

PERMANENT MANDIBULAR CENTRAL INCISOR



Introduction

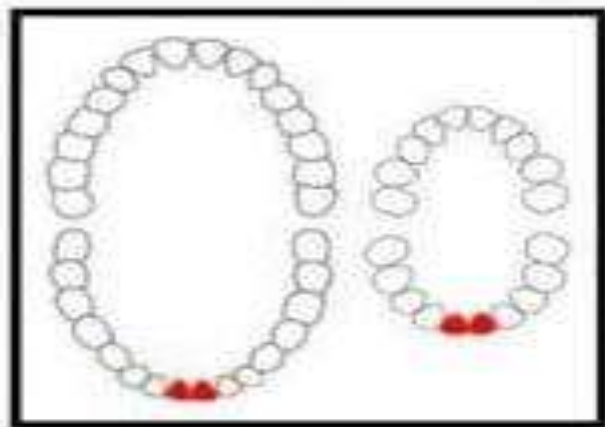
- Mandibular central incisors are two in number
- Mandibular central incisor and lateral are similar in anatomy and complement each other in function
- They are smaller than the maxillary central incisors
- Mandibular central incisor erupts between the age of 7 and 8

TOOTH NUMBERING SYSTEMS

➤ **UNIVERSAL SYSTEM - 24,25**

➤ **ZSIGMONDY / PALMER - $\begin{array}{c|c} 1 & 1 \end{array}$**

➤ **FDI SYSTEM - 31, 41**



MANDIBULAR CENTRAL INCISOR



Facial/Labial



Lingual



D M

Incisal



Mesial



Distal

Average Dimensions in millimeters

Crown Length	Root Length	Mesiodistal Diameter at Contact Area	Mesiodistal Diameter at Cervical Line	Labiolingual Diameter at Crest of Curvature	Labiolingual Diameter at Cervical Line	Curvature of Cervical Line	
						M	D
9.0	12.5	5.0	3.5	6.0	5.3	3.0	2.0

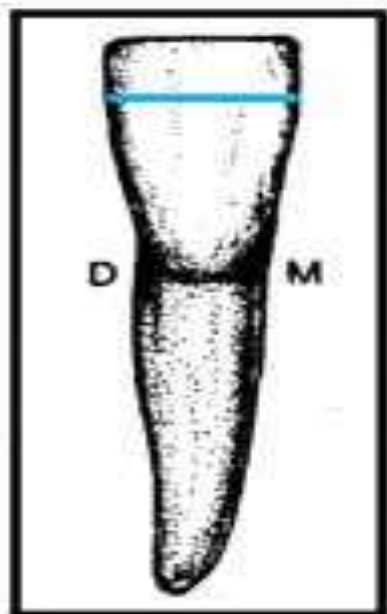
CHRONOLOGY

First evidence of calcification	3-4 months
Crown completion	4-5 years
Eruption	6-8 years
Root completion	10 years



Labial Aspect

- Labial surface of mandibular central incisor is very small
- Narrowest tooth mesiodistally of all permanent teeth
- Bilaterally symmetrical



Narrowest tooth in the dentition



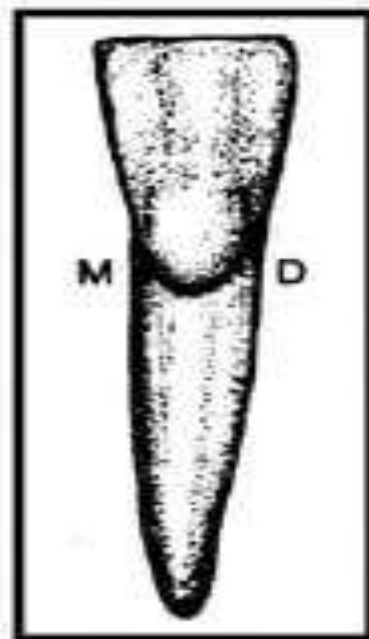
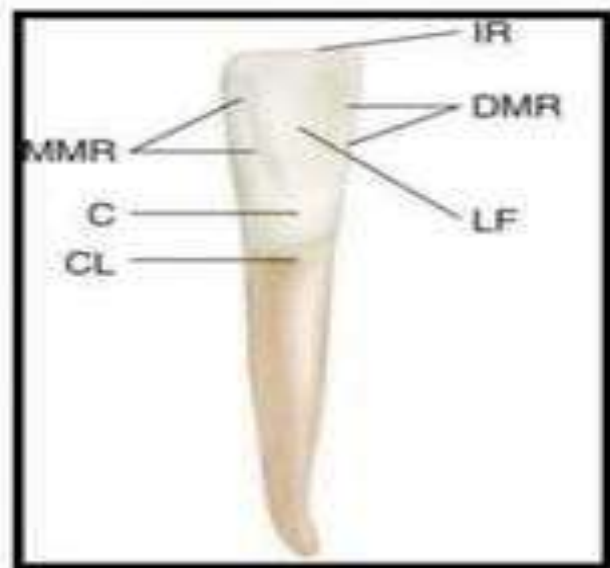


Both mesioincisal and distoincisal angles are sharp

- It is the only incisor where both mesioincisal and distoincisal angles are sharp and at right angles

Lingual Aspect

- The lingual aspect is concave from the incisal edge to the cervical line
- Cingulum is smooth and barely visible





Shallow lingual fossa and smooth cingulum

- The surface is smooth and devoid of any grooves
- No other tooth in the mouth, except the mandibular lateral incisor, shows so few developmental lines and grooves

Mesial Aspect

- The labial outline is almost straight, except near cervical third where it is convex
- The lingual margin is 'S' shaped
- The cervical line on the mesial and distal surface is convex incisally



'S' shaped lingual surface

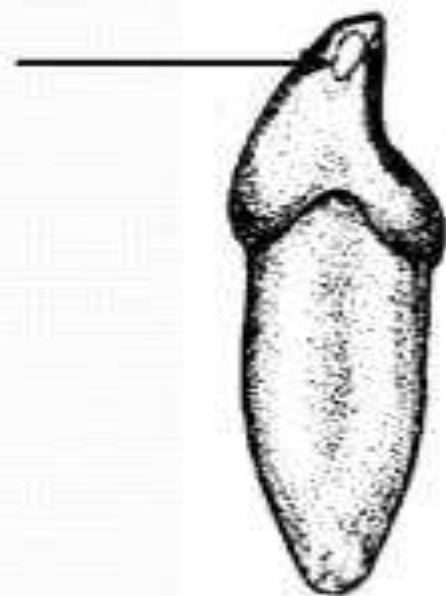
Cervical line convex incisally



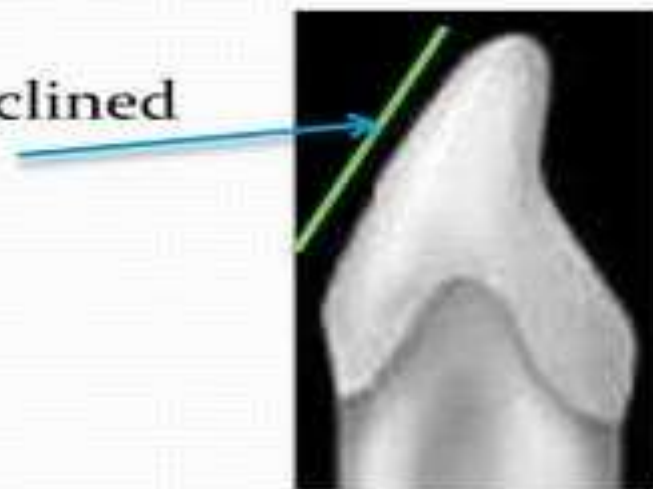


Mesial aspect

CONTACT AREA



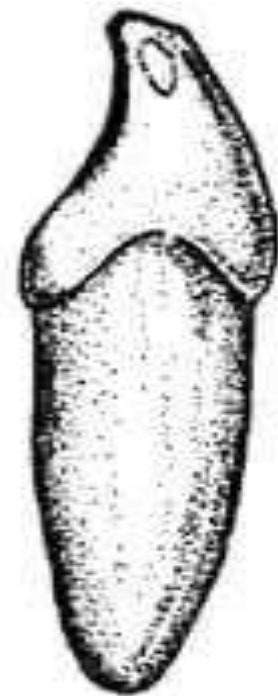
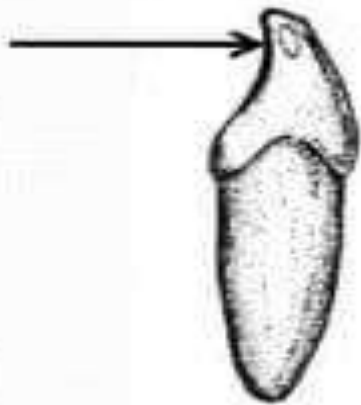
Labial surface inclined
lingually



Distal aspect

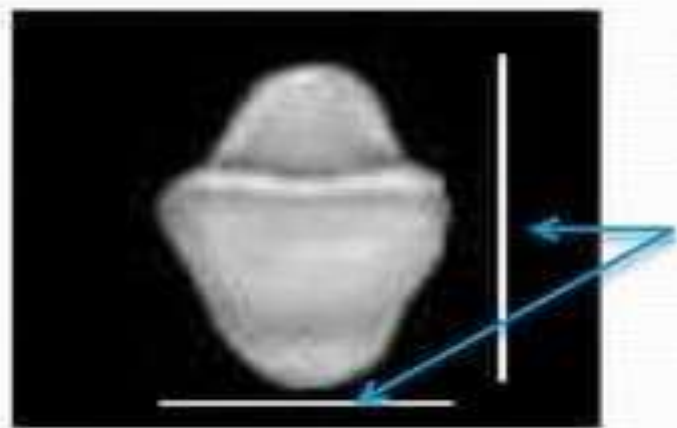
- Distal surface is very similar to the mesial surface
- The cervical line is less curved

CONTACT AREA



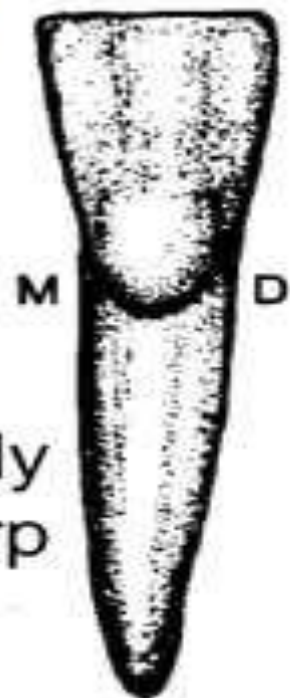
Incisal aspect

- This aspect illustrates bilateral symmetry of this tooth
- Labiolingual diameter is greater than mesiodistal diameter
- Newly erupted teeth show mamelons which wear off upon mastication



Root

- Normally single and straight
- From labial or lingual view, root is generally symmetrical & tapers gradually to a relatively sharp apex
- From mesial or distal view, root is much wider & it is slightly convex cervico-apically on both labial & lingual margins



- Central portion of mesial and distal surfaces is usually flattened, or concave
- In cross section at neck, outline is roughly a rectangle with rounded corners, but it is slightly wider at labial than at lingual.
- When there are root concavities present, they are reflected as concavities in the mesial and distal outlines.
- The mid root cross section is similar to the cervical section, only more ovoid.



TRAITS

ARCH TRAITS

MAXILLARY CENTRAL INCISOR	MANDIBULAR CENTRAL INCISOR
<ol style="list-style-type: none">1. <i>Crown wider Mesiodistally than labiolingually</i>2. <i>Lingual fossa pronounced often with lingual pit</i>3. <i>More prominent cingulum and marginal ridges</i>	<ol style="list-style-type: none">1. <i>Crown wider labiolingually than Mesiodistally</i>2. <i>Lingual fossa shallow without grooves or pits</i>3. <i>Not prominent</i>

TYPE TRAITS

CROWN	CENTRAL INCISOR	LATERAL INCISOR
1. LABIAL ASPECT		
Symmetry	Symmetrical Bilaterally	Asymmetrical
Mesioincisal angle	Sharp(90 degrees)	Some rounding
Distoincisal angle	Sharp(90 degrees)	More rounded
Mesial contact	Incisal third	Incisal third
Distal contact	Incisal third	Incisal third
2. INCISAL ASPECT		
	Incisal ridge form right angle with labio-lingual bisecting line	Incisal ridge twisted on crown

