

300 Dental anatomy facts

I HAVENT CHANGED THE MATTER , I HAVE JUST ADDED THE PICS SO THAT ITS EASY TO LEARN

Primary dentition

1. Primary teeth **are less mineralized** than permanent teeth and consequently are more easily worn
2. The **difference in space from the primary** to the permanent dentition is **2-4mm**.
3. **Mamelons that remain beyond the age of 10** – generally indicate an open bite
4. Calcification of the primary roots is normally completed **at 3-4 years of age**.
5. Usual pattern of eruption for primary teeth is centrals, laterals, 1st molars, canines, 2nd molars.
6. Primate space- maxillary: **btn lateral incisor and canine**
7. Mandibular: **btn canine and first molar**.
8. **Primary spacing for the anterior teeth** – Most frequently **caused by** growth of the dental arches
9. **Direction of primary enamel rods** in the cervical third is in an occlusal direction.
10. Primary molars differ from the permanent molars in that their roots are more divergent.
11. Primary molar **lacks an identifiable root trunk**.

Primary Central incisor

12. Primary mandibular central incisor has the **smallest F-L crown dimension**
13. Primary and permanent mandibular central incisor – most bilaterally symmetrical tooth
14. **In delayed resorption of primary incisors the permanent incisors usually erupt lingually (Shark teeth)**
15. **Primary central incisor exhibits a prominent cervical ridge both on the facial and lingual surfaces**.

Primary canine

16. From a facial view, **the crown of a primary canine has a mesioincisal slope longer than the distoincisal**.
17. **Cusp tip of the primary canine** is generally **offset to the distal**

Primary Maxillary first molar

18. **Primary Max 1st molar** has a **crown** that **somewhat resembles a permanent premolar**

19. Primary Max 1st molar has roots that resemble a typical permanent maxillary molar D
20. The cervical ridge is most prominent for primary maxillary teeth (Attention!) on the mesiofacial surface of the 1st molar

Primary Maxillary 2nd molar

21. Primary maxillary 2nd molar is the primary tooth that generally has an oblique ridge
22. Primary max 2nd molar is the only primary posterior tooth to have oblique and transverse ridges and distolingual groove
23. Primary 2nd molar generally exhibits the cusp of carabelli
24. Last primary teeth to erupt is the Maxillary 2nd molars
25. Primary 2nd molar exhibits more cusps than the primary 1st molar

Primary Mandibular 1st molar

26. Primary tooth that has the most distinctly prominent facial cervical ridge is Mandibular 1st molar
27. Facial view of a primary mandibular 1st molar the CEJ is most apically positioned on the mesial 1/3rd
28. Primary mandibular 1st molar usually exhibits a distal triangular fossa
(Central fossa usually displaced to the distal. Some sources call it a distal or a "main" fossa rather than a central)
29. Primary mandibular 1st molar has the most distinct transverse ridge
30. Primary 1st mandibular molar does NOT look like any permanent tooth
31. Primary teeth that differ the most from permanent teeth are the mandibular 1st molars
32. Highest and sharpest cusp on a primary mandibular first molar is the ML, not MB!

Permanent dentition





Incisors

Maxillary Central Incisor

33. The teeth whose function is primarily biting are incisors
34. Maxillary central has the greatest F-L axial inclination
35. Max central has the greatest cervical curvature (on mesial) of any other tooth
36. Maxillary incisors are the only anterior teeth that are wider M-D than F-L
37. Max central incisor has greatest M-D crown dimension of any ANTERIOR tooth
38. Max central has measurement that is nearly identical for Inciso-Cervical vs Mesio-distal
39. Contact btm a max central and lat incisor makes
lingual embrasure larger than the facial
40. Incisal embrasure btm the maxillary centrals is smaller
than btm the central and the lateral.
41. Non-molar tooth that most frequently has a mesial and distal pulp horn is the maxillary central incisor
42. Non-molar tooth that is least likely to have a bifurcated root is the maxillary central incisor.



Labial



Lingual

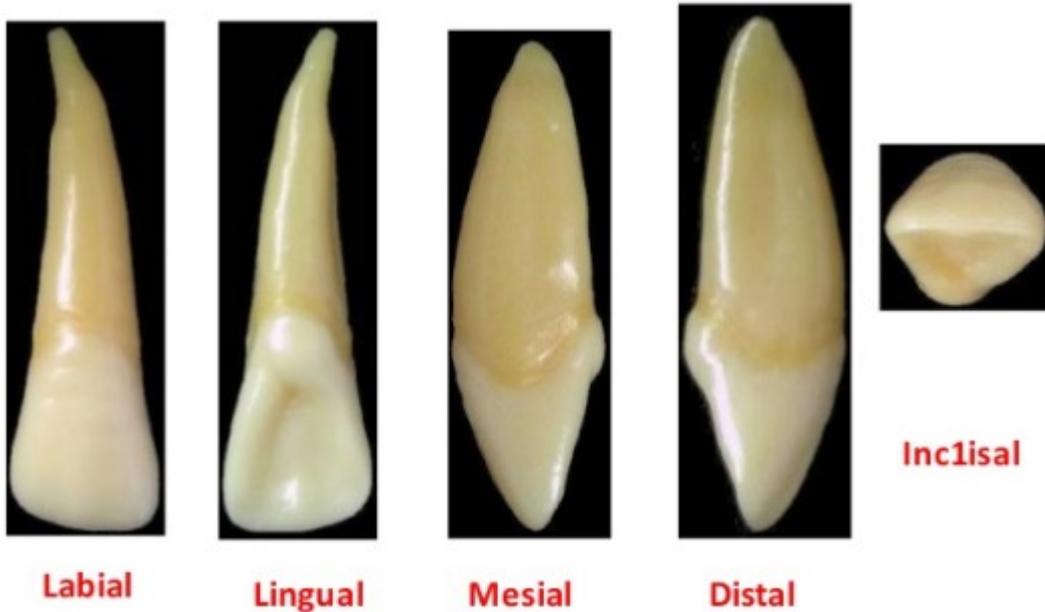


Incisal



Maxillary Lateral Incisor

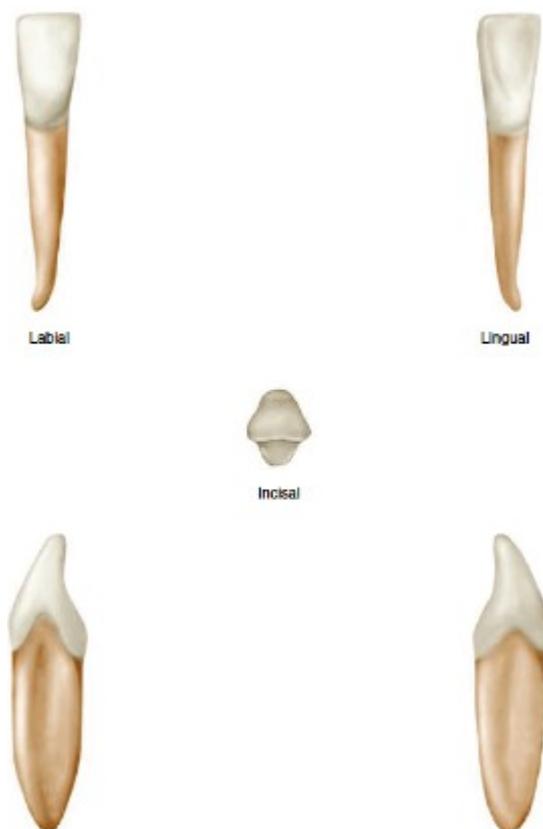
Maxillary lateral incisor



43. Maxillary lateral has MOST crown shape variations
44. Except for 3rd Molars the maxillary lateral incisor exhibits the most deviation in crown morphology
45. Maxillary lateral incisor most often is in abnormal relation and contact with adjacent teeth
46. Other than 3rd molars the tooth that is most often congenitally missing is the maxillary lateral incisor
47. Anterior tooth that most likely would demonstrate the lingual pit caries is maxillary lateral incisor
48. The DL groove of a Max Lat incisor is an anatomical feature that complicates root planning.
49. The distoincisor angle of maxillary lateral has the greatest convexity of all maxillary anterior teeth.
50. Max lat incisors generally have the most prominent marginal ridges of all anterior teeth.
51. Max lat incisors have the most distinct and deepest lingual fossa's of all anterior teeth.
52. Max lateral incisors' M-D crown width is SMALLEST of any MAXILLARY tooth
53. Max lateral has M-D measurement that is nearly identical to F-L. (Attention!) Closest of all ANTERIOR teeth

- 54. M-D width of the max lat incisor is narrower than the max central incisor
- 55. Max lateral has distal contact that furthest cervically of any INCISOR (usually very incisal).
- 56. Max lateral has distal contact centered both Inciso-cervically and facio-lingually.
- 57. Max lateral incisor is usually equal to or larger than the maxillary central in root length.

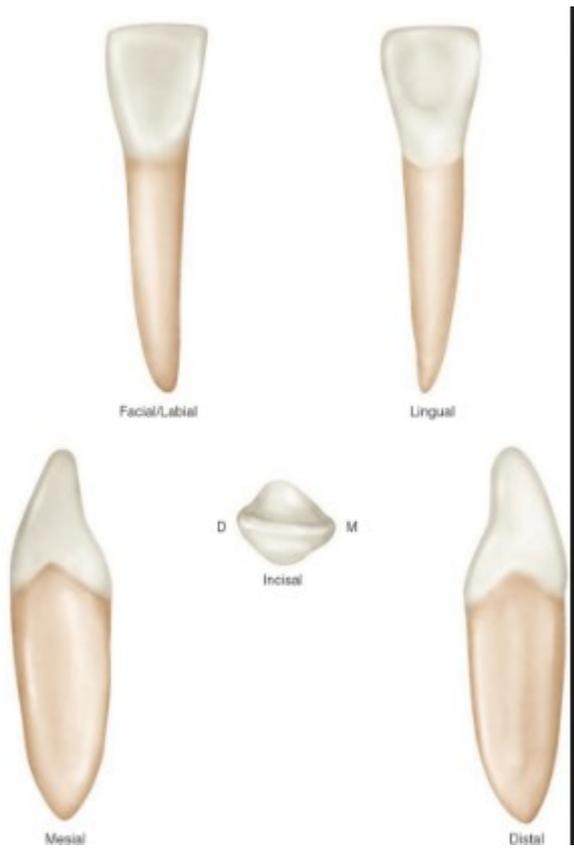
Mandibular central incisors



- 58. Mandibular centrals distinguished by the cervical curvature which is greater on the mesial than distal
- 59. The mandibular centrals and laterals most frequently have concave areas on mesial and distal root surface
- 60. Mandibular centrals – SMALLEST crown dimensions of ANY tooth
- 61. Mandibular central – most symmetrical crown
- 62. Mandibular central – has sharpest set of incisal angles (Mesial and distal)
- 63. Mandibular central – Proximal contacts are at same level
- 64. Mandibular central incisors have proximal contacts at approx. the same levels on mesial and distal

65. Mandibular central incisors have contact points at the same incisocervical level
66. Mandibular central incisors and Maxillary 3rd molars generally occlude with **only one opposing tooth.**
67. First **succedaneous** tooth to erupt in the mouth is the Permanent Mandibular central incisors.
(no permanent 1st molar- not succedaneous)
68. B and L embrasures may be same size (F>L)

Mandibular lateral incisors

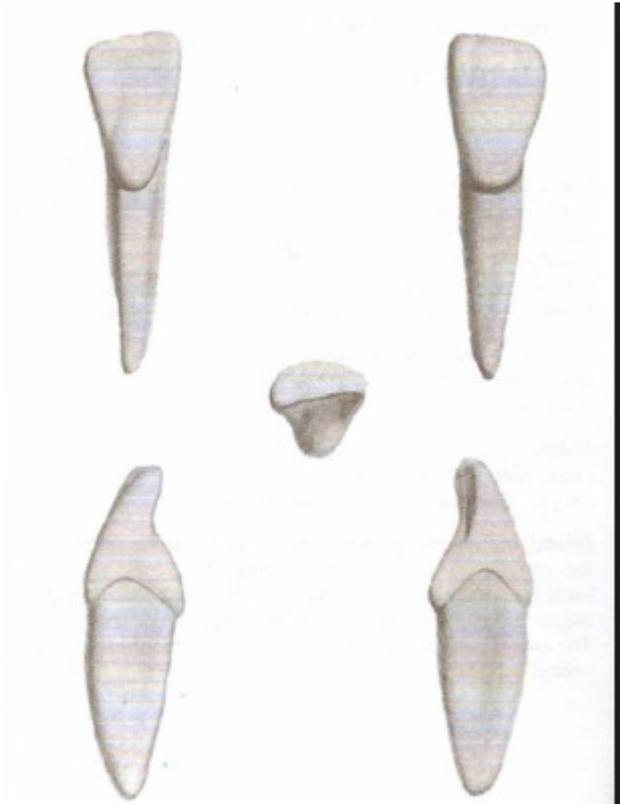


69. Crown of Mandibular lateral incisors tilts distally in relation to long axis (follows arch) DMR can be seen from mesial

70. M-D width of the Mandibular lateral incisors is wider than the mandibular central incisor

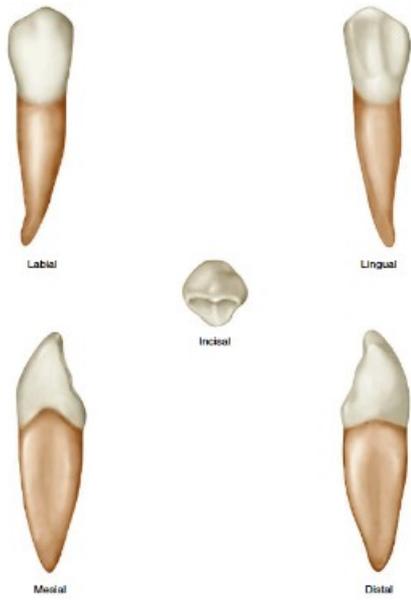
Canines

Maxillary canines



71. Maxillary canine has GREATEST cervical prominence of any ANTERIOR tooth
72. Maxillary canine from a proximal view tends to be positioned with the most nearly vertical axis.
73. Maxillary canine has the GREATEST OVERALL total tooth length
74. Maxillary canine has the longest root of any other tooth (BUT NOT LONGEST CROWN)
75. Maxillary canine has GREATEST F-L crown dimension of any ANTERIOR tooth
76. Maxillary canine - distal contact is centered
77. Maxillary canine is the only tooth that has potential of contacting both anterior and posterior teeth.
78. Maxillary canine cusp tip located facial to lingual axis.
Centered or slightly facial, so Lingual is more visible from incisal view.
79. The middle facial lobe of the maxillary canine includes the cusp tip (Opposite to MD canine)
So lingual is more visible from incisal view
80. Maxillary canine has a distal bulge – Mesial and Distal are asymmetric
81. The crown form of canines from a facial view is pentagonal

Mandibular canine



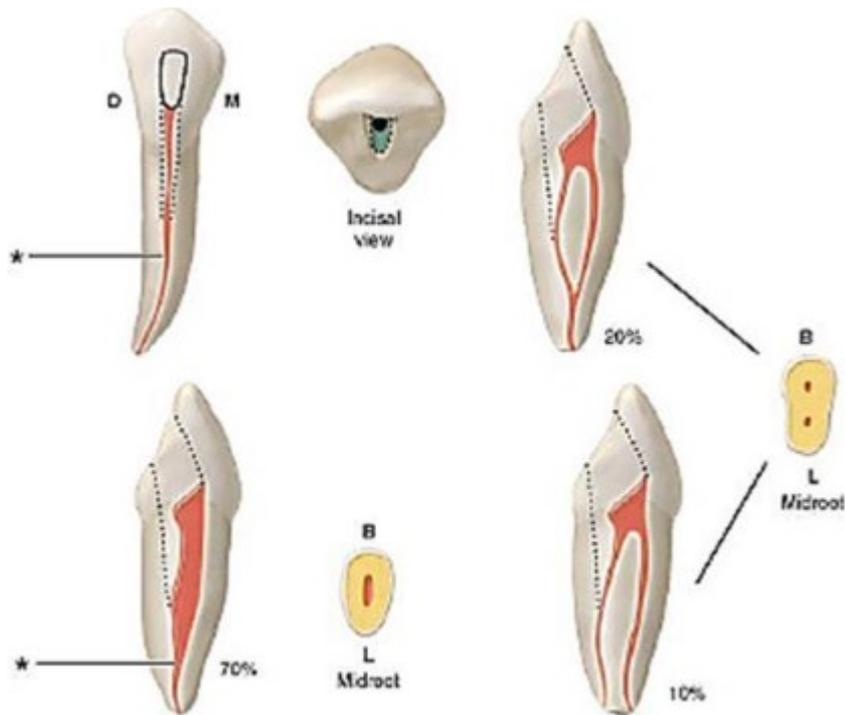
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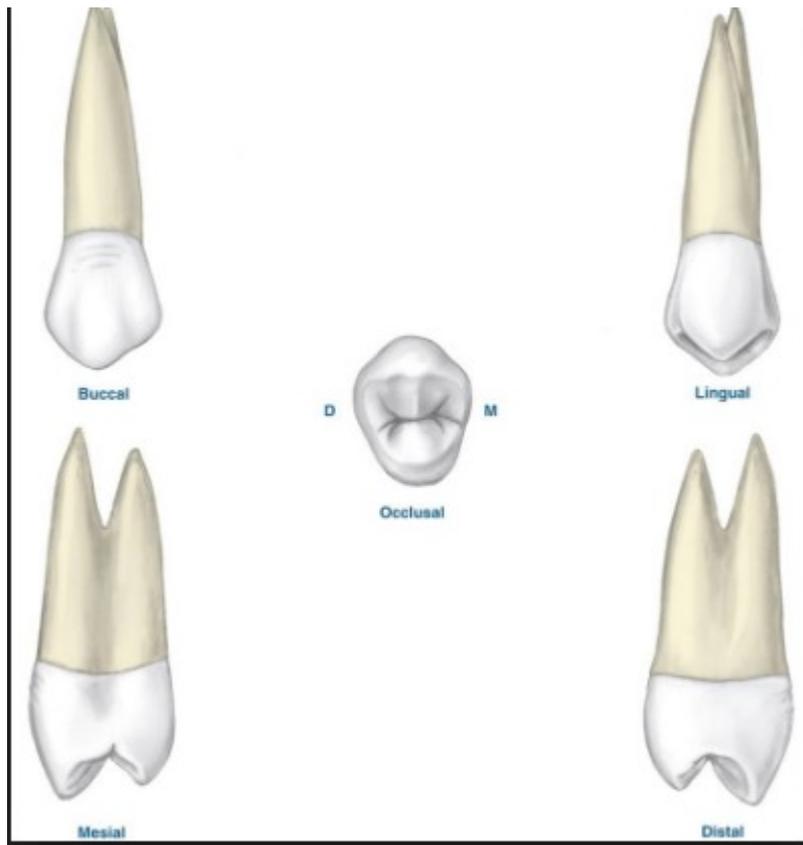
82. Mandibular canine has the straightest mesial alignment of crown to root
83. Mesial surface of the crown of the Mandibular canine is almost parallel to the long axis. D
84. Mandibular canine has longest CROWN dimension of ANY other tooth
85. Mandibular canine has a less prominent cingulum than the Maxillary canine
86. Mandibular canine is narrower MD than the maxillary canine
87. Mandibular canine is the anterior tooth that MOST FREQUENTLY exhibits a bifurcated root
88. Bifurcation for the mandibular canine roots when present creates F-L roots (facial and lingual roots)
89. Mandibular canine has the LONGEST ROOT length of any MANDIBULAR tooth (Attention! Longest root of any Tooth is Maxillary canine)
90. In cross section, the root of the mandibular canine is IRREGULARLY OVAL.
91. Cross section of the mandibular canine at CEJ is OVOID but wider M-D at the labial
92. In cervical cross section the root of the Mandibular canine is flattened in a M-D direction.
93. When compared to a maxillary canine, the Mandibular canine has contact areas located more incisally.
94. Mandibular canine has a continuous convex facial surface from incisal to apical end
95. Mandibular canine makes a C shape from crown tip to root apex
96. Mandibular canine has incisal edge lingual to long axis

(Opposite to maxillary canine)

Premolars



Maxillary 1st premolar



97. Maxillary 1st premolar has the **most pronounced developmental marginal groove of any maxillary tooth.**

98. Maxillary 1st premolar has a **mesial concavity** that makes difficult to adapt a matrix band.

99. Cervical cross section of Maxillary 1st premolar exhibits a **kidney shaped root outline.**

100. The cervical cross section of the Maxillary 1st premolar exhibits a **kidney shaped pulp chamber floor**

101. Non-molar tooth that most frequently exhibits **3 roots** is **Maxillary 1st premolar**

102. Facial cusp of the Maxillary 1st premolar is offset to the distal

103. Maxillary 1st premolar has **longer mesiofacial cusp ridge** than the distofacial cusp ridge.

Only premolar with longer mesial cusp ridge (so does primary maxillary canine).

104. The premolar with the **steepest cusp inclines.**

105. Maxillary premolars **lingual cusps are offset to the mesial.**

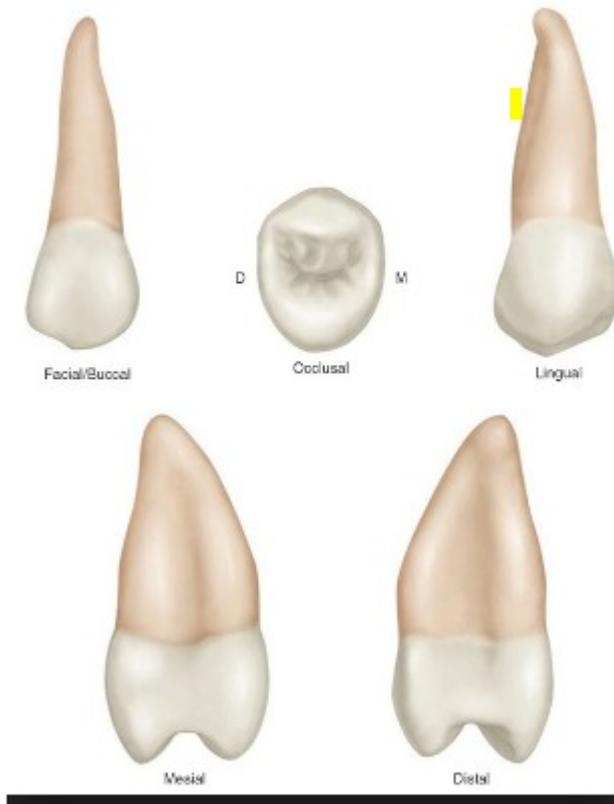
But the buccal cusp is offset to the distal

106. Maxillary 1st premolar is the posterior tooth that has the **greatest cervico-occlusal crown height.**

107. Non-molar teeth having the **sharpest demarcation btm pulp chamber and canal.**

Maxillary 2nd premolar

MAX 2 PM



(When in doubt between 1st and 2nd premolar choose 1st premolar)

108. Size and position of the cusps are more identical for the 2nd maxillary premolar than the first

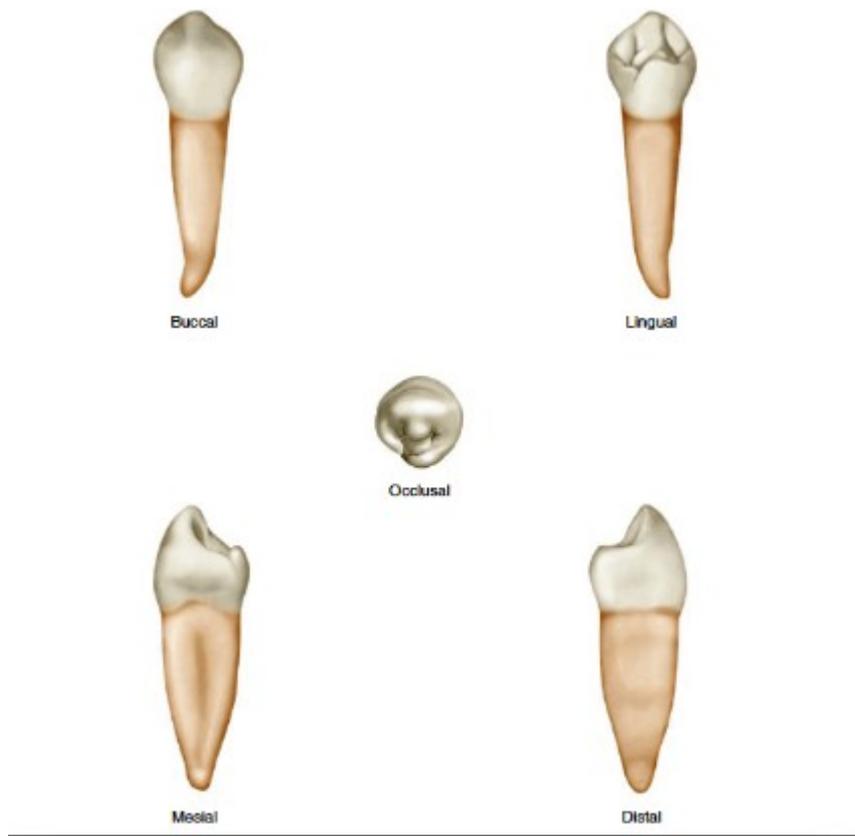
109. Maxillary 2nd premolar has two cusps that are of equal height.

110. Maxillary 2nd premolar – symmetrical POSTERIOR tooth (has to do with the cusps)

111. Instead of a long central groove with few supplemental grooves it has a short central groove with a lot of supplemental grooves that make it look wrinkly.

112. Maxillary 2nd premolar has fossa that are closest in size compared to any other posterior tooth.

Mandibular 1st premolar



113. Mandibular 1st premolar has a uniquely prominent triangular ridge (Snake eyes! No central groove)
114. Mandibular 1st premolar has frequently both a separate mesial and distal pit (snake eyes)
115. Mesiolingual developmental groove on tooth #21 originates from the occlusal pit. D
116. Mesiolingual developmental groove on tooth #21 extends onto the proximal surface. D
117. Mandibular 1st premolar – only tooth with a mesio-lingual groove
118. Mesio-lingual groove is an identifying characteristic for the Mandibular 1st premolar
119. Mesiolingual developmental groove makes marginal ridge run at a 45 degree angle
120. Mandibular 1st premolar – mesial marginal ridge located more cervical than the distal
121. More of the occlusal surface can be seen from the mesial than distal for a Mandibular 1st premolar (due to 45 degree MMR)
122. Occlusal outline for the mandibular 1st premolar occlusal view is DIAMOND shaped.
123. In the rare event of a second canal – most likely located to the lingual
124. Mandibular 1st premolar – only premolar that frequently has only one pulp horn
125. Lingual cusp of Mandibular 1st premolar is approx. 2/3rd of height of the facial cusp
126. Lingual cusp of a Mandibular 1st premolar is similar in development to the cingulum of a canine
127. Lingual cusp of Mandibular 1st premolar in normal occlusion does not occlude

128. Mandibular 1st premolar – Most variation of all posterior teeth in facial vs lingual cusp height.
(max 1st premolar -1mm diff)

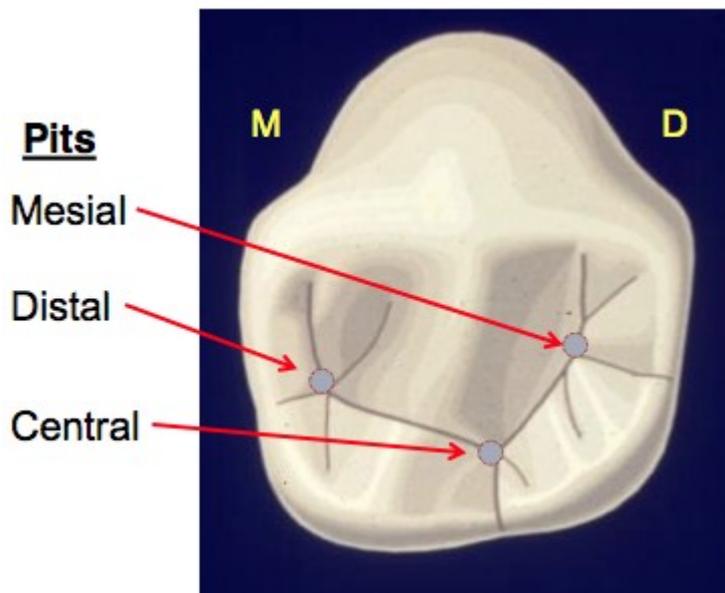
129. Facial masticatory mucosa (attached gingiva) is **NARROWEST on the FACIAL aspect of mandibular premolars**

130. Mandibular 1st premolar **FL smallest of any posterior tooth**

131. Mandibular 1st premolar is closest of all MANDIBULAR TEETH in FL vs MD diameter,

Mandibular 2nd premolar

Maxillary Second Premolar



132. Occlusal outline of Mandibular 2nd premolar is **Pentagonal** (occlusal table- rectangular)

133. Premolar that is most likely to have a **crescent-shaped central developmental groove** - Mandibular 2nd premolar

134. Shortest interdental papilla - **between man 2nd pm and 1st molar**

135. Y-type mandibular premolar has 1 facial and 2 lingual cusps.

136. Y-type Mandibular 2nd premolar has the same no. of the occlusal pits as the maxillary 1st molar.

137. Mandibular 2nd premolar – ONLY premolar with multiple lingual cusps

138. Mandibular 2nd premolar – ONLY premolar with a lingual groove

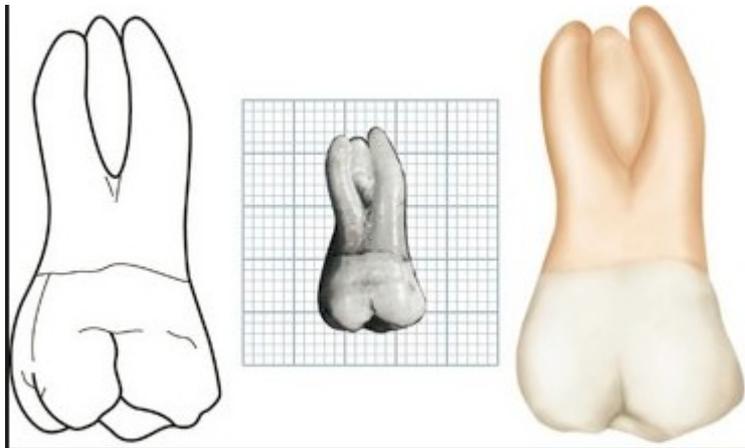
139. Mandibular 2nd premolar – ONLY premolar with central fossa

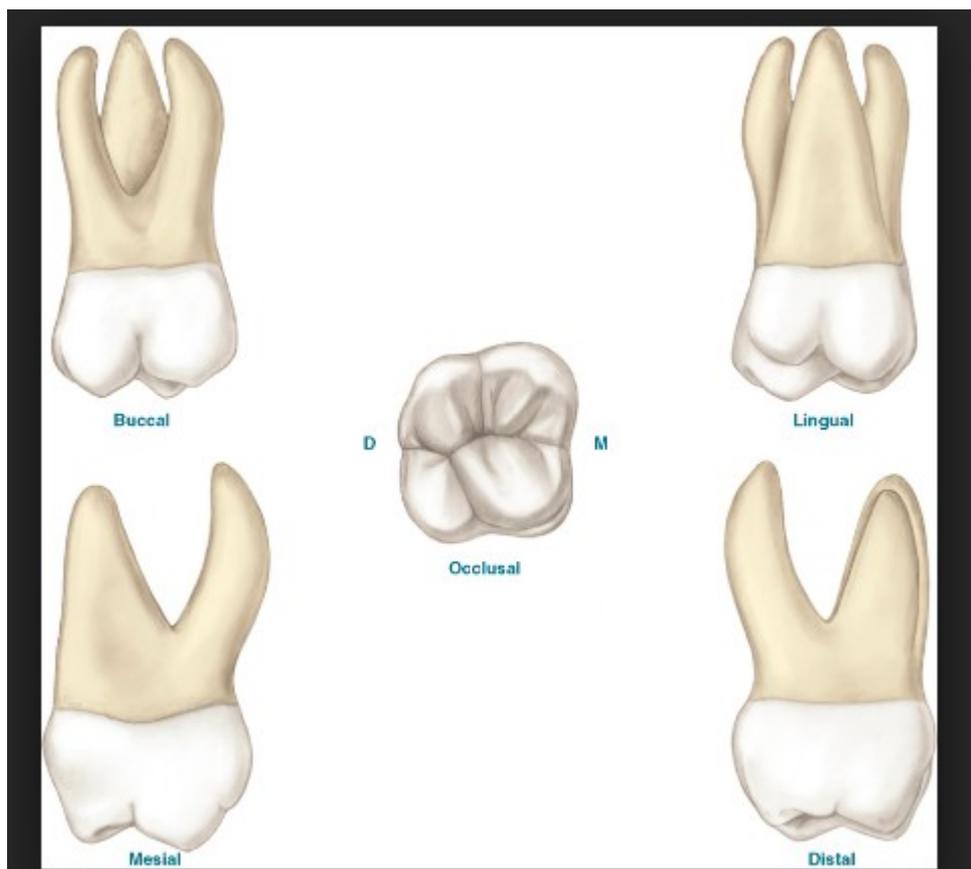
140. The PM that most frequently has a single central pit is the mandibular second

141. MOST congenitally MISSING PREMOLAR

Molars

Maxillary 1st molar





142. Occlusal outline form – rhomboidal

143. MF and DL angles from the occlusal outline tend to be acute angles

144. ML and DF angles from the occlusal outline tend to be obtuse angles.

145. The Maxillary 1st molar tends to taper toward the facial rather than toward the lingual so the buccal embrasure is larger than lingual

146. Most prone facial and lingual surfaces of molars are the lingual of maxillary and the facial of mandibular.

147. Largest root of Maxillary 1st molar is Palatal

148. Smallest root of Maxillary 1st molar – distobuccal (MB root-MB2 hence should be bigger)

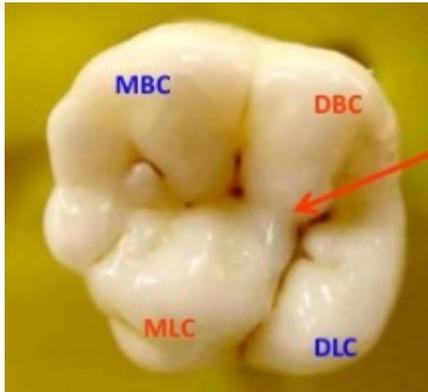
149. From facial view, apex of lingual root is in line with the facial groove of the tooth

150. View from L, in line with the midpoint of MD diameter

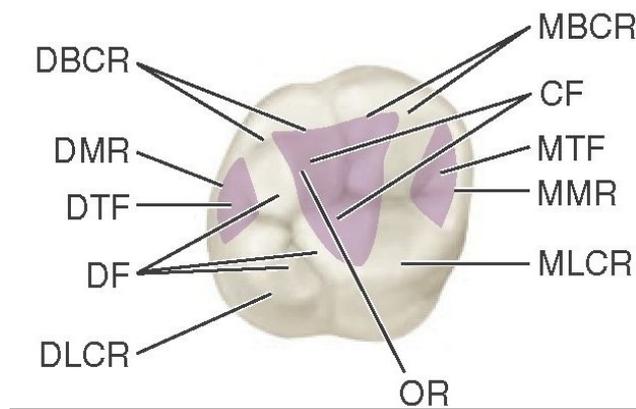
151. When 4th pulp canal present- MB

152. Of 3 furcations of Maxillary 1st molar- mesial is closest to the cervical line

153. Of 3 furcation of Maxillary 1st molar- distal is the furthest from cervical line Distance of furcations from cervical line- $M < B < D$

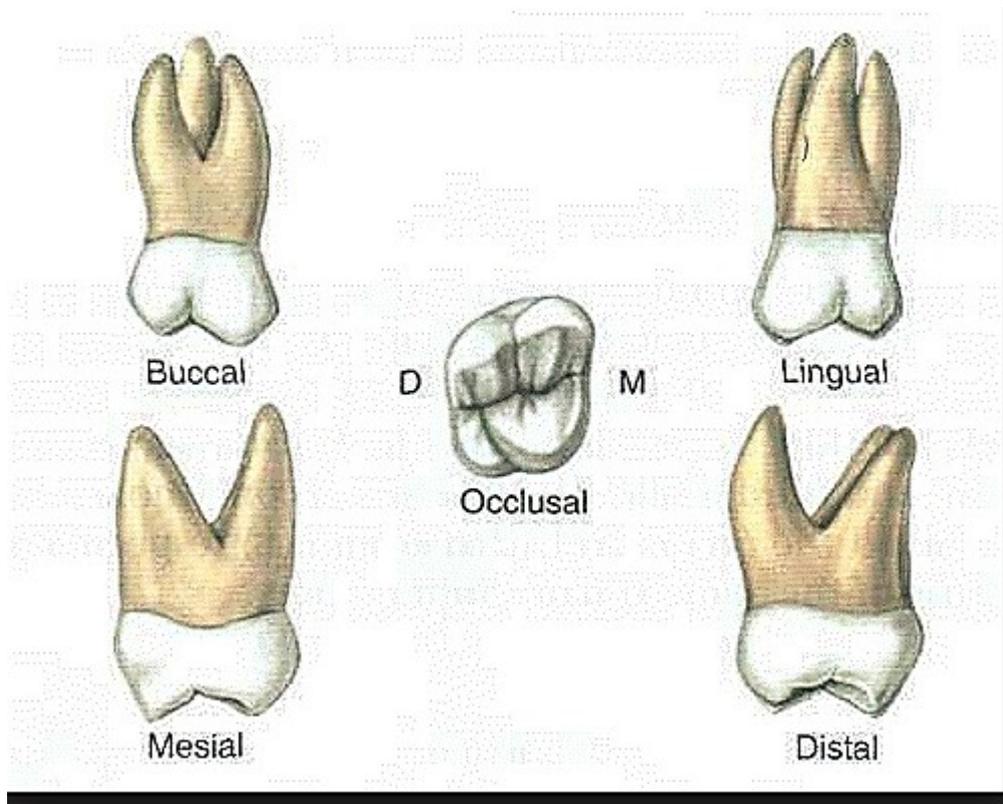


- 154. Oblique ridge of Maxillary 1st molar forms the distal boundary of the central fossa
- 155. Obtuse corners coincide with the direction of the oblique ridge.(MI/df)
- 156. Center of the oblique ridge on a maxillary 1st molar is at the same level with the marginal ridge.
- 157. Oblique ridge connects the ML and DF cusps.
- 158. ML cusp of Maxillary 1st molar occludes the central fossa of the mandibular molars
- 159. Maxillary 1st molar has the greatest FL diameter of crown of ALL teeth (think of cusp of carabelli)
- 160. Maxillary 1st molar closest in size FL vs MD of any MAXILLARY POSTERIOR teeth



- 161. Maxillary 1st molar has wider M-D width toward the facial than toward the lingual.
- 162. DL cusp of maxillary molar is the only one that is not part of the molar cusp triangle.
- 163. ML cusp of the Maxillary 1st molar is its largest and longest cusp.
- 164. Tooth most likely to be forced into max sinus - Maxillary 1st molar
- 165. Maxillary 1st molar has a distal concavity that can pose a special problems in matrix placement.
- 166. Crown of Maxillary 1st molar has a shorter DL groove than the 2nd Molar

Maxillary 2nd molar



167. DL cusp is only one that is not a part of the molar cusp triangle

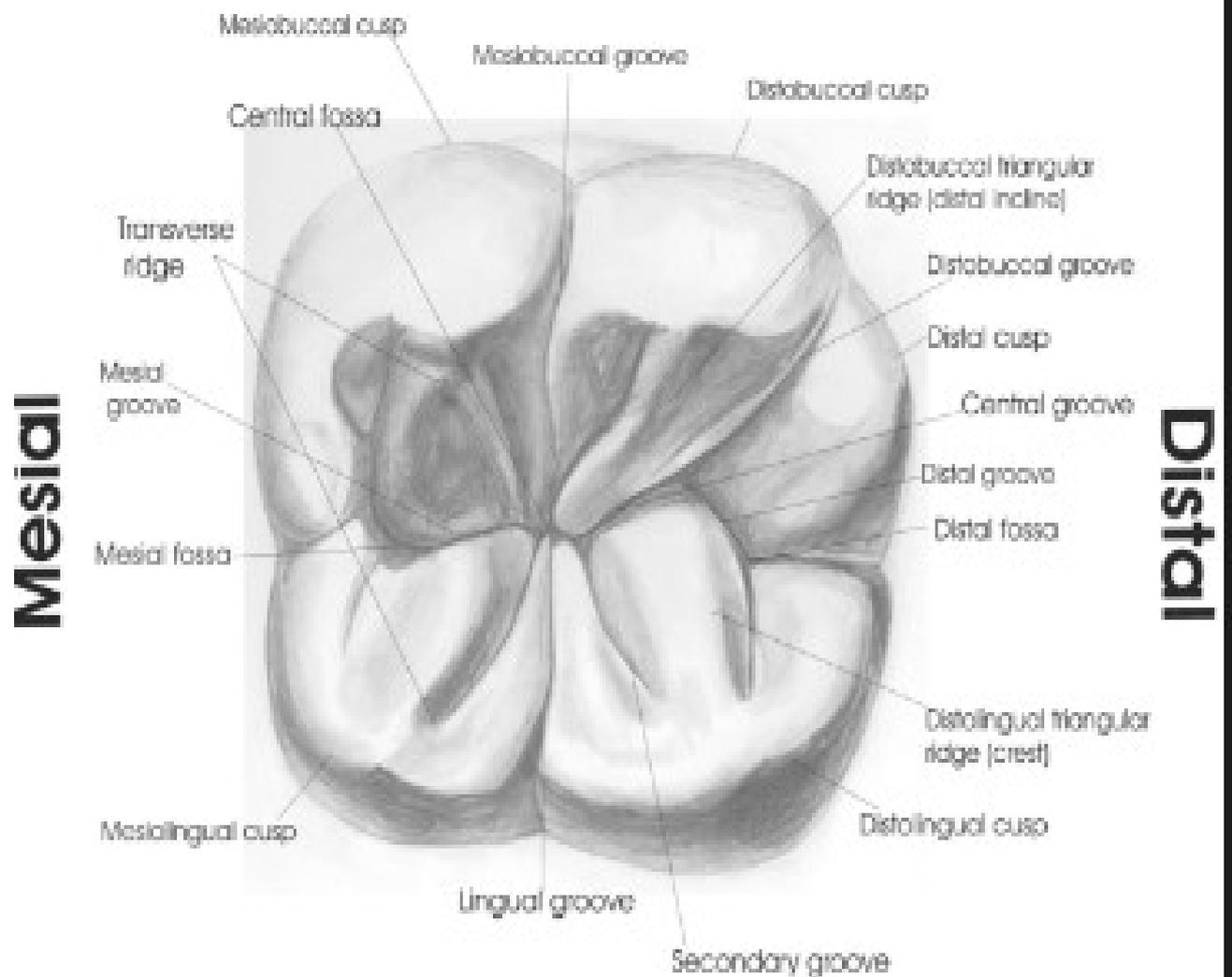
168. If DL cusp is not present = 3 cusp type heart shaped.

169. Roots of the Maxillary 2nd molar tend to be less divergent and have greater distal inclinations.

170. Cross sectional outline at the cervical is roughly triangular for the maxillary 2nd molar

Mandibular 1st molar

Buccal



Lingual

Mandibular Right First Molar
Universal 30
Palmer 6



Figure 1- Occlusal surface of the mandibular permanent first molar Mesiobuccal groove (*) and middle point of the mesial slope of the distolingual cusp (•).



Permanent Mandibular First Molar



171. Groove pattern for the mandibular 1st molar is considered a Y or Dryopethicus pattern.

172. Occlusal outline of Mandibular 1st molar – Pentagon

173. Smallest cusp of Mandibular 1st molar – distal cusp

174. Largest cusp of Mandibular 1st molar – Mesio facial

MB>ML>DL>DB>D

175. Mandibular 1st molar – LARGEST M-D crown dimension of ANY other tooth

176. Mandibular molars are the only MANDIBULAR teeth that are wider mesiodistally than faciolingually.

177. Mandibular molars are the only POSTERIOR teeth that are wider mesiodistally than faciolingually.

178. Mandibular 1st molar has the greatest M-D diameter of all MOLARS.

179. Mandibular 1st molar – LARGEST faciolingual crown dimension of ANY other MANDIBULAR tooth. (Attention! Maxillary 1st molar – largest of any tooth)

180. Mandibular 1st molar – Largest occluso cervical crown dimension of any MANDIBULAR molar.

181. Facial surfaces of mandibular molars are located medial to the border of the ascending ramus

182. Key features that differentiates mandibular 1st and 2nd molar – no. of developmental grooves

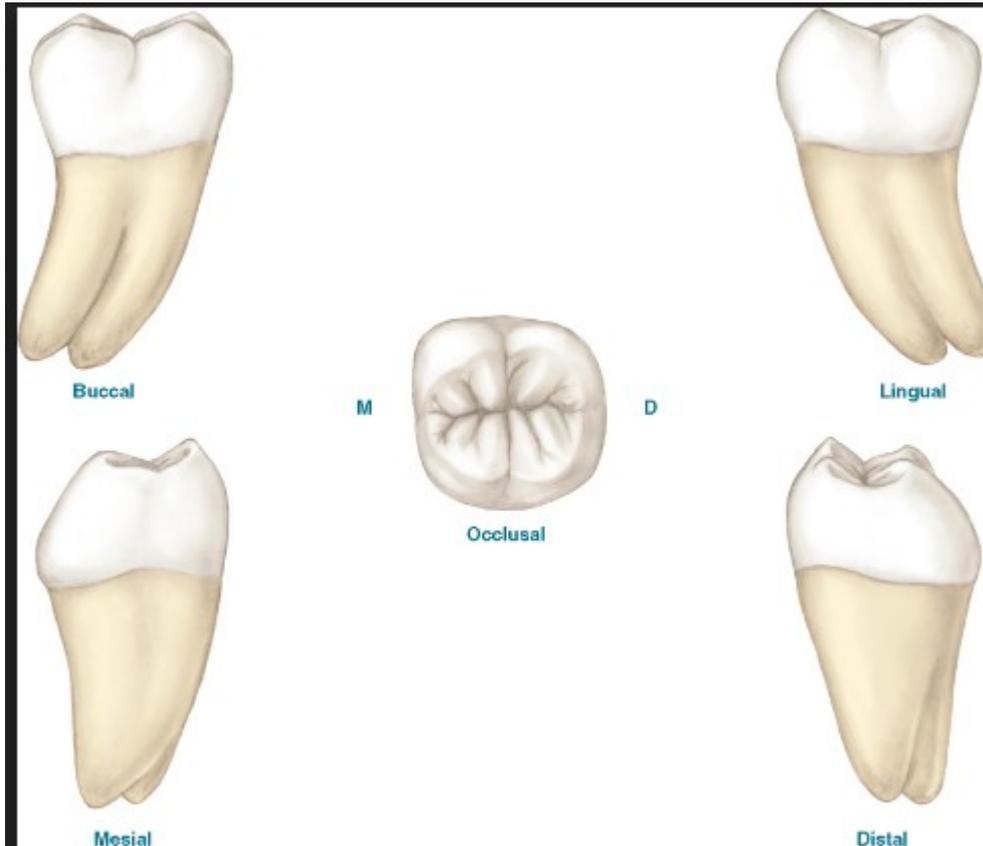
(M2 has 1 buccal.)

183. Mandibular 1st molar has 3 facial cusps
184. Developmental groove b/n DF cusp and D cusp of the Mandibular 1st molar is Distofacial (NOT DISTAL, Don't get tricked)
185. Mandibular 1st molar -2 roots & 3 canals
186. Mandibular 1st molar – 2 mesial canals
187. Mandibular 1st molar – LONGEST root of any other MOLAR
188. Mandibular 1st molar has GREATEST root separation of ANY OTHER tooth.
189. At mid root cross section of Mandibular 1st molar, the largest is the mesial of the mandibular.
190. Mandibular 1st molar – MESIAL root has GREATEST faciolingual dimension of any other root. (think about MB2)

Occlusion and working movement

191. DB cusp of the mandibular molars occludes in the central fossa of the maxillary molars
192. Ideal position and height of lingual cusps of mandibular 1st molar accommodates working movement

Mandibular 2nd molar



193. Groove pattern for Mandibular 2nd molar – cross pattern

194. Mandibular 2nd molar- cruciform occlusal pattern.

195. Occlusal view- greatest FL diameter of Mandibular 2nd molar is mesial 1/3rd. (That's how you tell R from L)

196. Mandibular molars are the only POSTERIOR TEETH that are wider MD than FL

197. Mandibular molars are the only MANDIBULAR TEETH that are wider MD than FL.

198. Crown of the Mandibular 2nd molar inclines to the mesial and lingual.

199. Mandibular molars have long axis of their root apices facial and their crown lingual.

200. Facial surfaces of mandibular molars are located medial to the border of ascending ramus.

Maxillary 3rd molars

201. Single antagonist in ICP

202. Max 3rd molar – molar that most frequently has only 3 cusps.

203. Max 3rd molars from an occlusal view – heart shaped because of missing DL cusps

Mandibular 3rd molars

204. 3rd molars – most variation in crown morphology.

205. 3rd molars – GREATEST distal inclination of any other tooth

206. 3rd mandibular molars has **SHORTEST ROOT** of any mandibular tooth

207. 3rd molars – **GREATEST** morphological variation. Maxillary laterals are after that.