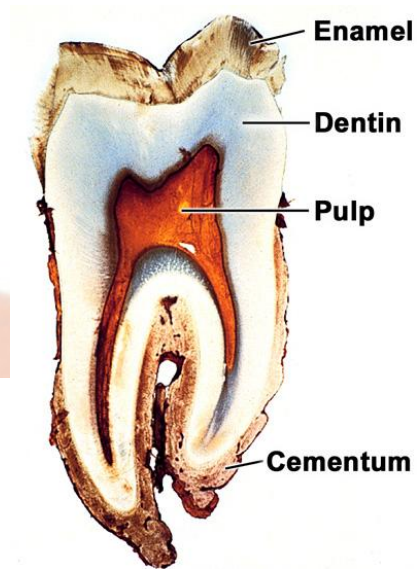


Tandorganet

Introduktion af tandvæv

16. sep 2025

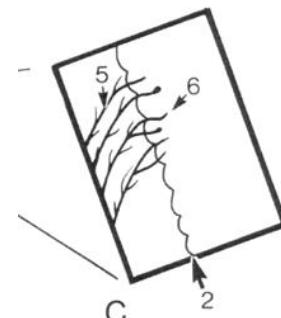
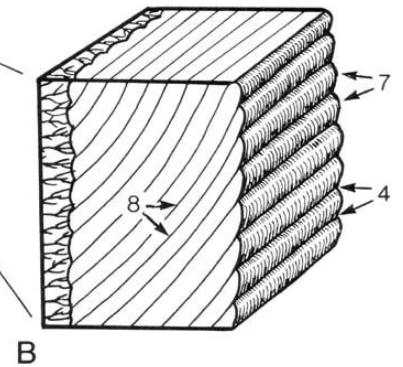
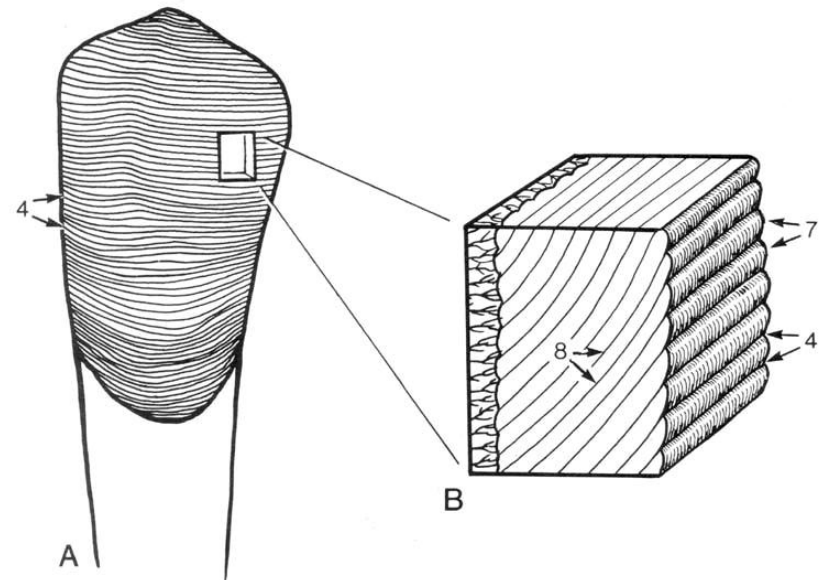
TANDEN



EMALJENS OVERFLADER



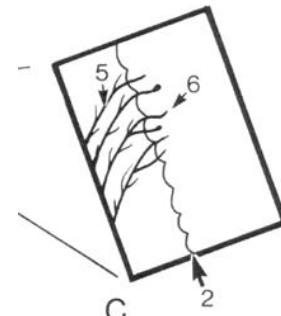
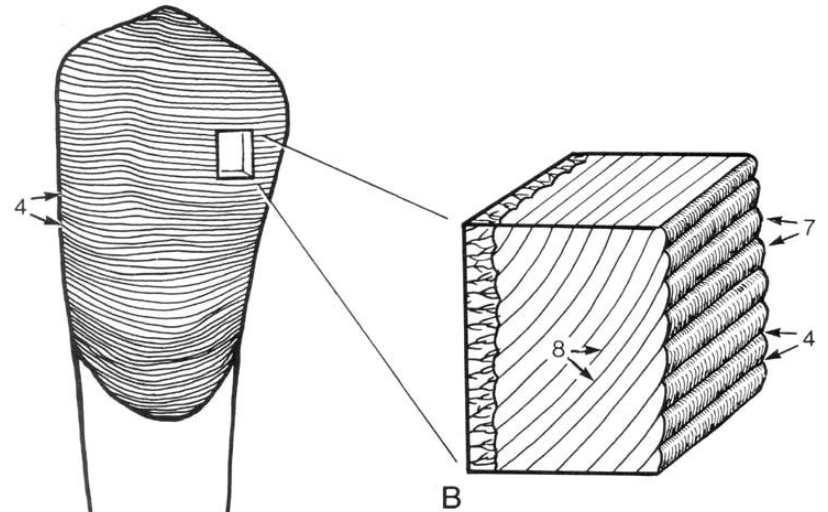
- YDRE
 - Emaljehinde
 - Emaljeoverflade
 - Perikymatier



EMALJENS OVERFLADER



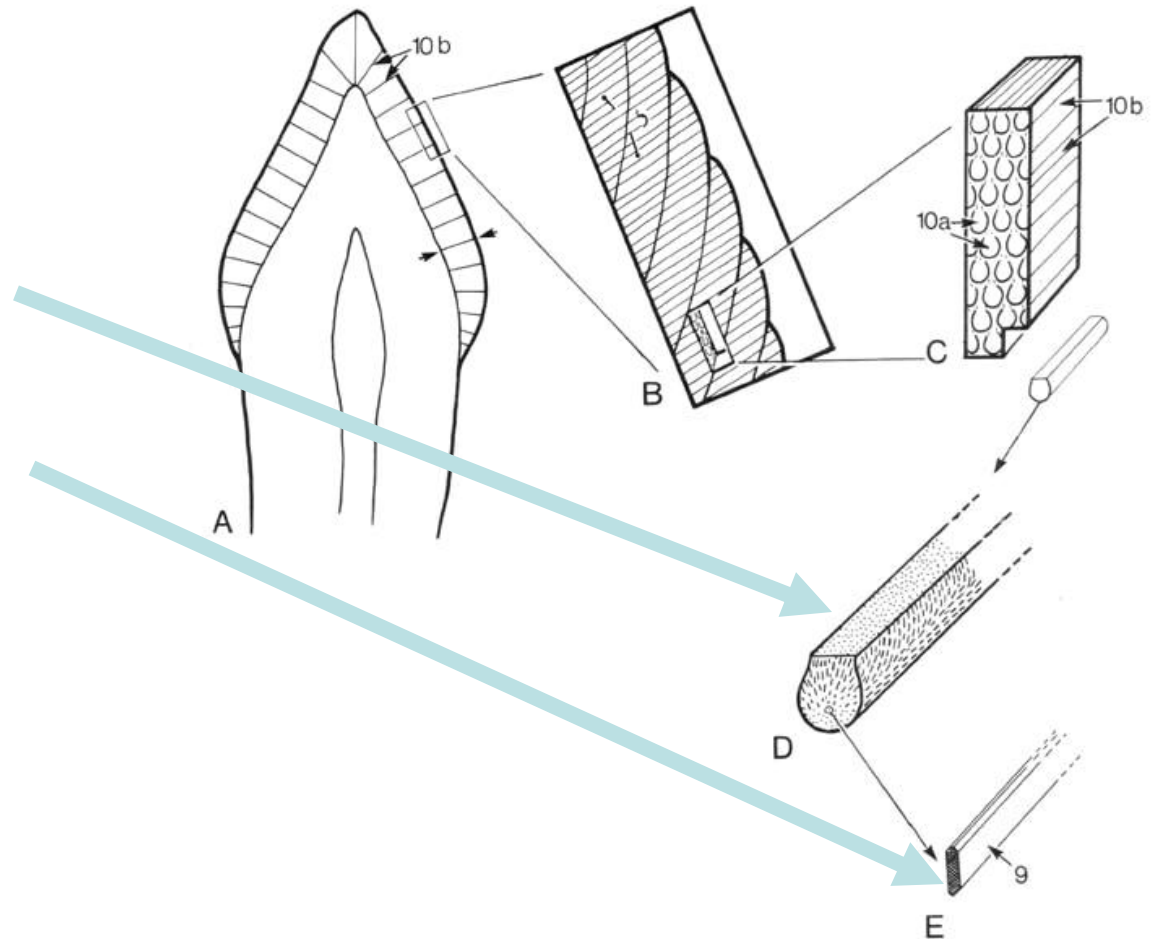
- YDRE
 - Emaljehinde
 - Emaljeoverflade
 - Perikymatier
- INDRE
 - Emaljedentingrænse
 - Odontoblastudløbere fra dentin (emaljetene)



EMALJENS MINERALISERING



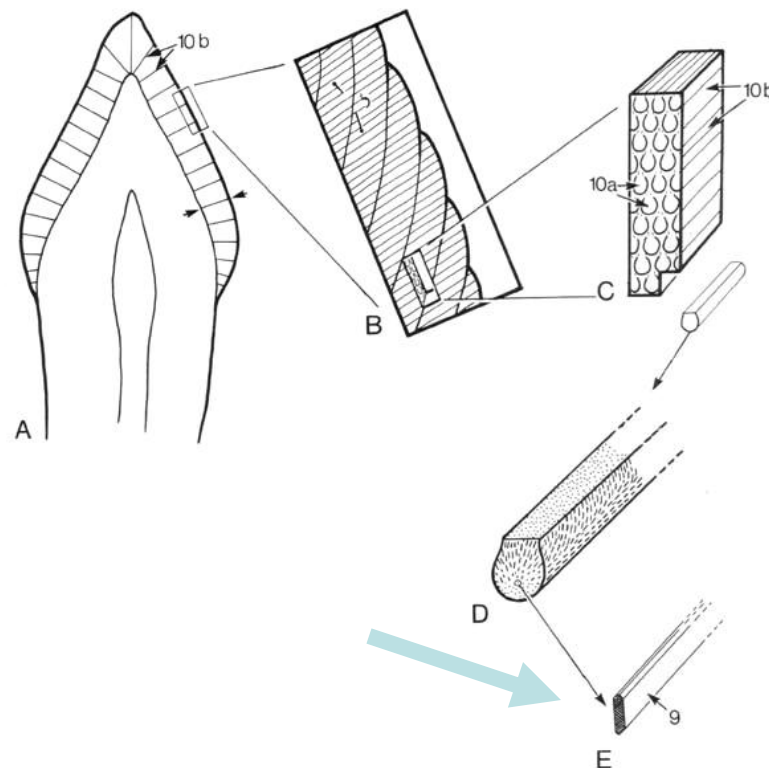
- Prismer
- Krystaller



EMALJENS MINERALISERING



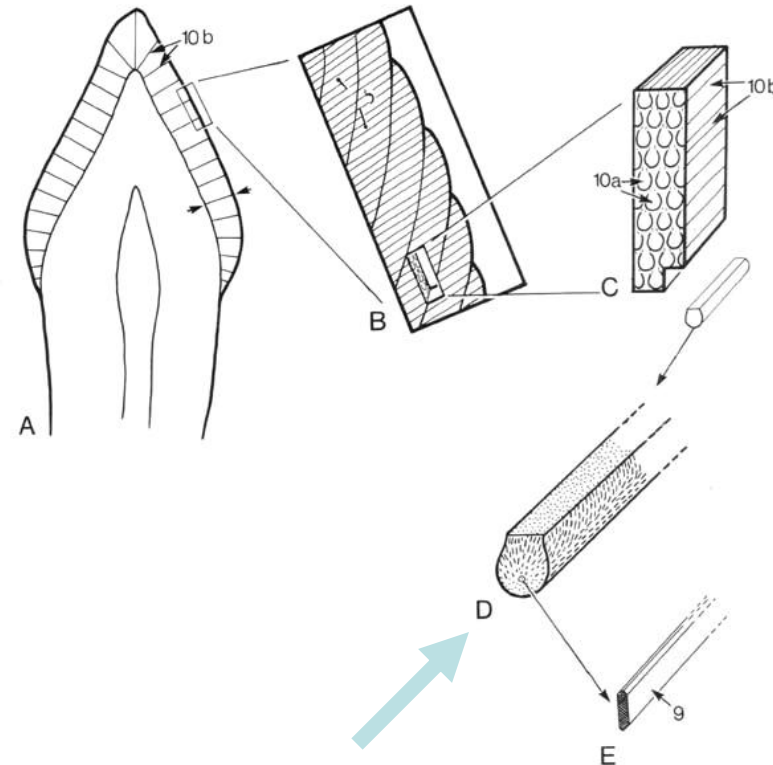
- Krystaller
 - Submikroskopiske (EM)
 - “Små krystalitter”



EMALJENS MINERALISERING



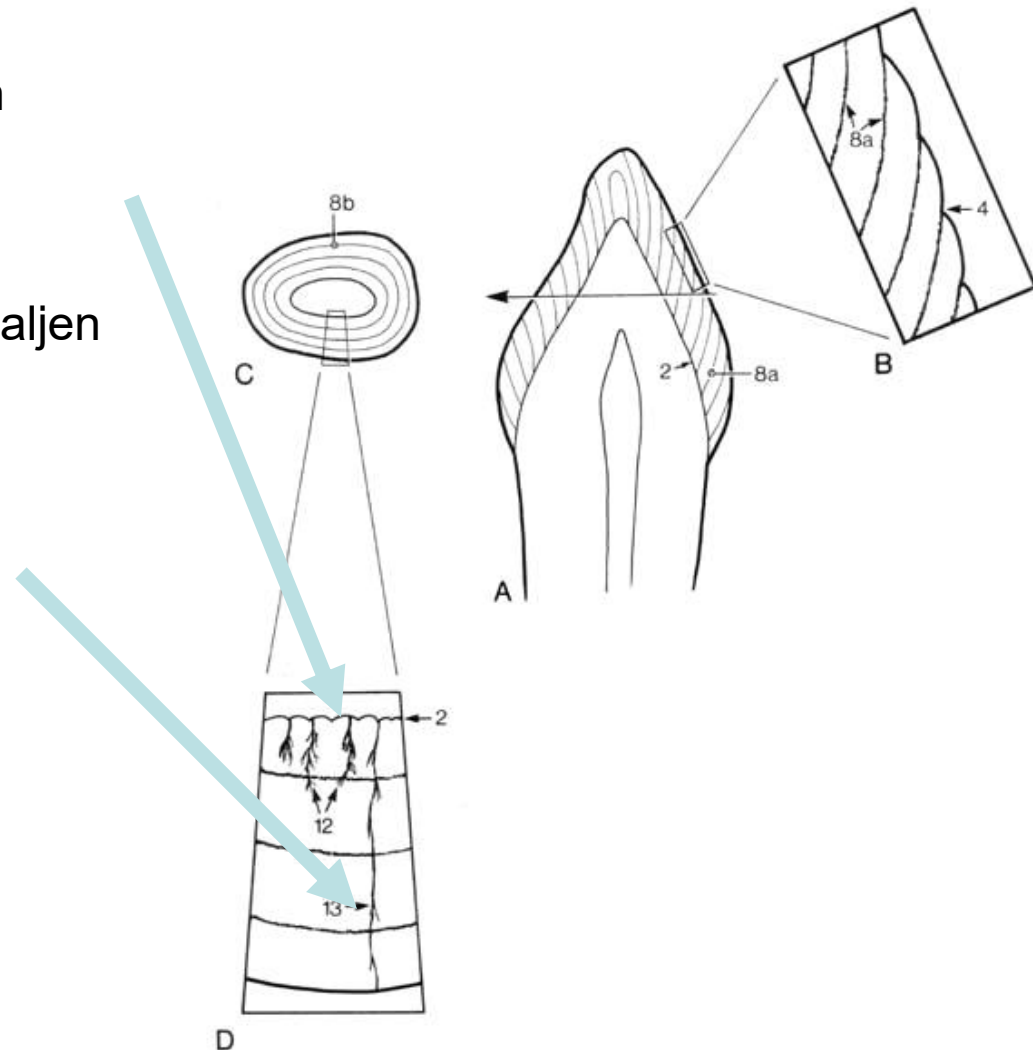
- Krystaller
 - Submikroskopiske (EM)
 - “Små krystalitter”
- Prismer
 - “Større enheder”
 - Stavformede og afrundede i tværsnit
 - 3-6 μm i tykkelse
 - Tykkest mod ydre emaljeoverflade
 - Næsten vinkelret på overflader



SPECIELLE EMALJESTRUKTURER



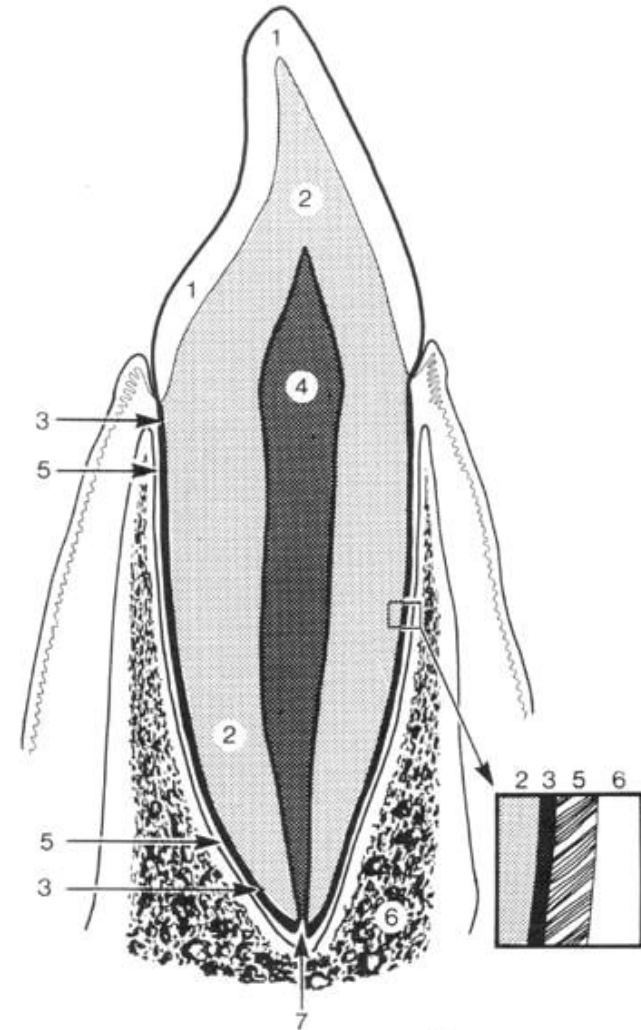
- Emaljebuske
 - Kort stykke ud i emaljen
 - proteinholdige
- Emaljelameller
 - Hele vejen igennem emaljen
 - proteinholdige



DENTIN



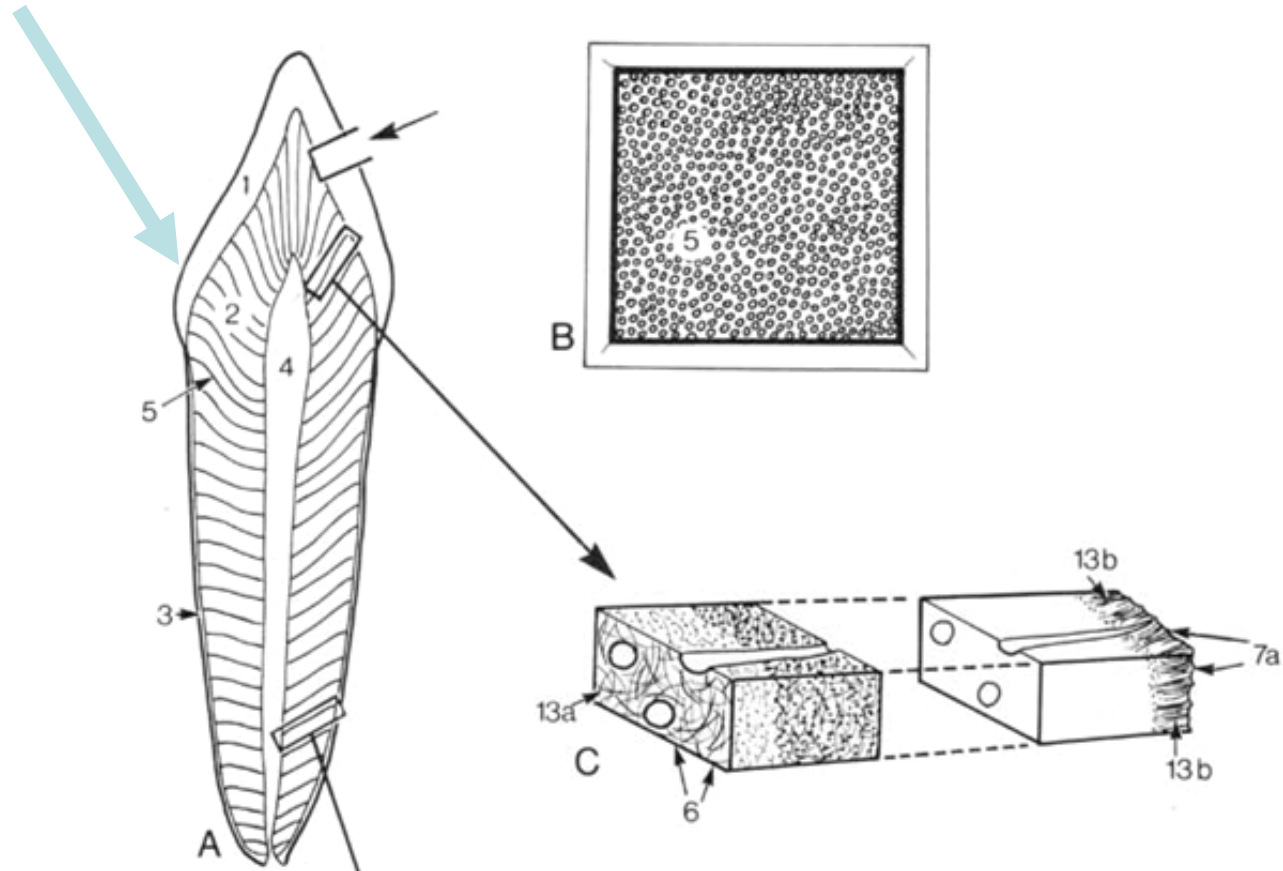
- Gullig, hård
- Støttevæv
 - kollagene fibriller
 - amorf grundsubstans
 - mineralsalte



DENTINKANALER



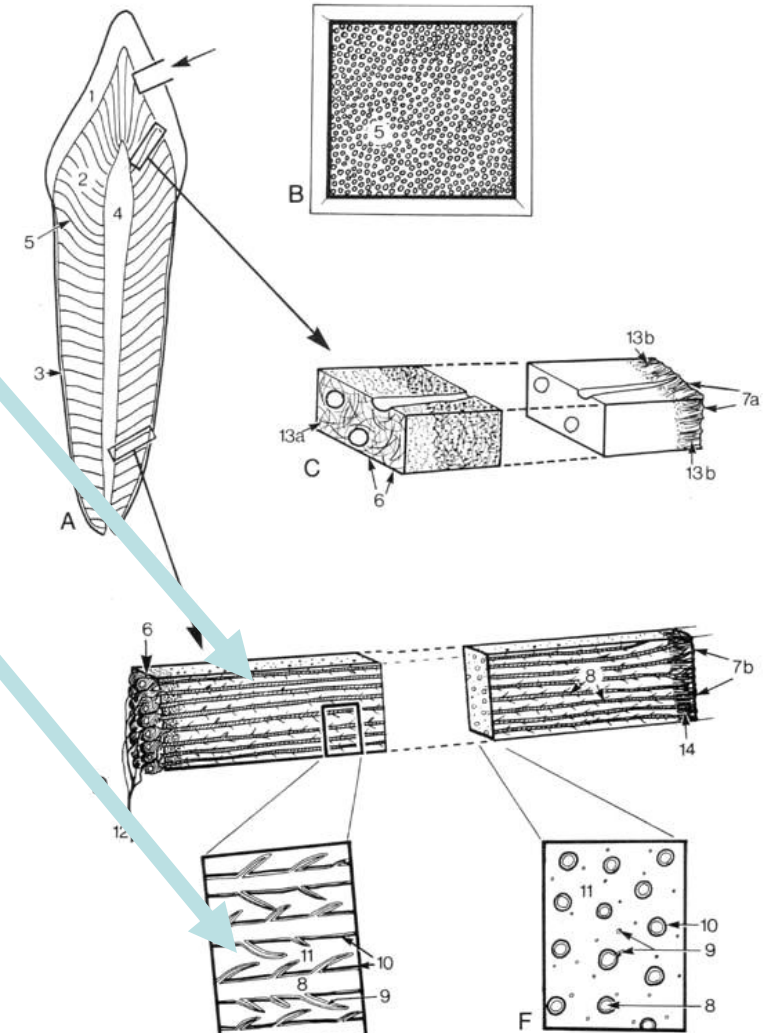
- S-formet forløb
- celleudløbere



DENTINKANALER



- Indhold
 - odontoblastudløbere
 - ofte forgrenede
 - extracellulær væske
 - enkelte nervetråde

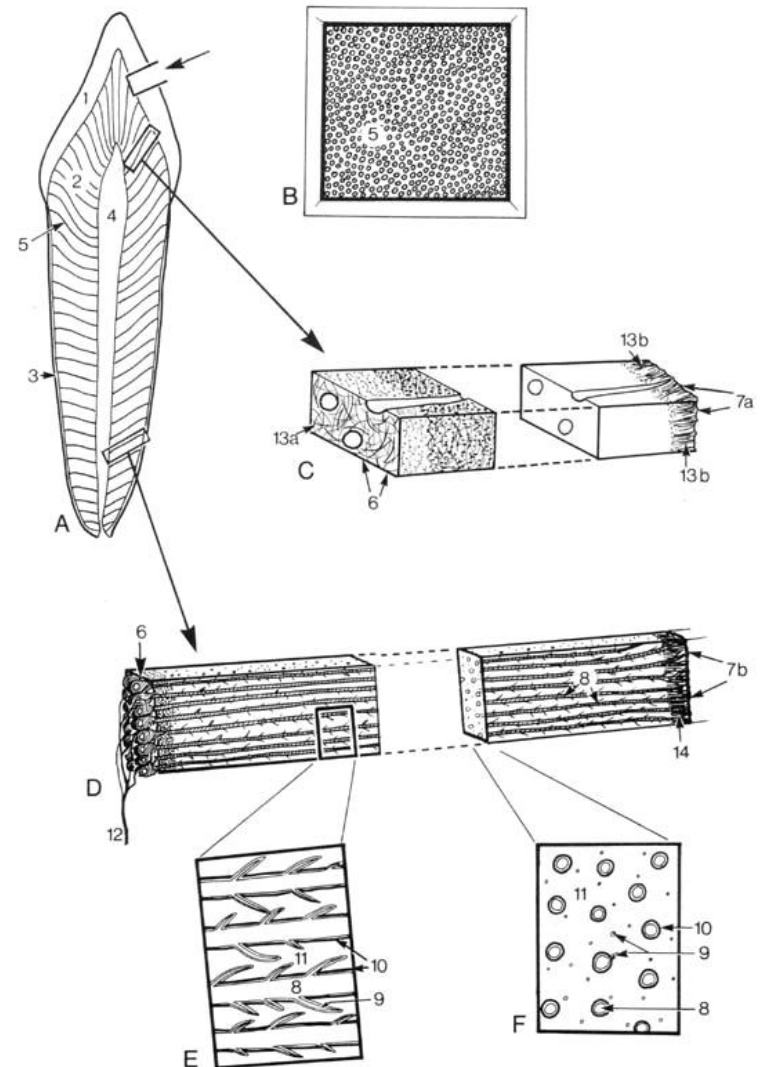


DENTINKANALER

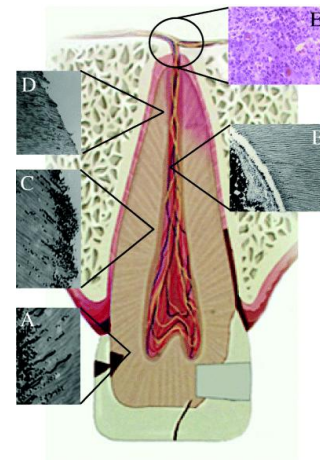


Antal

- fra 12.500 / mm² (perifert)
- til 50.000 / mm² (centralt)
- mindre diameter i dentintubuli perifert



//RISIKO FOR BAKTERIEL INVASION I DENTINKANALER



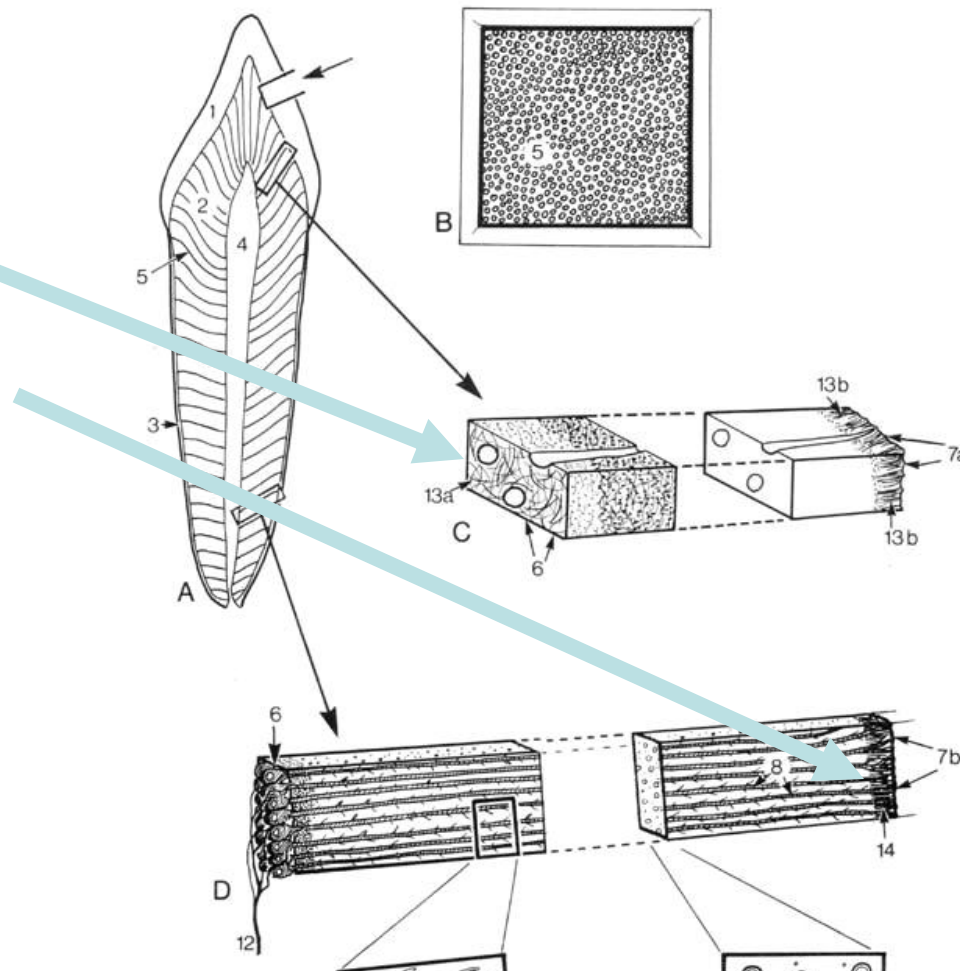
Diameter

- størst nær pulpa ca 2-3 μm
- mindre perifert ca 1 μm
- bakteriestørrelse < 1 μm

DENTIN



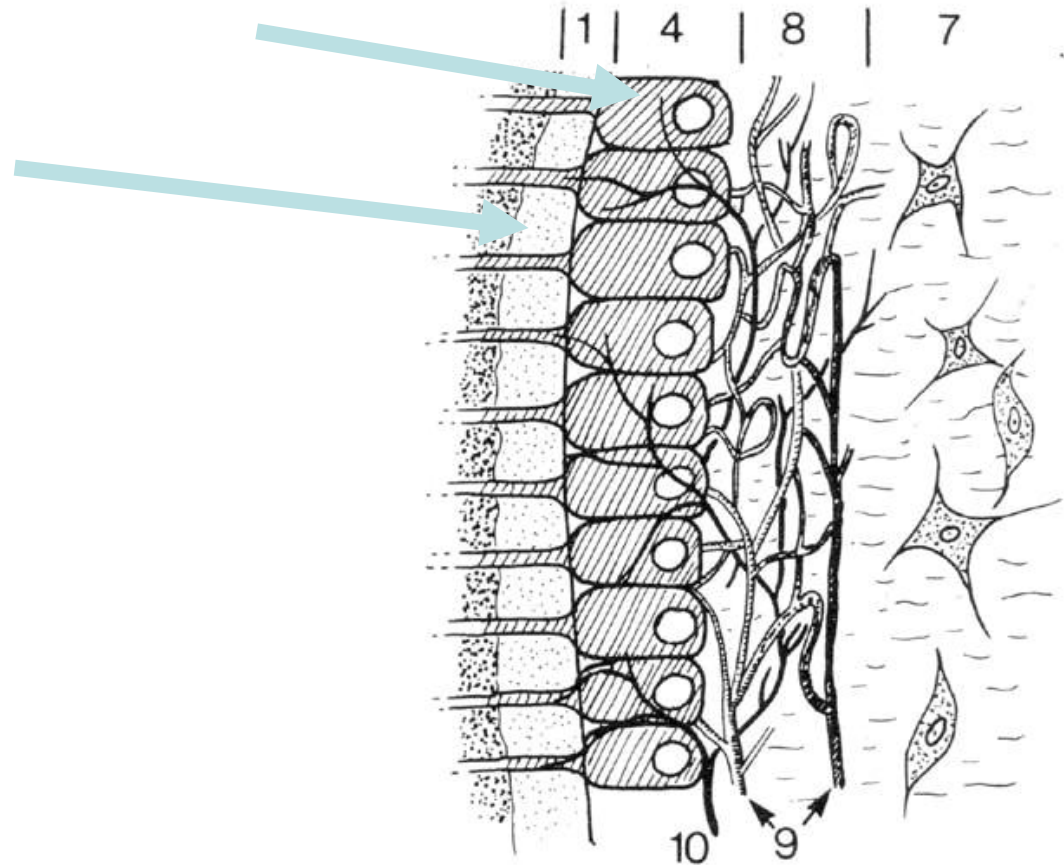
- Kollagen er uorganiseret
 - parallelt med overflade (for det meste)
 - ydre kappedentin vinkelret på overflade



DENTIN



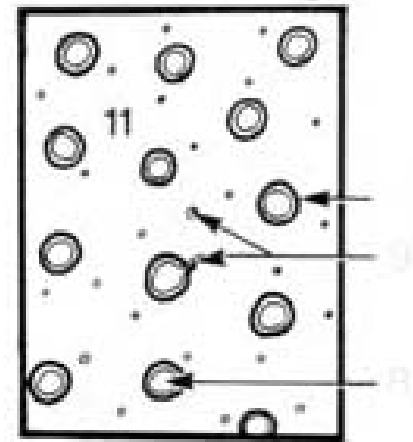
- lag af odontoblaster
- lag af prædentin
 - umineraliseret
 - tynd bræmme



DENTIN



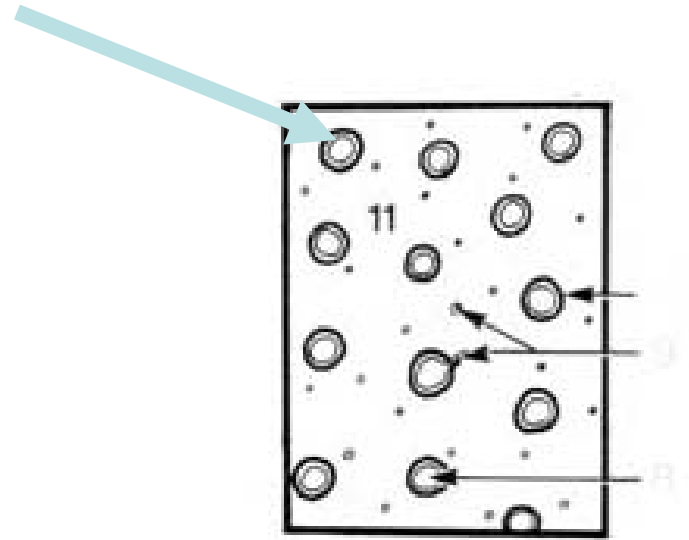
- peritubulær dentin
- intertubulær dentin



DENTIN



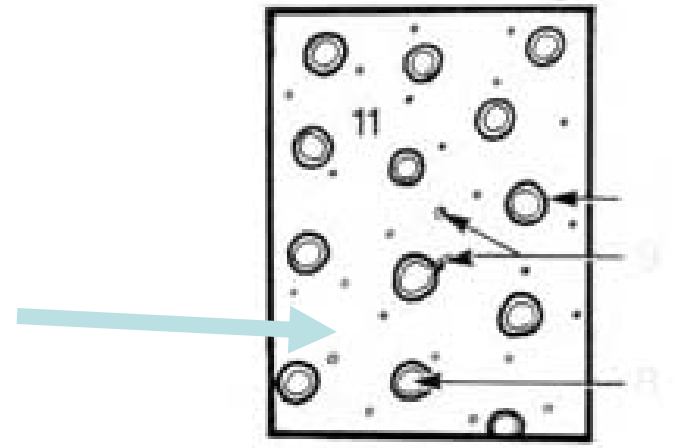
- peritubulær dentin
 - i væggen af tubuli
 - meget mineraliseret
- intertubulær dentin



DENTIN



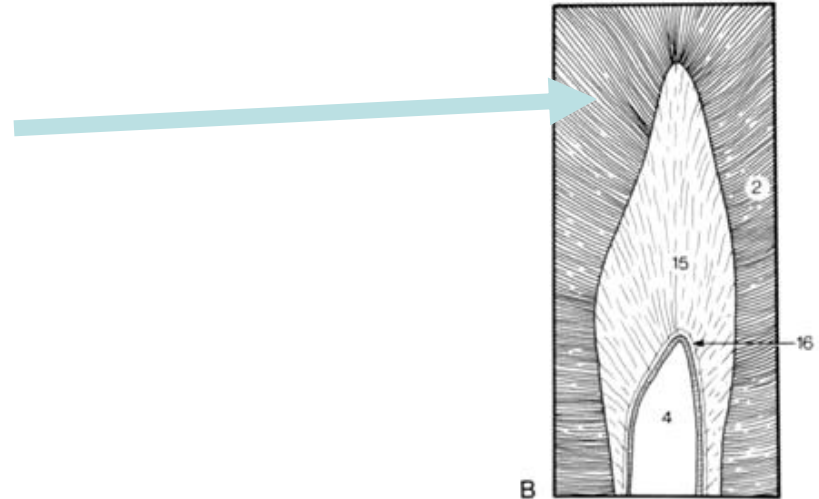
- peritubulær dentin
 - i væggen af tubuli
 - meget mineraliseret
- intertubulær dentin
 - mellem tubuli
 - flere kollagene fibriller
 - mindre mineraliseret



DENTIN



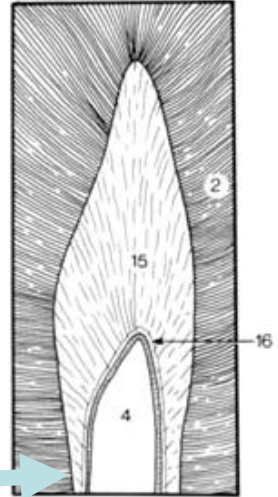
- primær dentin:
 - dannes indtil tand er færdigudviklet



DENTIN



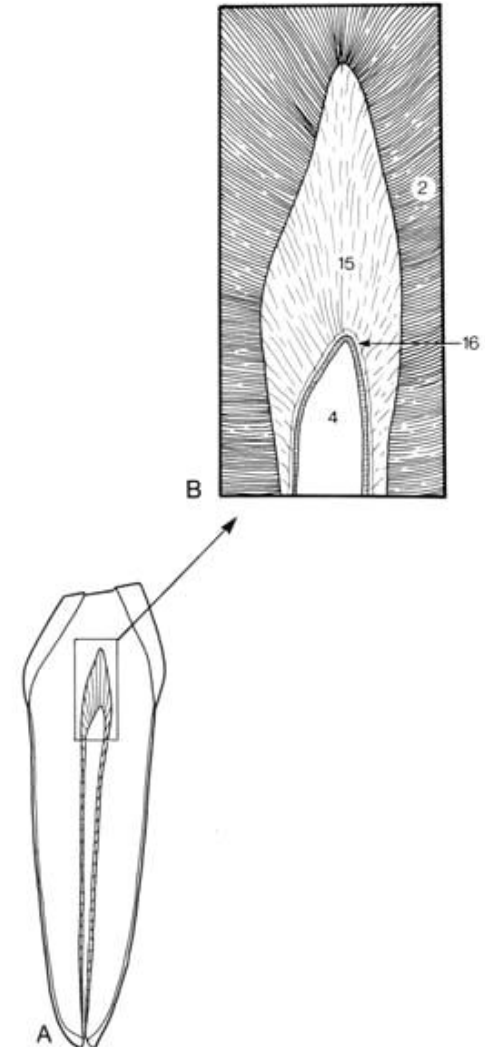
- primær dentin:
 - dannes indtil tand er færdigudviklet
- sekundær dentin
 - dannes fysiologisk hele livet igennem



DENTIN



- primær dentin:
 - dannes indtil tand er færdigudviklet
- sekundær dentin
 - dannes fysiologisk hele livet igennem
- tertiær dentin
 - sv. t. 'irritationsdentin'
 - mere uregelmæssig

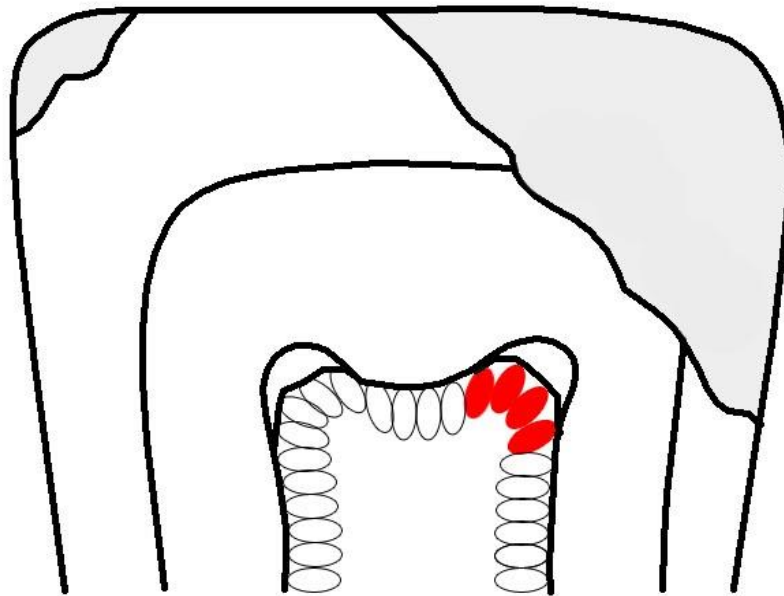


DENTIN



Tertiær dentinogenese:

- reaktionsdentin (samme celler)
- reparativ dentin (nye celler)

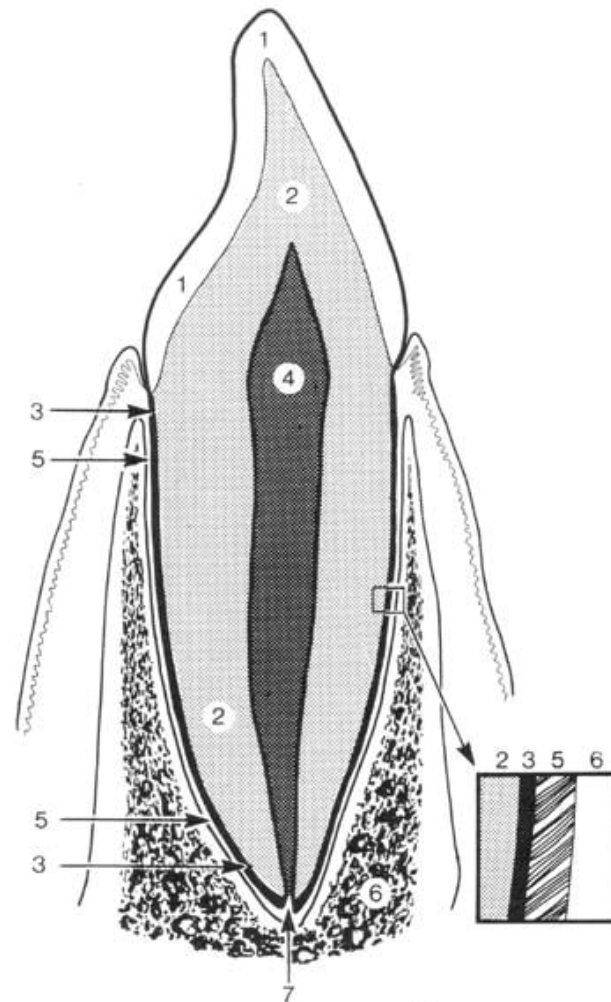


DENTIN



Dentin:

- har ingen kar
- indeholder ikke cellelegemer
- bliver ikke remodeleret



Tandvæv

Hvad er

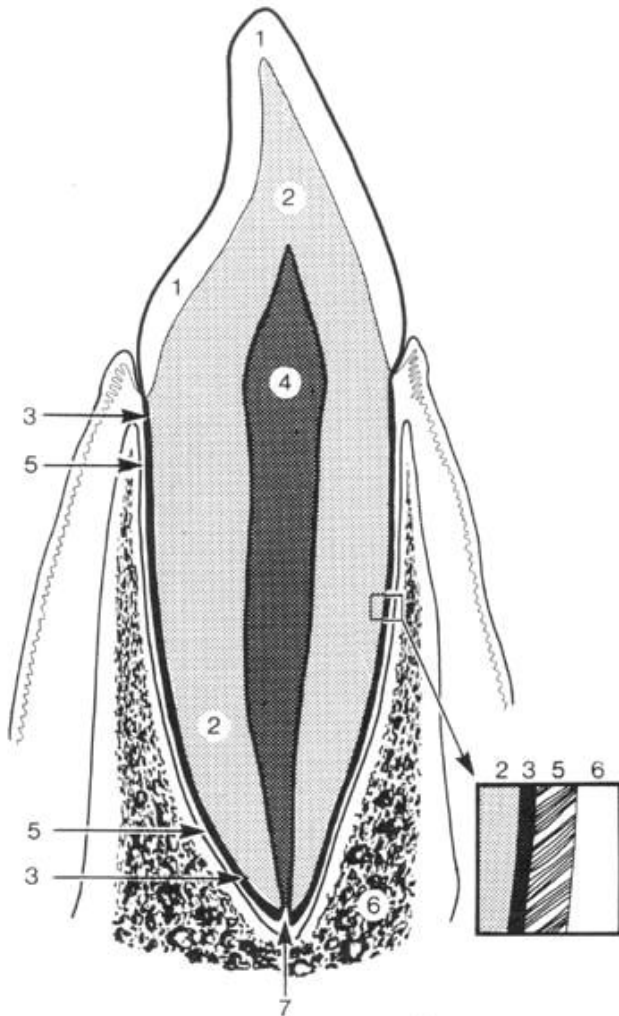
- krystaller og prismer i emalje?

- dentin og prædentin?

- peri- og intertubulær dentin?

-

Tandens støtteapparat

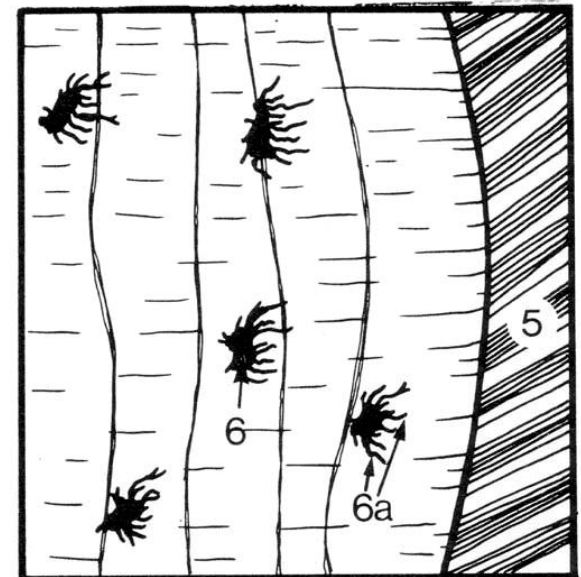


Tandens støtteapparat

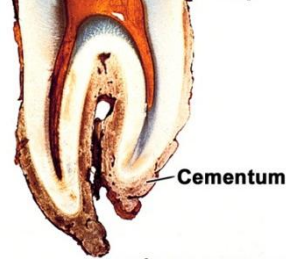
- Cement
- Rodhinde
- Alveoleknogle

CEMENT

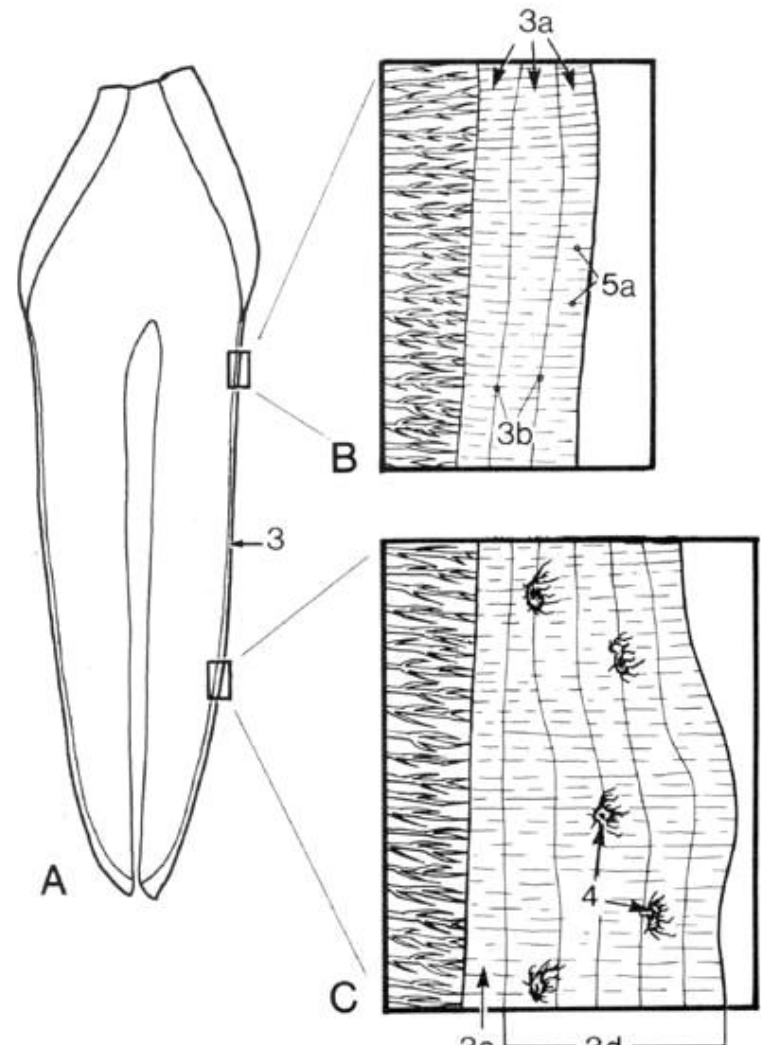
- gulligt, hårdt lag på roden
- fæster fibrilbundter fra rodhinde
- Sharpey's tråde (fibrilbundter)



CEMENT

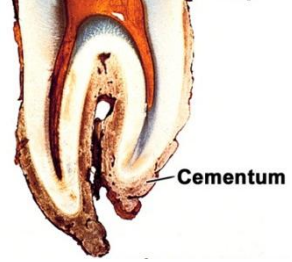
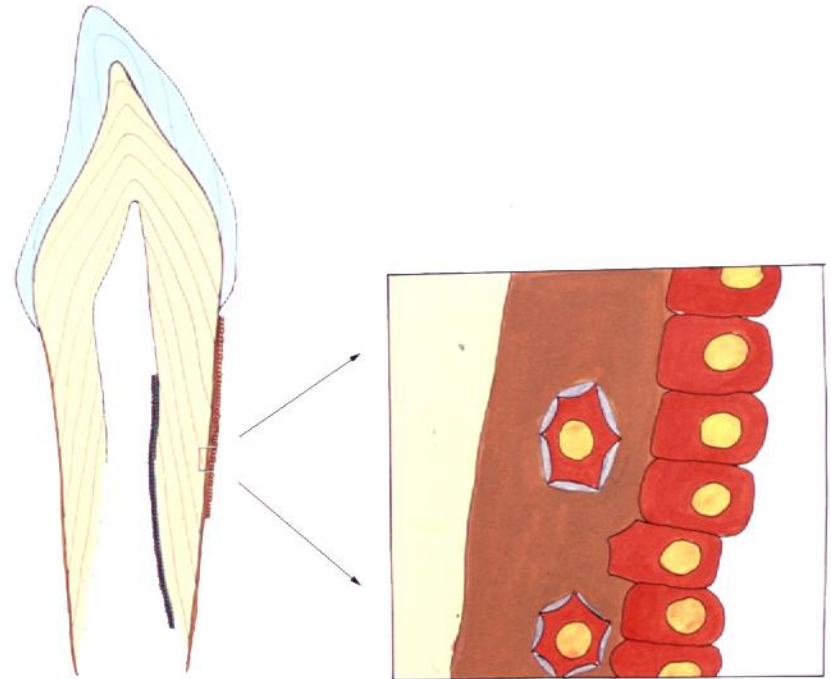


- cellefri cement
 - ind mod roddentinen
- celleholdig cement
 - udenpå flere steder
 - bl a i apikale 1/3
- cementlinier
 - er synlige vækstlinjer
 - sv t lameller i knogle



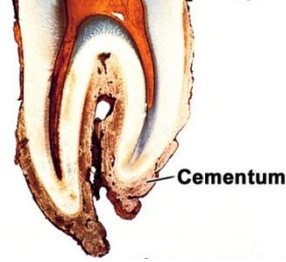
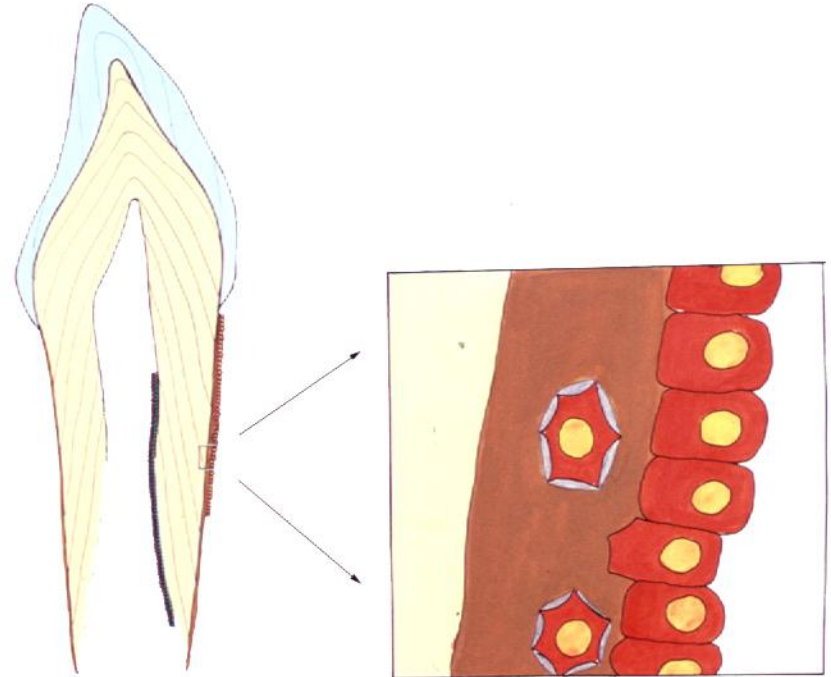
CEMENT

- cementoblaster på overfladen

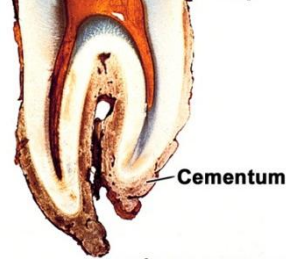


CEMENT

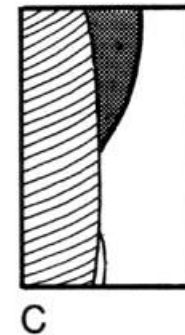
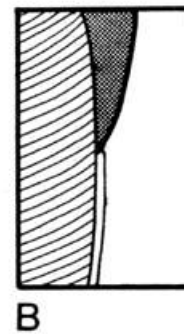
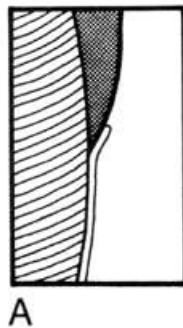
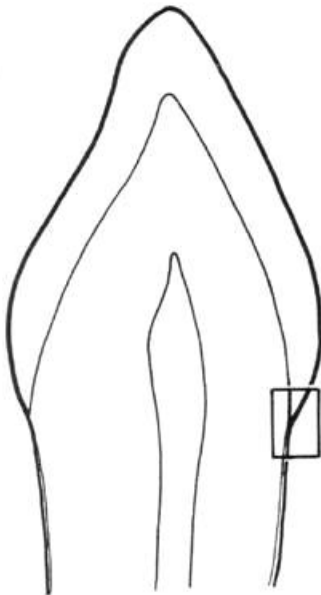
- cementoblaster på overfladen
- cementocytter indlejret i cement



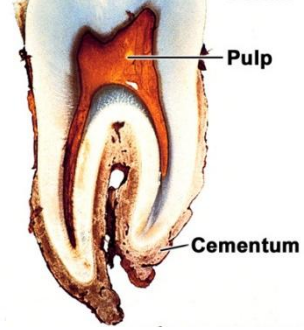
CEMENT



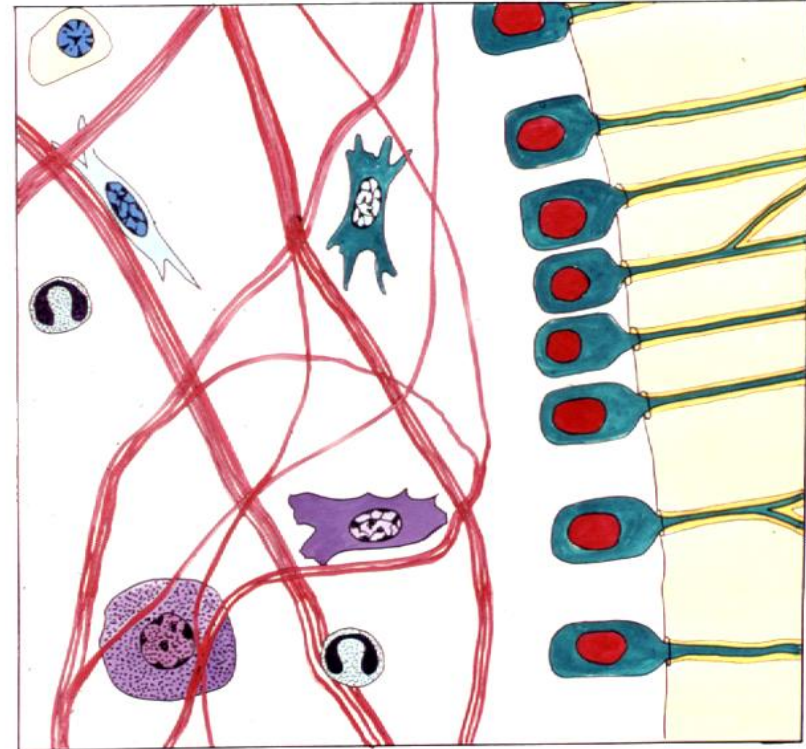
- undertiden mangler overlap mellem emalje og cement (det er følsomt for patienter)
- det skyldes at Hertwig's rodepitel persisterer



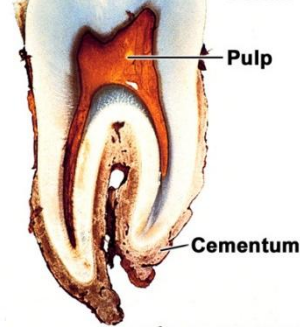
PULPA



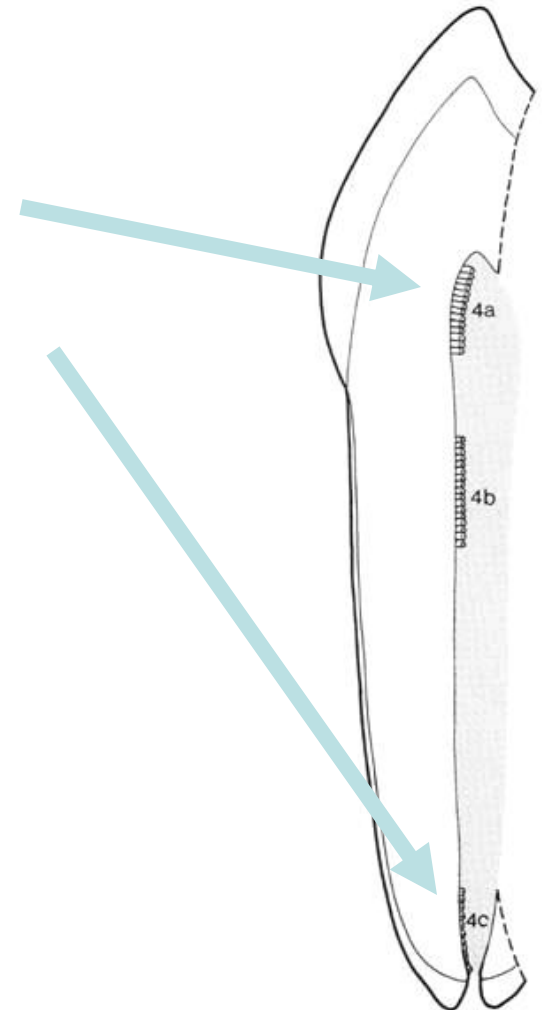
- Løst bindevæv
 - Celler
 - Kollagene fibriller
 - Amorf grundsubstans



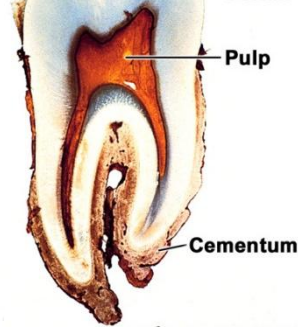
PULPA



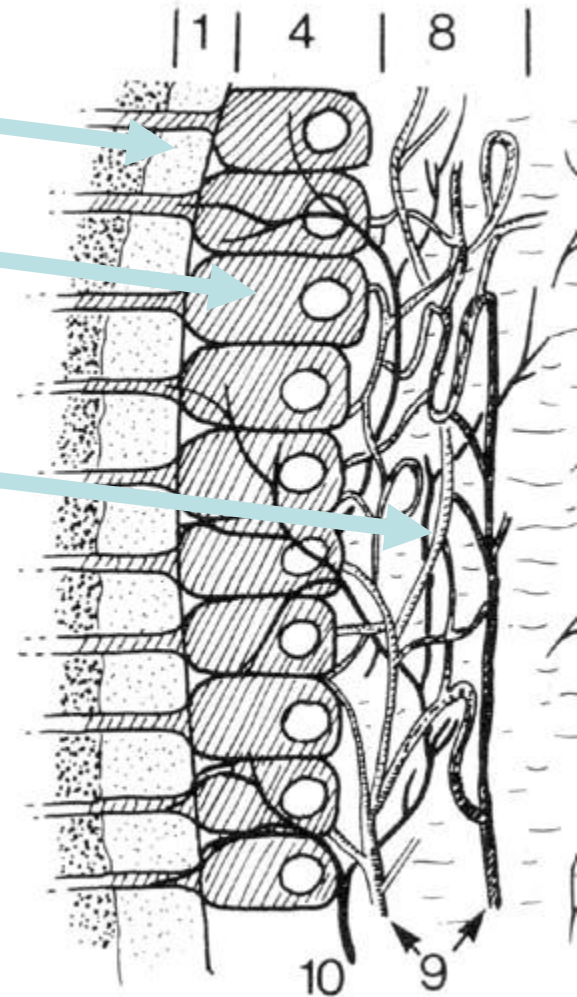
- Odontoblastlaget:
 - Prismatiske celler i kronen
 - Kubiske eller flade celler i roden



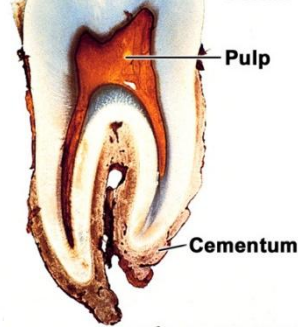
PULPA



- Prædentin
- Odontoblastlaget
- Weil's zone (cellefattig)
 - subodontoblastiske kapillærslynger
 - subodontoblastiske nerveplexus

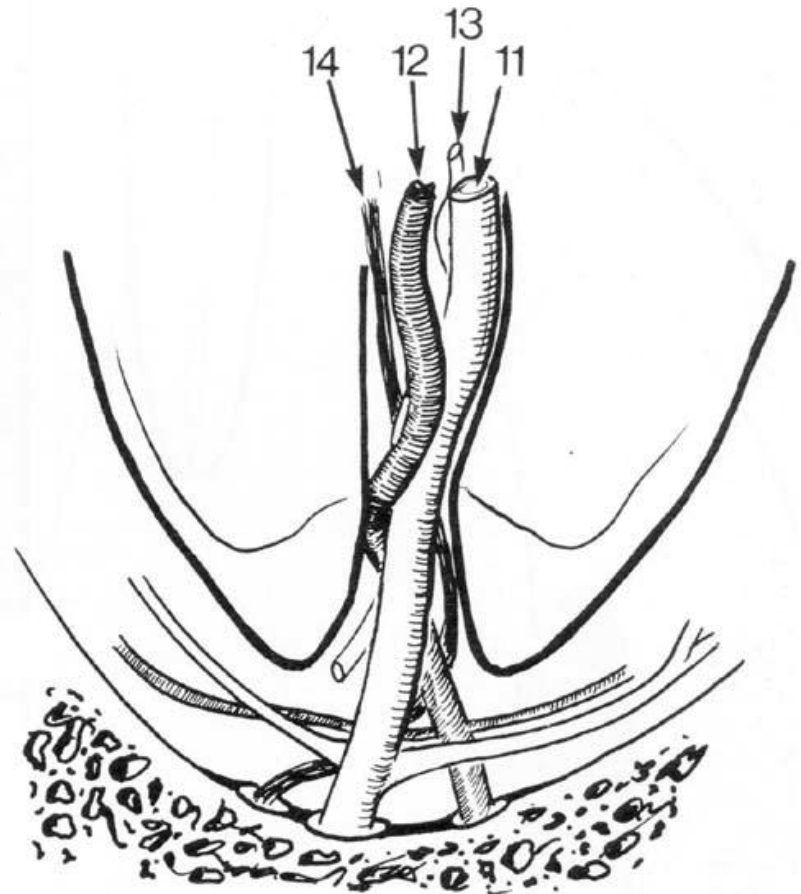


PULPA

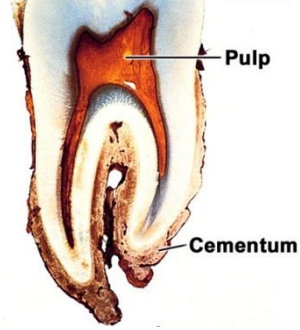


Karforsyning:

- Arterie
- Vener
- Lymfekar

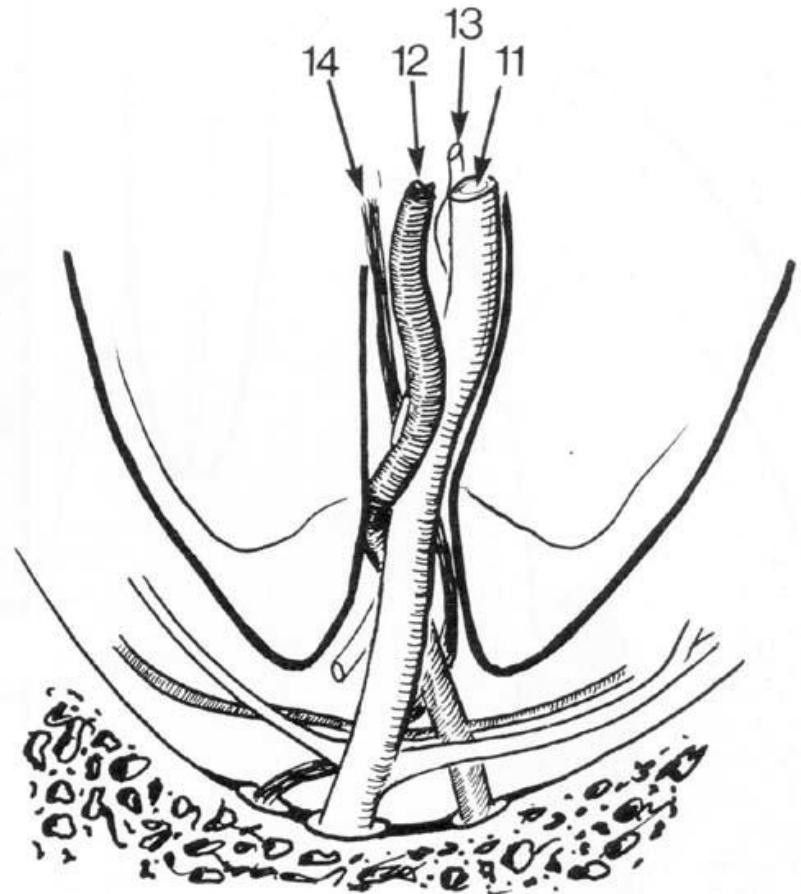


PULPA

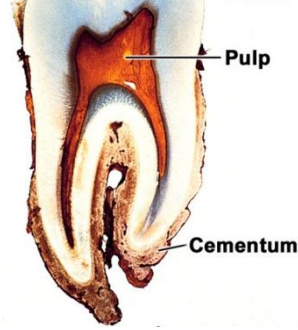


Nervetråde:

- 5-10 tynde
nervetrådsbundter

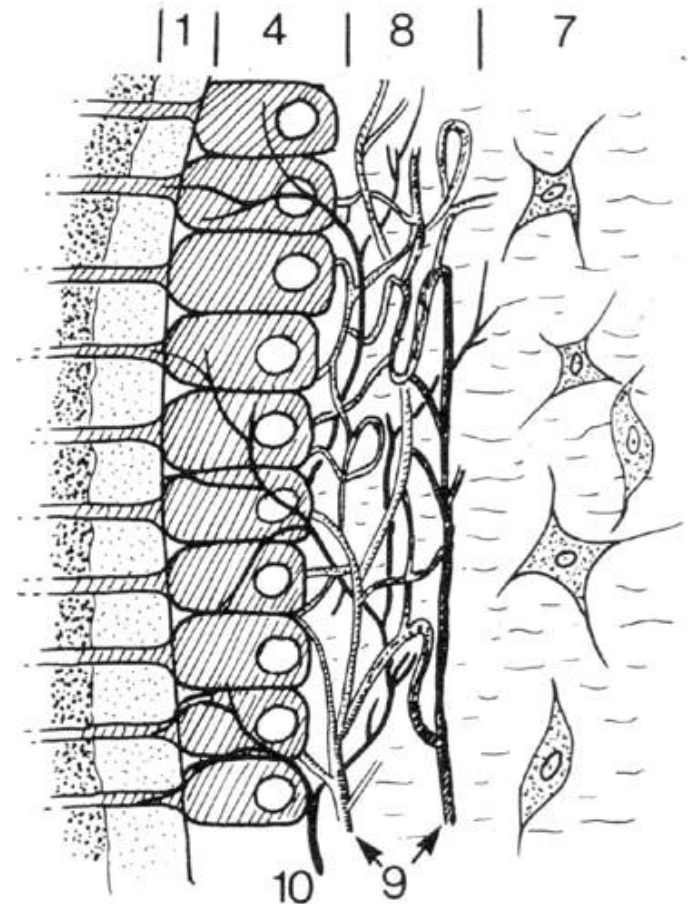


PULPA

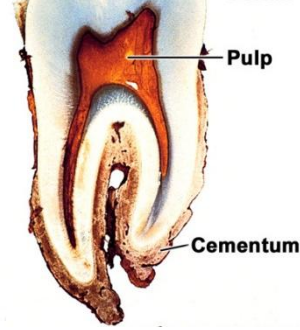


Nervetråde:

- har alle frie nerveender
 - dvs ingen specialiserede receptorer
 - de fleste er sensitive (med/uden myelinisering)
 - resten er sympatiske tråde til kar (uden myelinisering)

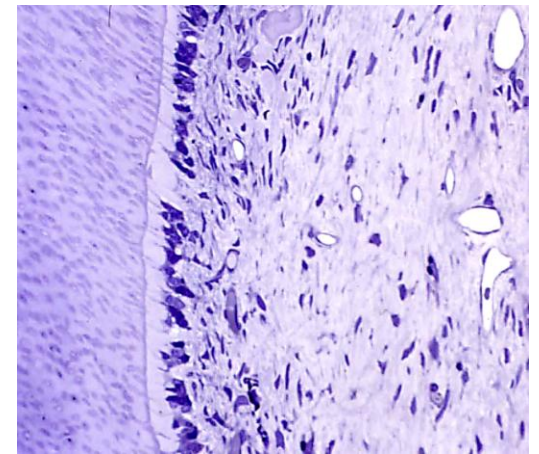


PULPA



Aldersforandringer:

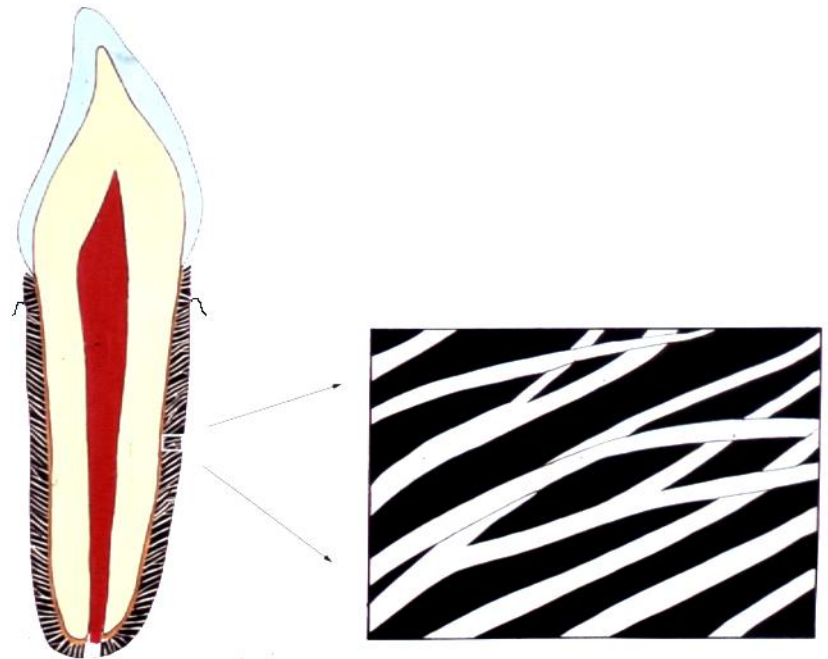
- Celletal falder
- Fibrilantal stiger
- Sekundær dentin mængde stiger



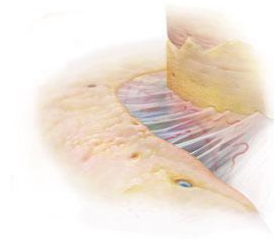
RODHINDE



- Ligger i periodontalspalte
- Forbinder tandrod og knogle
- Er ca 0,25 mm tyk

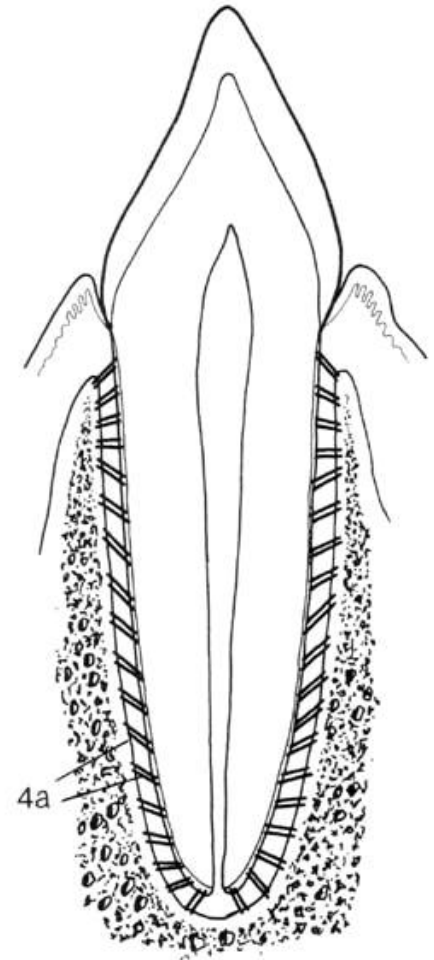


RODHINDE



Nervetråde:

- Smerteførende
- Proprioceptive

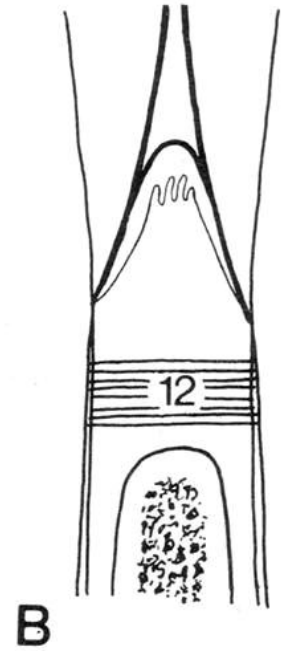
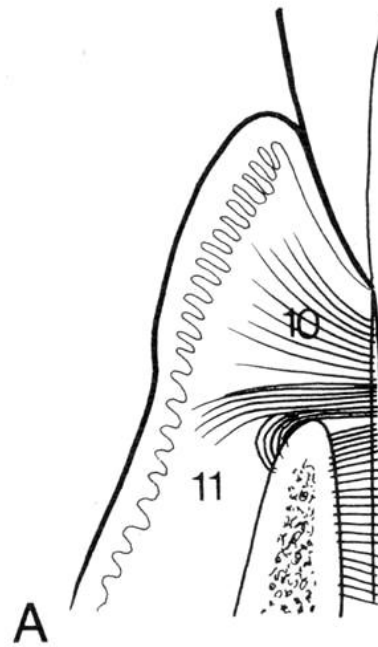


RODHINDE

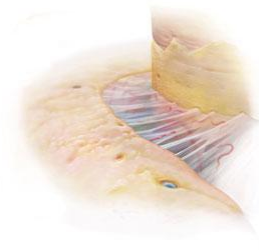


Fibre:

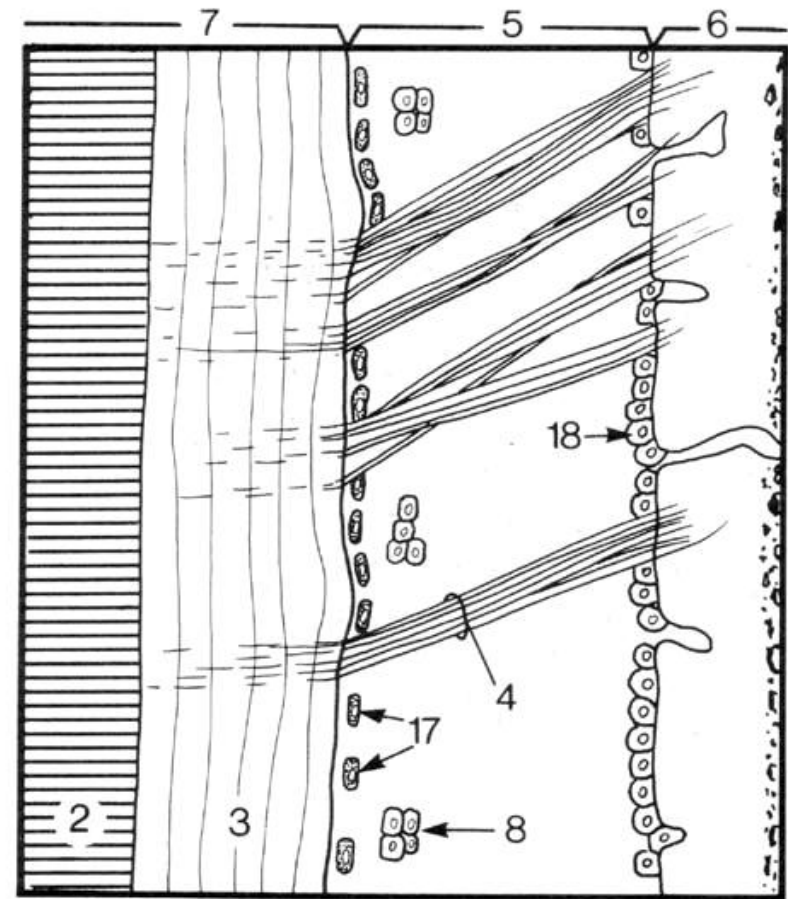
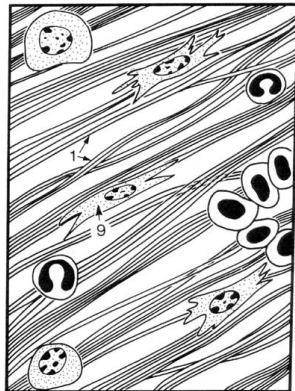
- Dentogingivale
- Dentoperiostale
- Dentoalveolære
- Transeptale



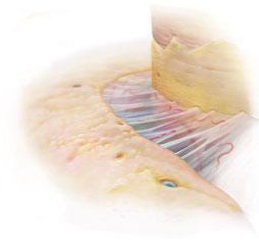
RODHINDE



- stamceller i rodhinden kan differentiere til:
 - fibroblaster
 - osteoblaster
 - cementoblaster



RODHINDE



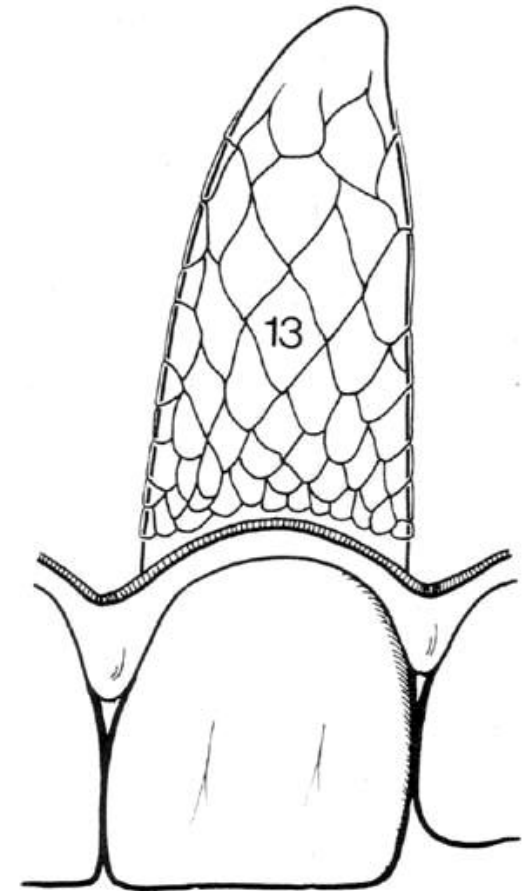
Rester af Hertwig's rodskede:

- Malassez epiteløer
- i den inderste del af rodhinde
- danner et net
- kan udvikles til cyster
- hvis det går tabt bliver det gendannet



Malassez epitelø

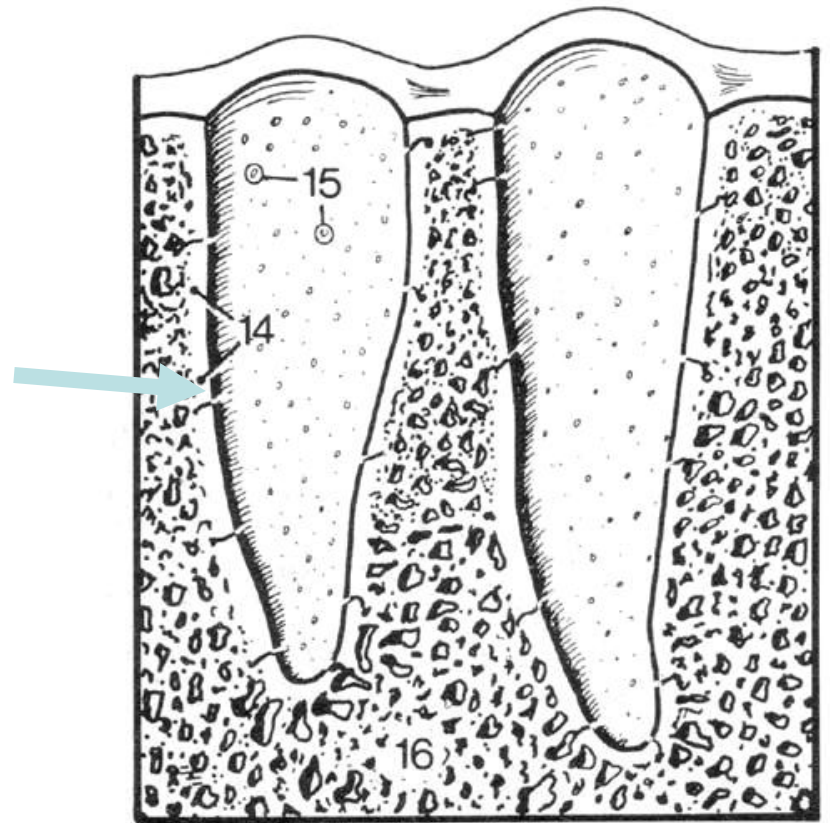
Rodhinde mellem tand og knogle



ALVEOLEKNOGLE



- Substantia spongiosa
- Substantia compacta
 - har huller til mindre kar der forsyner rodhinden



GINGIVA

- er rosa, mat, let nubret ("chagrineret")

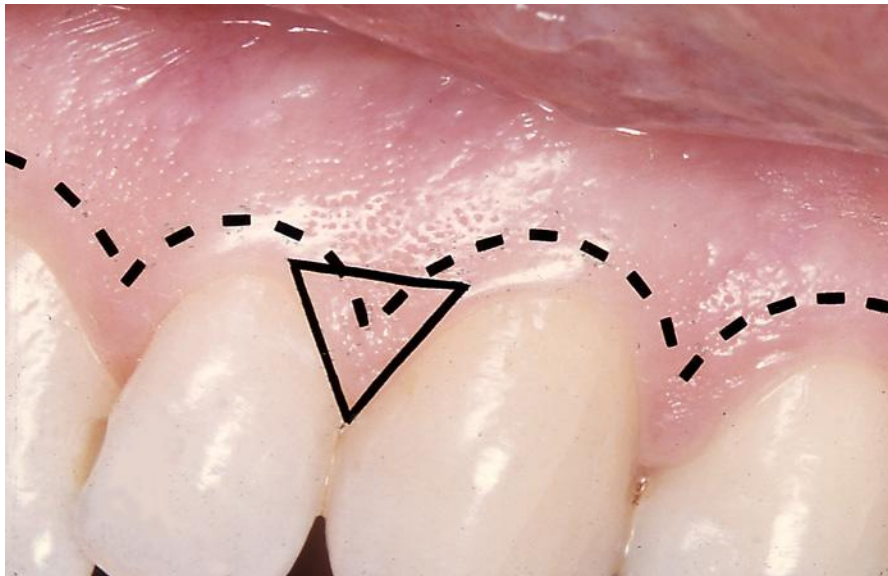


GINGIVA



Stiplet linie afgrænser:

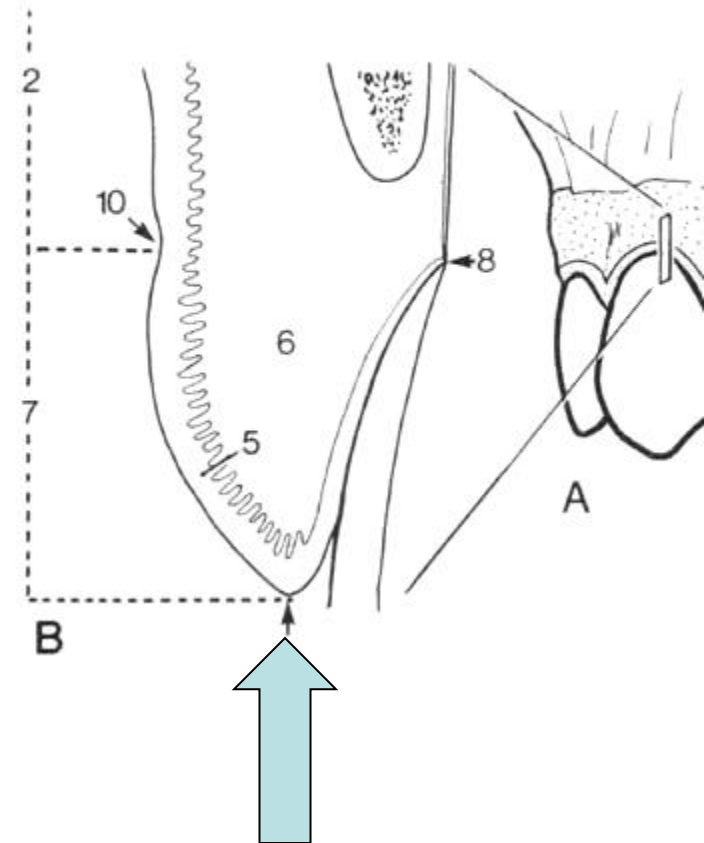
- Fast bundne gingiva
- Frie marginale gingiva



GINGIVA



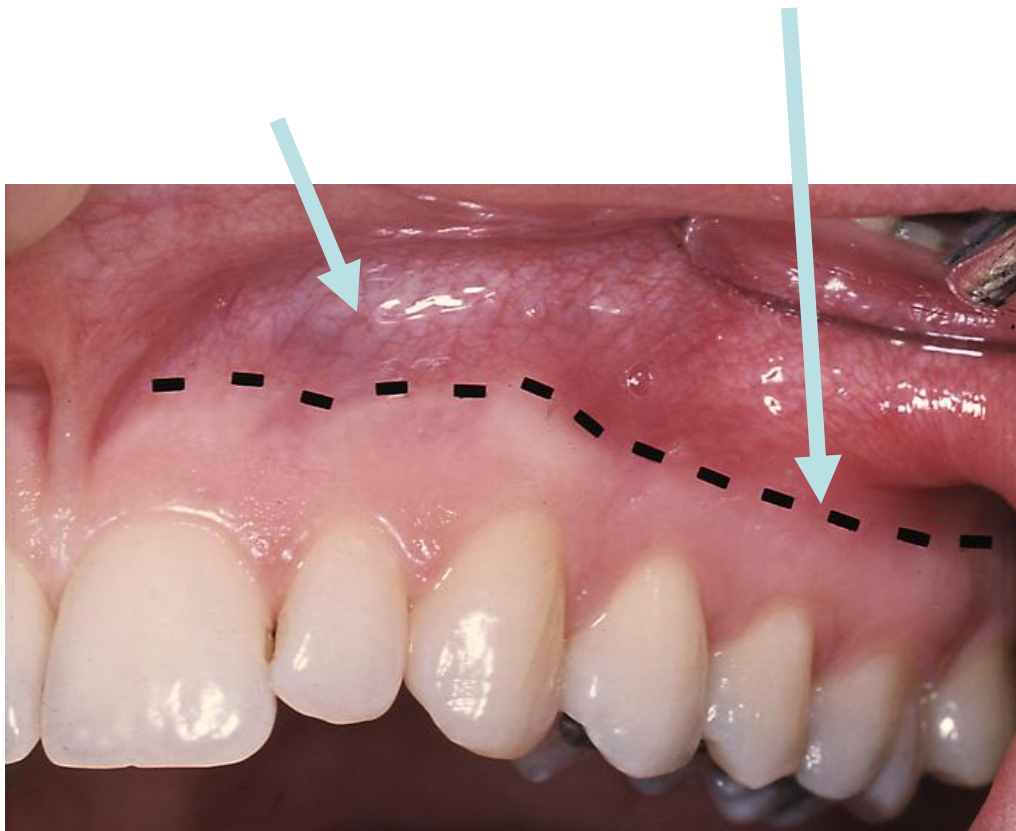
- Gingivalranden



GINGIVA



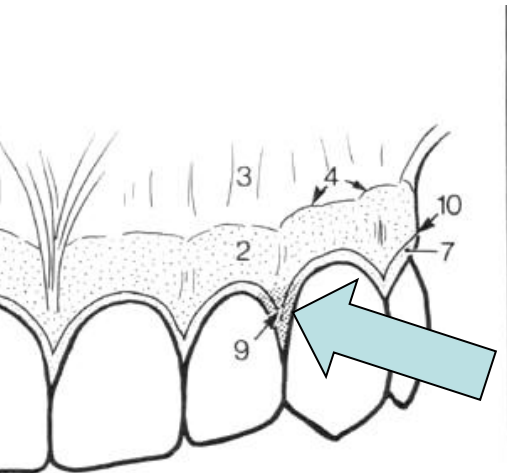
- Mucogingivale grænse
- Alveolære mucosa



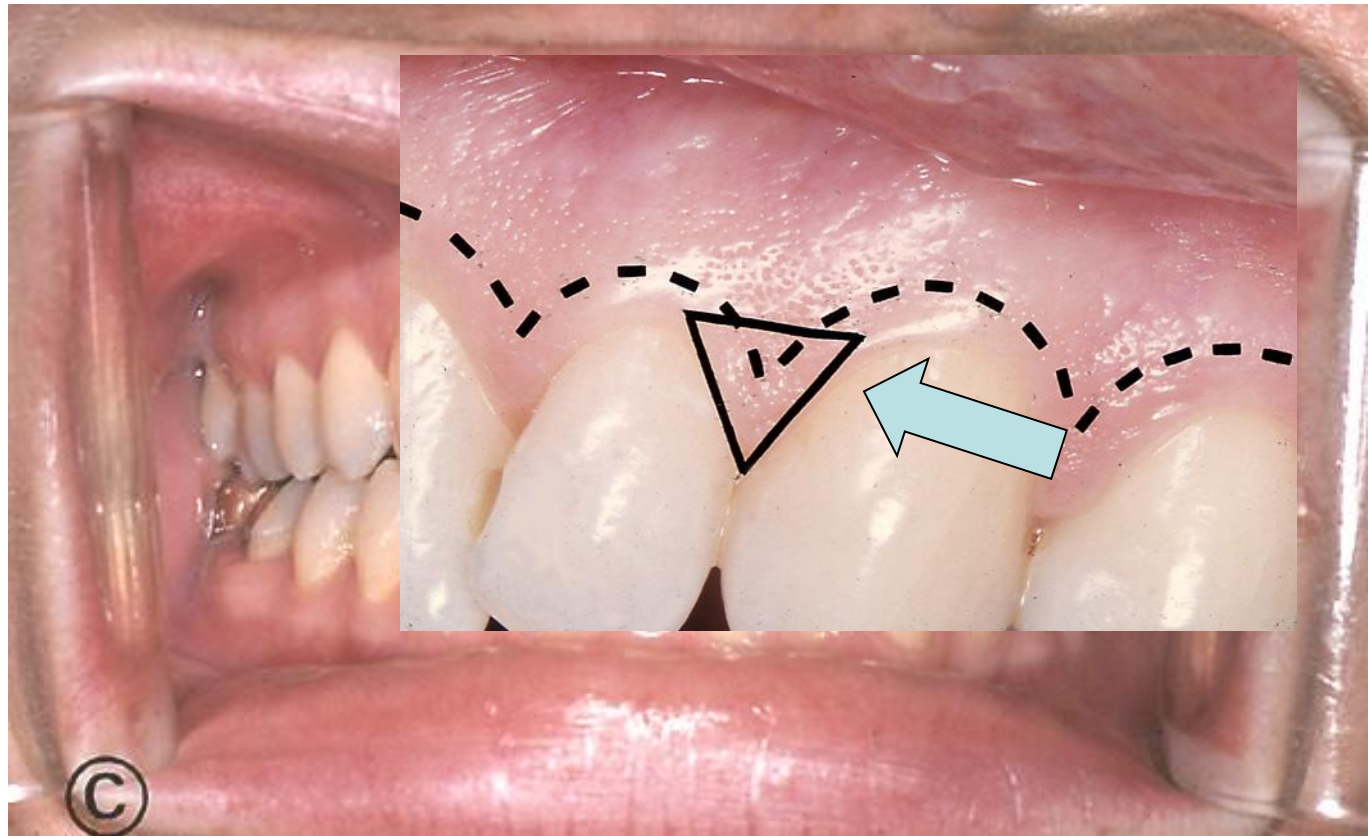
GINGIVA



- Interdentalspapiller



IOOS, AU

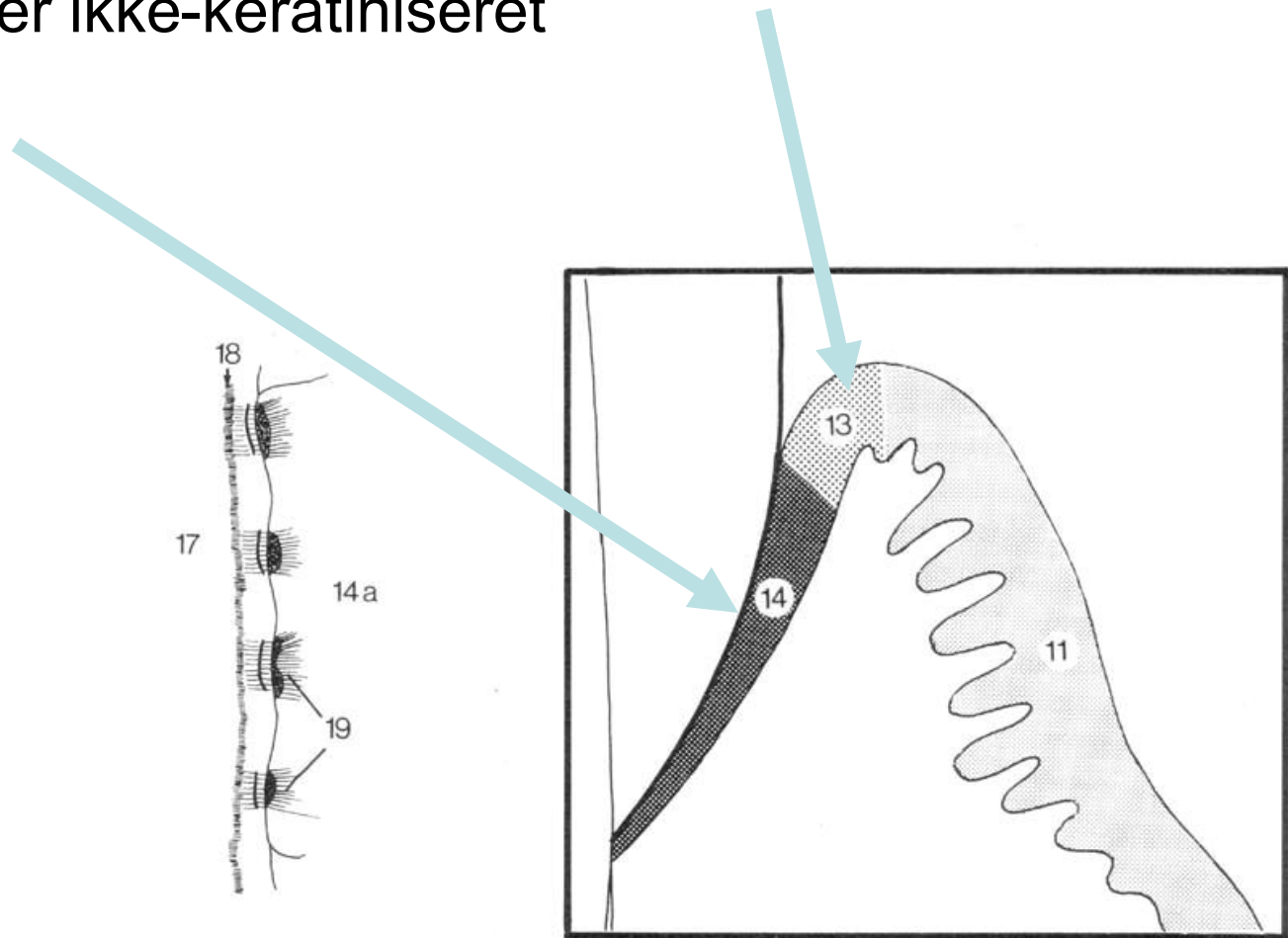


©



GINGIVA

- Oralt sulcusepitel (ikke i tandkontakt)
- Kontaktepitel er ikke-keratiniseret

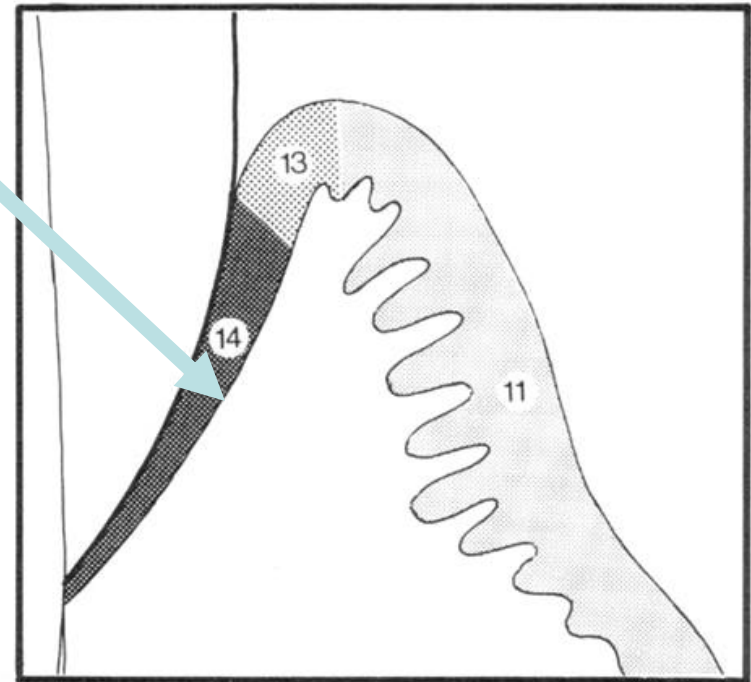




GINGIVA

Kontaktepitel

- har **ikke** lamina propria papiller
- få cellelag

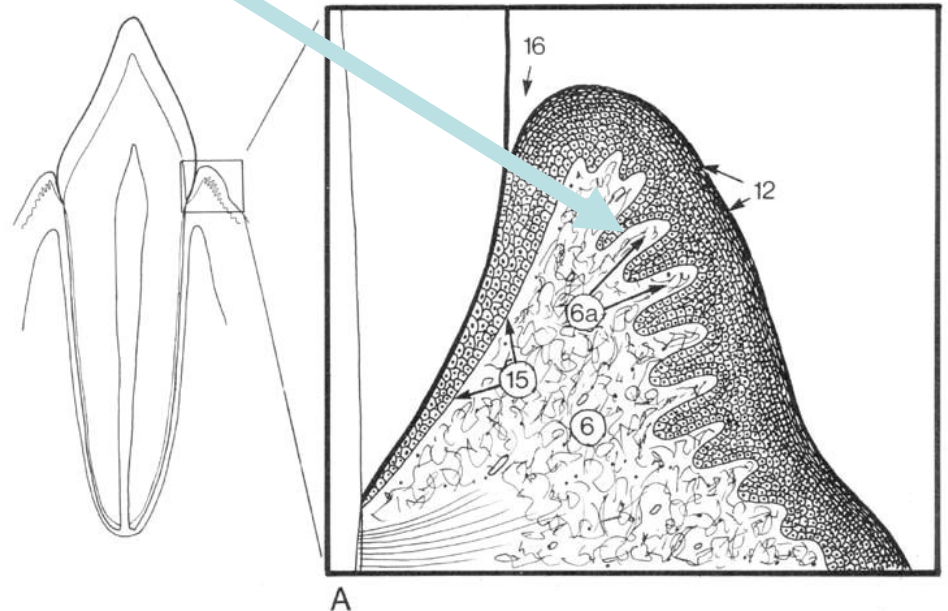


GINGIVA



Oralt epitel

- har lamina propriapapiller
- keratinisering:
 - orto-keratiniseret (uden kerner)
 - para-keratiniseret (med kondenserede pyknotiske kerner)

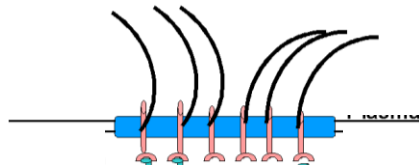
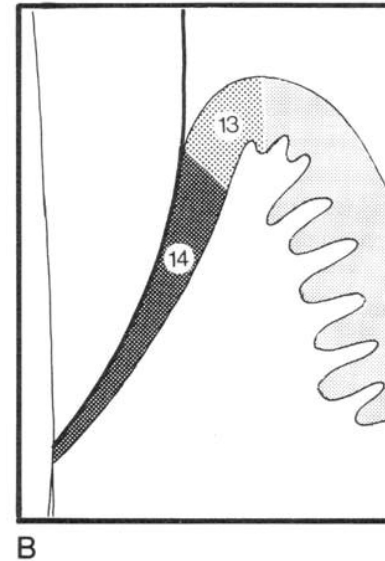
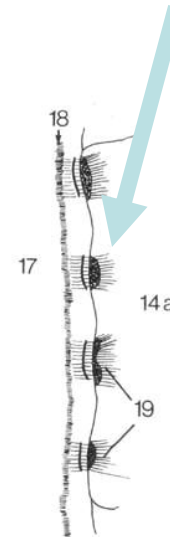


GINGIVA



Kontaktepitel:

- danner attachment
- hemi-desmosomer

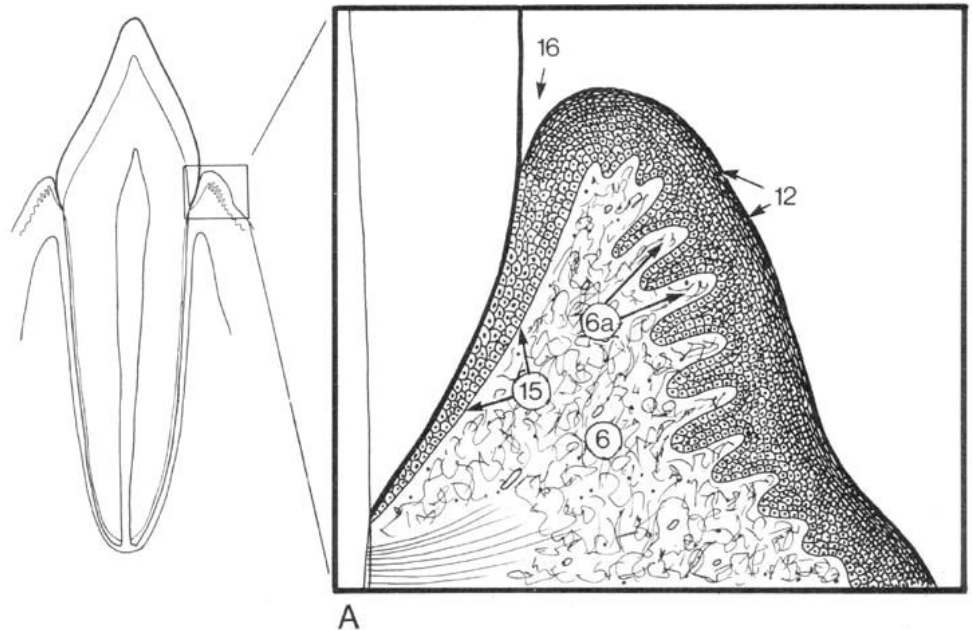


GINGIVA



Lamina propria:

- fibrillært, kollagent, fast
- uorganiseret, bindevæv
- mange papiller







Mentimeter

