. gingivalis

34. Increases in steroid hormones are associated with significant increases in:

A. Actinomyces viscosus

B. Prevotella intermedia

C. Streptococcus sanguis

D. Campylobacter rectus

35. The carbohydrate not associated with dental plaque is:

A. Dextrose

B. Levans

C. Glucose

D. Rhamnose

36. Specific plaque hypothesis was put forward by:

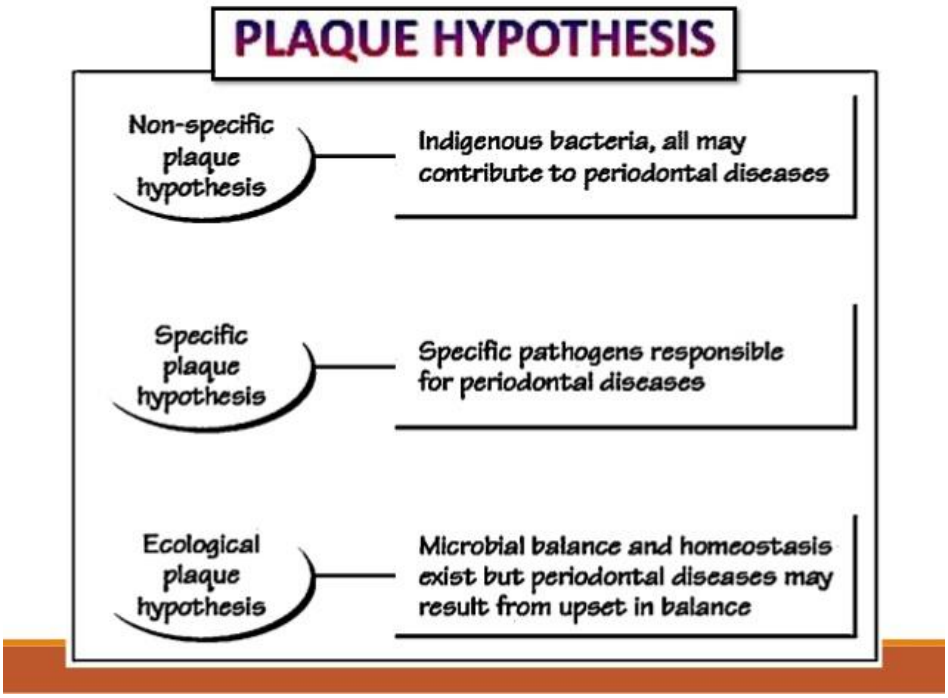
A. Jenco

B. Listgarten

C. Loesche

D. None of the above

Answer Detail : The **specific plaque hypothesis** was the favoured opinion at the birth of microbiology in the late nineteenth century. It posited that there were some specific pathogenic bacteria among the biome which were solely responsible for disease, and in the absence of which the oral environment would be healthy.



37. Which is the most numerous components of plaque?

A. Minerals

B. Food debris

C. Microorganisms

D. Leucocytes

38. Which surface of tooth has most of plaque ?

A. Gingival third of tooth surface

B. Incisal one third of tooth surface

C. Middle third of tooth surface

D. Uniform on all surfaces

39. A bacterial enzyme capable of altering the ground substance of the periodontal ligament is:

A. Amylase

B. Mucinase

C. Dextranase

D. Hyaluronidase

40. In later phases of plaque development the organism which predominates is:

A. Staphylococci

B. Streptococci

C. Rods and filaments

D. Vibrio and Spirochetes

41. Which of the following plaque is most harmful and causes spread of inflammation to the connective tissue leading to bone destruction?

A. Subgingival epithelial attached

B. Subgingival unattached

C. Subgingival plaque

D. Supragingival plaque

42. Dental plaque is formed by reaction of enzymes on:

A. Sucrose and lipids

B. Glucose and proteins

C. Glucose and lipids

D. Sucrose and saliva

43. The bacteria of oral flora which plays least role in periodontitis is:

A. Actinomyces

B. Actinomycetam comitans

C. Spirochetes

D. Bacteriodes

44. Majority of oral microorganisms are:

A. Strict anaerobes

B. Gram positive bacilli

C. Spirochetes

D. Facultative anaerobes

45. The bacterial flora associated with juvenile periodontitis is mainly:

A. Gram +ve aerobic cocci

B. Gram +ve anaerobic cocci

C. Gram -ve aerobic cocci

D. Gram -ve anaerobic cocci

46. The inorganic component of subgingival plaque is derived from:

A. Saliva

B. Crevicular fluid

C. A and B

D. Fluids ingested

47. Which of the following is the most likely source of collagenase ?

A. Staphylococcus aureus

B. Bacteroides gingivalis

C. Treponema microdentum

D. Veilonella alkalescens

48. Plaque differs from materia alba in:

A. presence of bacteria

B. presence of glycoprotein

C. presence of saliva

D. Absence of glycoprotein

49. Bacteria in plaque form:

A. Intracellular polysaccharides

B. Extracellular polysaccharides

C. Both A and B

D. Complex polysaccharides

50. Which of the following is first formed after tooth brushing?

A. Materia alba

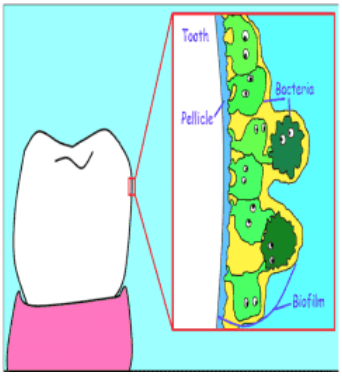
B. Plaque

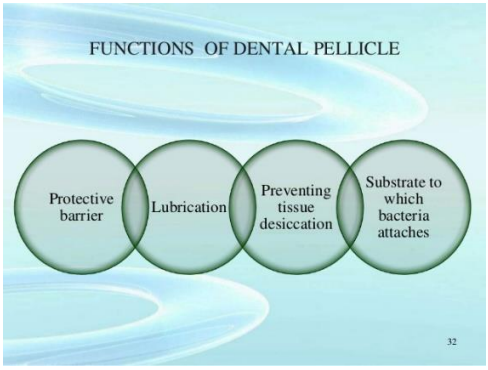
C. Pellicle

D. Calculus

Answer Detail : **The dental pellicle**, or acquired pellicle, is a protein film that forms on the surface enamel by selective binding of glycoproteins from saliva that prevents continuous deposition of salivary calcium phosphate. It forms in seconds after a tooth is cleaned or after chewing.

Pellicle and Dental Plaque





Steps of Plaque Formation	Description
Association	Dental pellicle forms on the tooth (normally on tooth), and provides bacteria surface to attach
Adhesion	Within hours, bacteria loosely binds to the pellicle.
Proliferation	Bacteria spreads throughout the mouth and begins to multiply.
Microcolonies	Microcolonies are formed. Streptococci secrete protective layer (slime layer).
Biofilm formation	Microcolonies form complex groups with metabolic advantages.
Growth or maturation	The biofilm develops a primitive circulatory system

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