



## (4) Permanent Maxillary Central Incisor

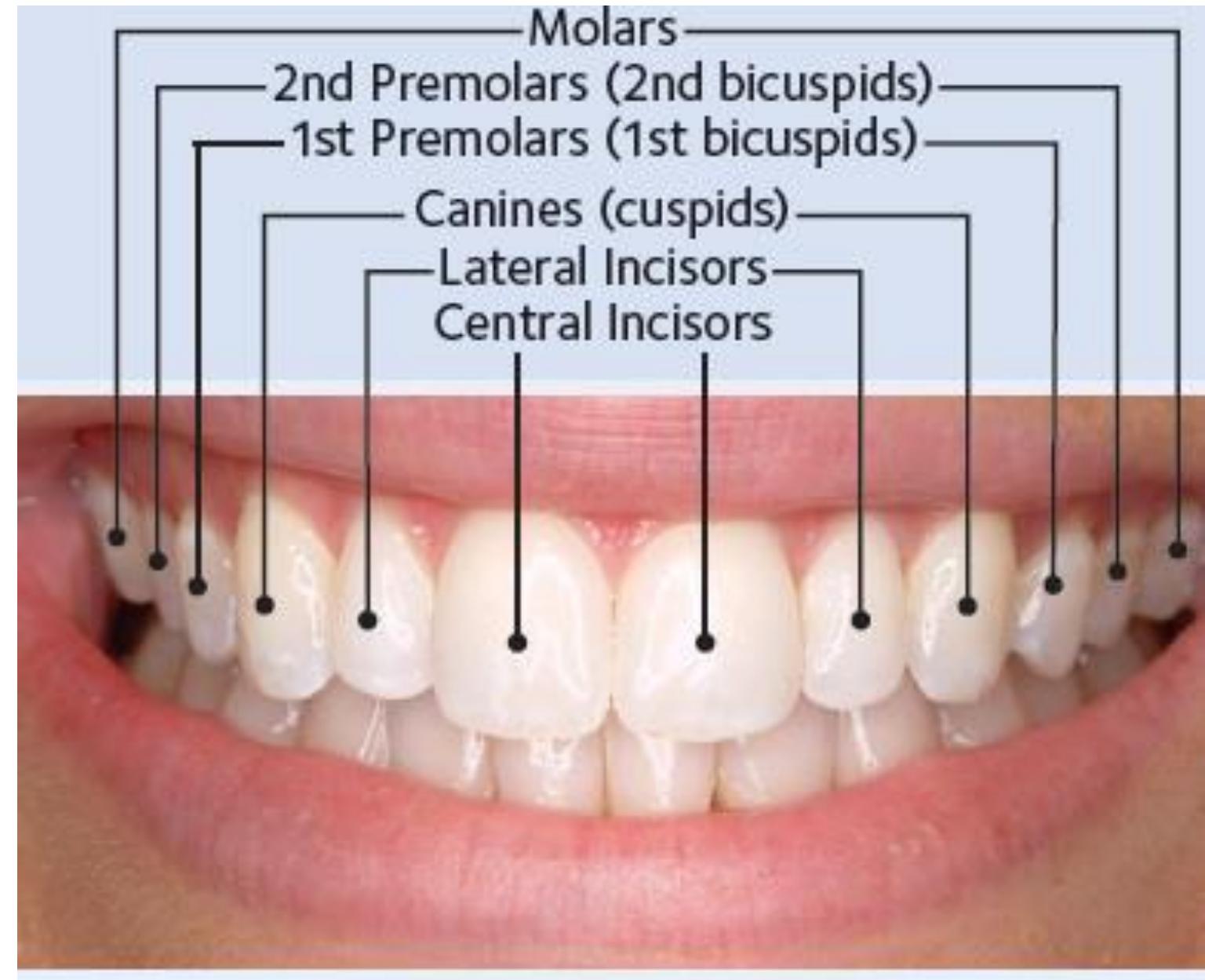
By

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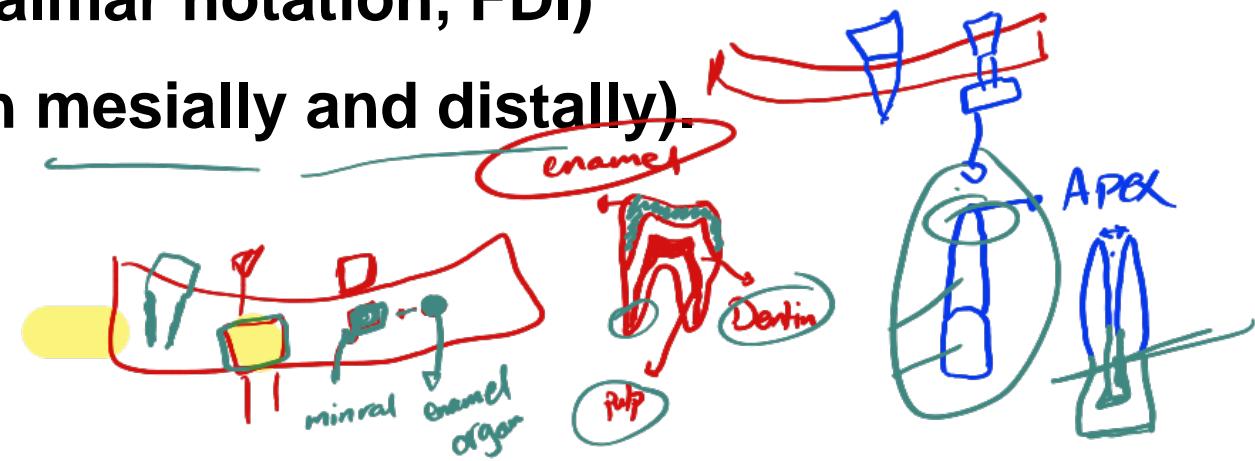
# Permanent Teeth



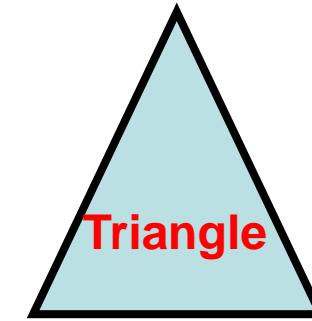
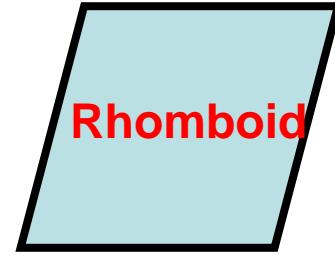
# The ideal way to describe a tooth

## **It is easier to follow these steps:**

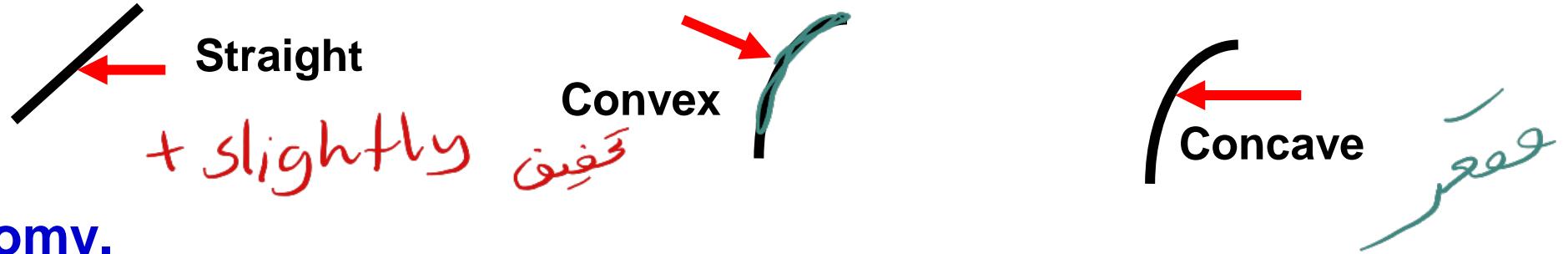
- **Chronology** (dates) enamel organ appearance,  
\* beginning of calcification,  
or crown completed,  
eruption and root completed.
- **Type** ( anterior or posterior) & **function** (incising, grinding etc ....)
- \* **No. of lobes.**
- **Numbering system** (universal, palmar notation, FDI)
- **Relations** (contact with what tooth mesially and distally).
- **No. & name of surfaces.**
- **No. of root (s).**



- To describe each tooth aspect the student should follow the following:
  - Geometric outline.



- Outline.



- Surface anatomy.

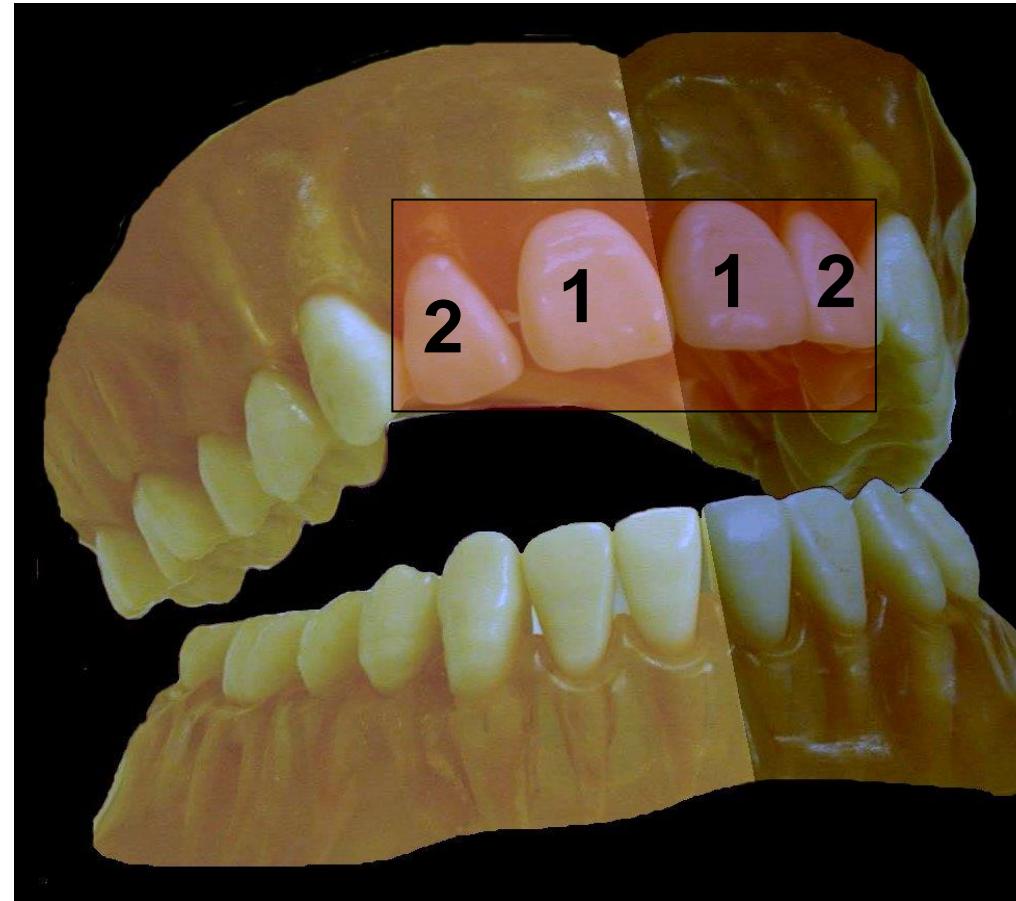
Elevations and depressions present on the surface.

- Root curvature.

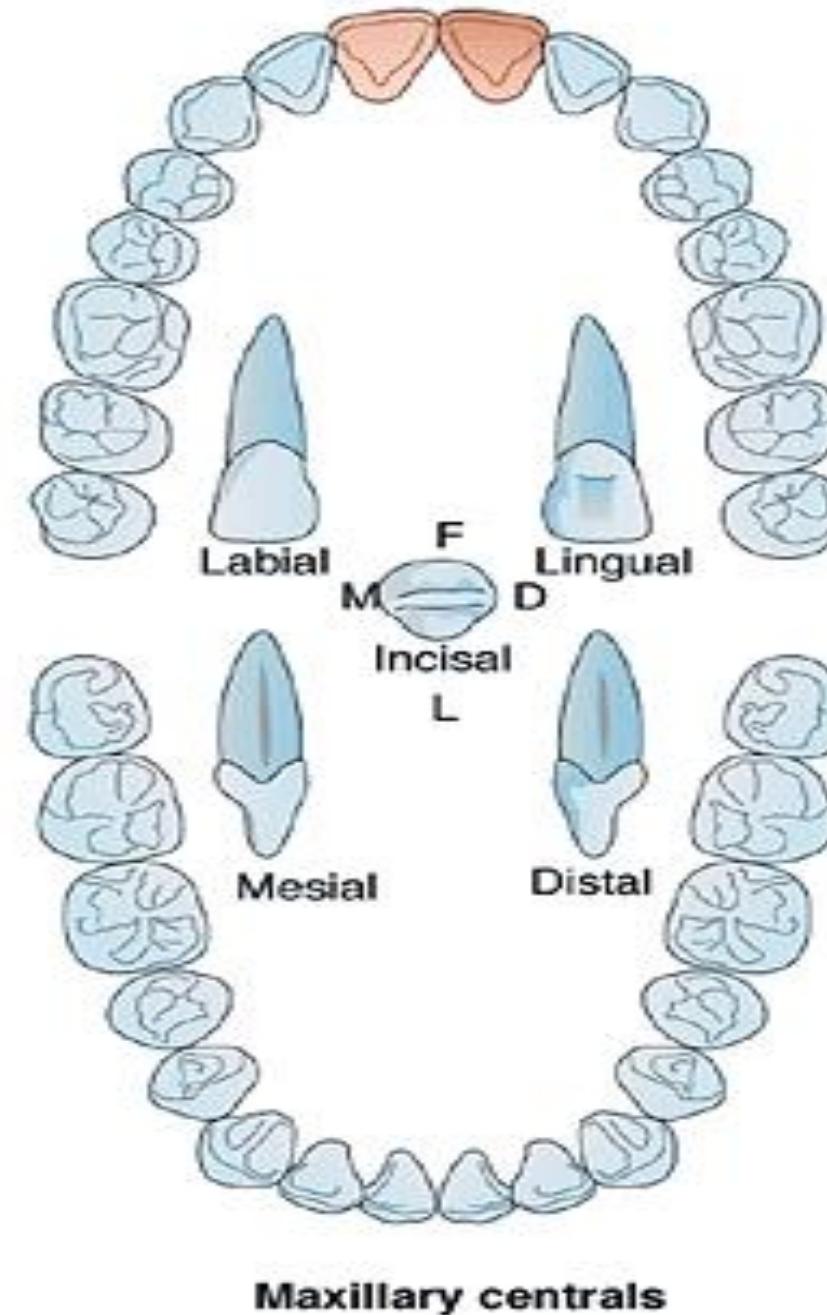
- Pulp cavity. → Pulp shape mimic external shape
  - No. of pulp horns, shape of pulp chamber and no. of root canal(s).

# Permanent Maxillary Incisors

- ☺ There are 4 maxillary incisors. 2 per each quadrant.
- ☺ 2 central incisors \*contact each other at the midline.
- ☺ 2 lateral incisors distal to the central incisor.



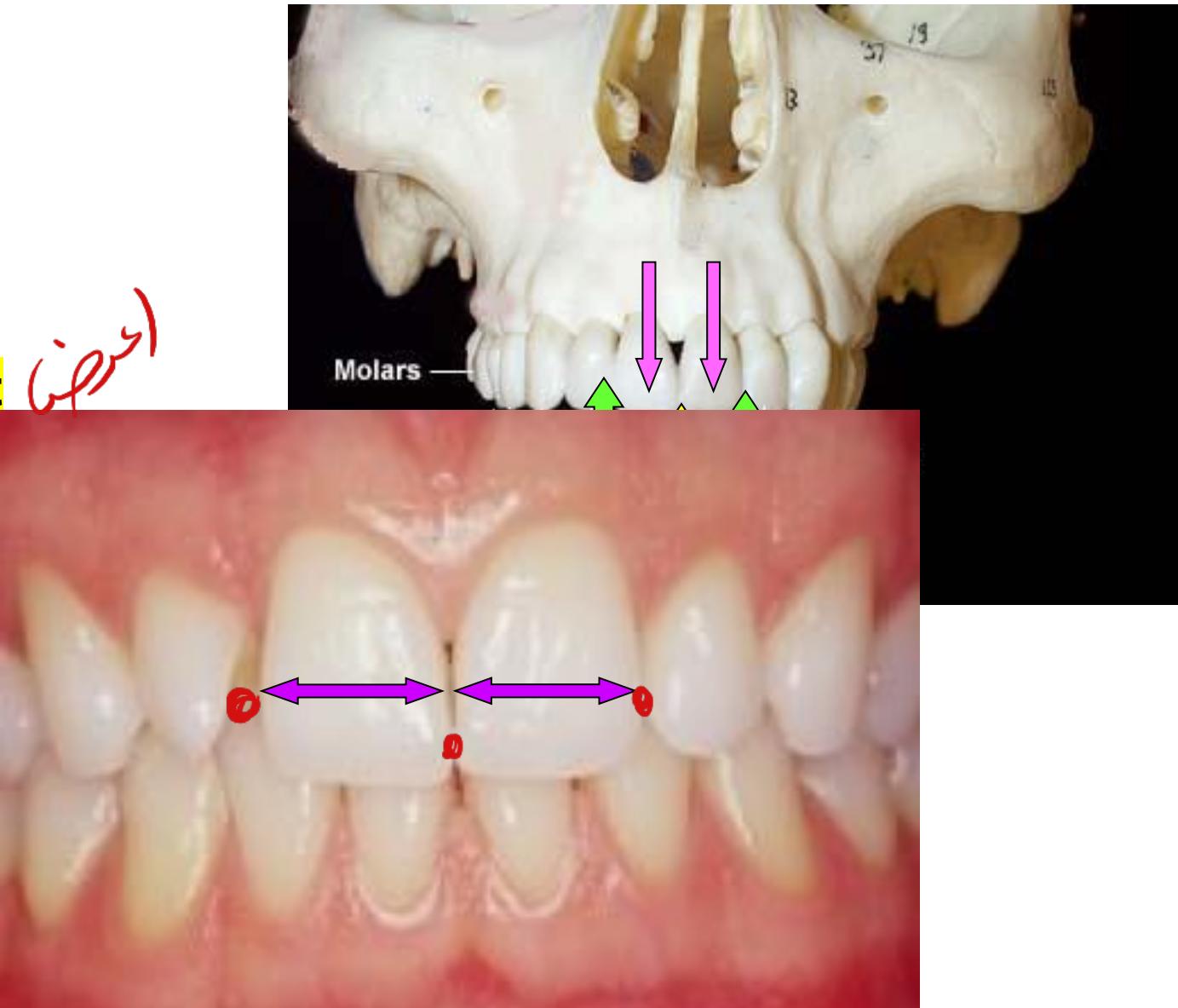
# Permanent Maxillary Central Incisor



# Permanent Maxillary Central Incisor

- There are 2 central incisors in upper jaw.

- The upper central incisor is the **broadest** tooth of the anterior teeth.



- To describe the general characteristics of the permanent maxillary central incisor we should follow the previous steps:

- **Chronology**

## First evidence of calcification

## Enamel completed

# Eruption

## Root completed

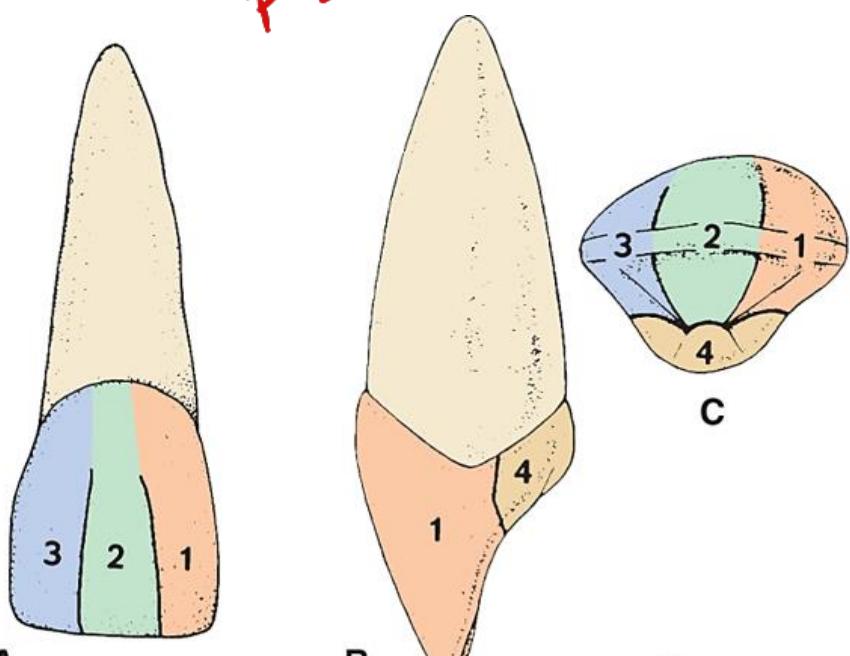
- **Type and function**

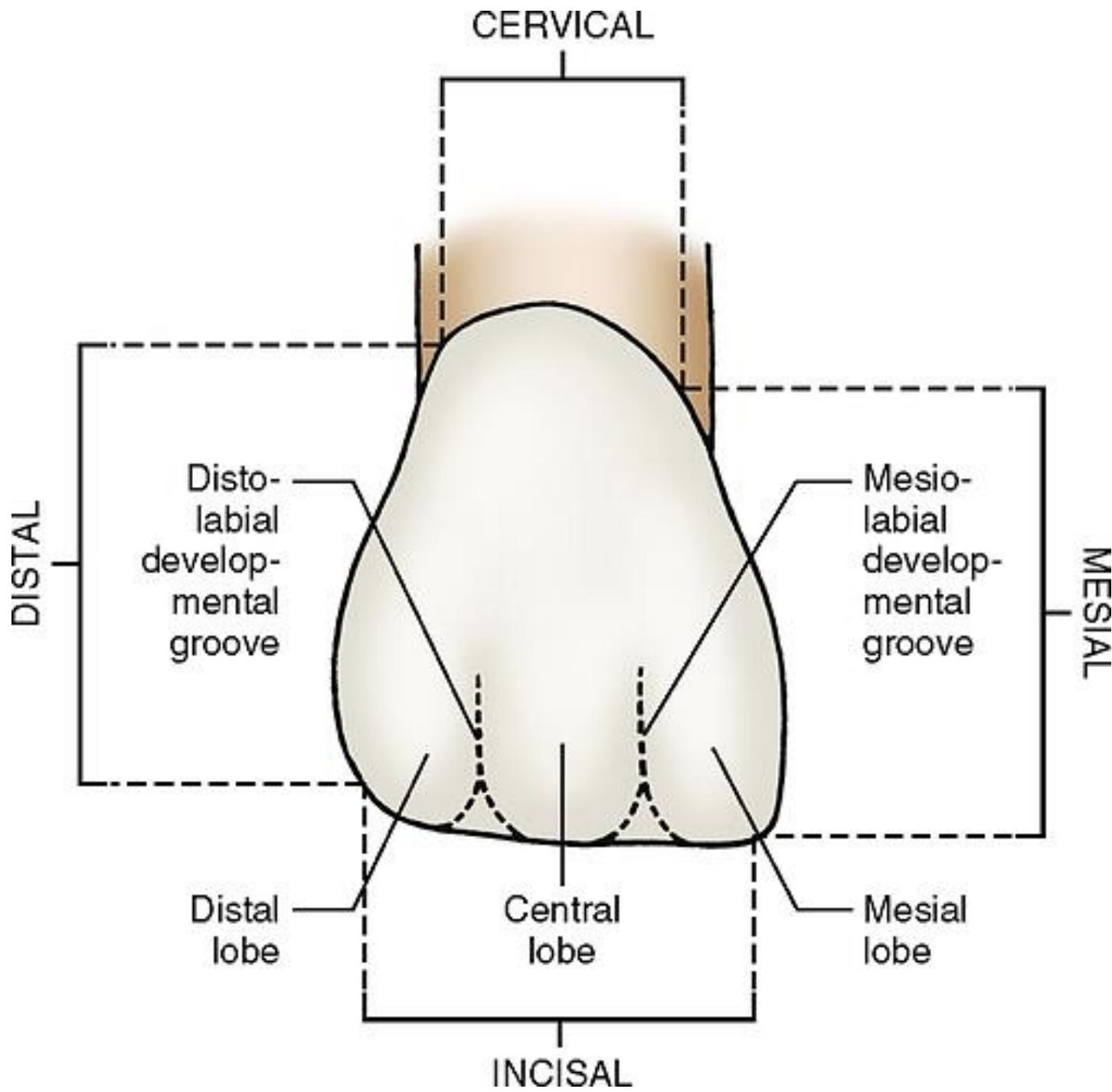
**incising food as well as esthetic.**

- **No. of lobes**

## **four lobes (three mamelons and cingulum)**

- 3-4 months
- 4-5 years
- 7-8 years
- 10 years





- **Numbering system**

	Right	Left
Universal Numbering System	#8	#9
Palmer System (Palmer/Zsigmondy System)	1	1
International System (F.D.I. or Fédération Dentaire Internationale)	1.1	2.1

- **Relation**

The two central incisors make contact **mesially** with each other and **distally** with the mesial surface of the lateral incisor.



- **No. of surfaces**

It has four surfaces and incisal aspect.



Labial



Lingual



Mesial



Distal

Incisal

- **No. of roots**

It has **one root**.



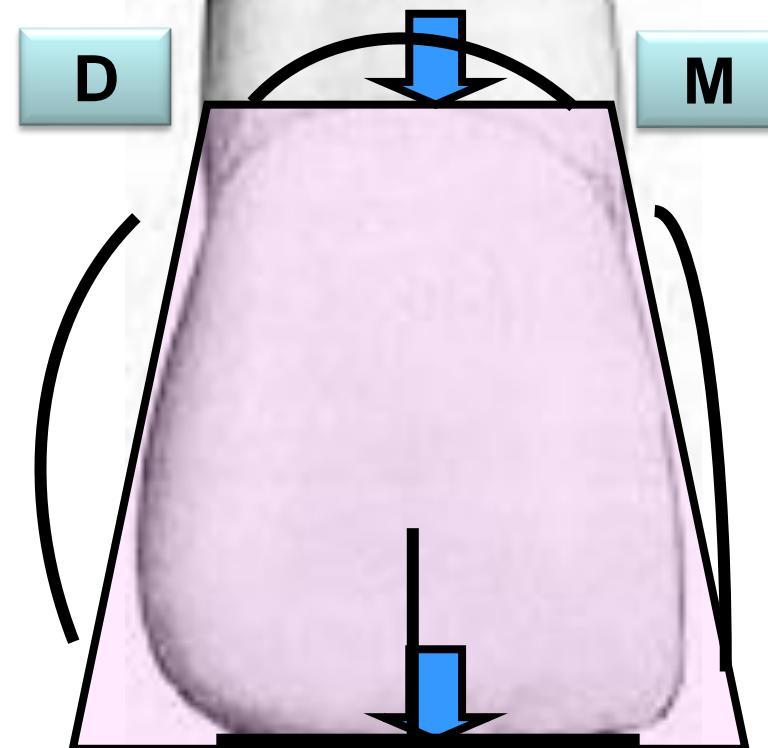
# Labial aspect

## □ Geometric outline of the crown: Trapezoid

- The short side cervically
- The long side incisally

## □ The outline:

- Mesial outline is slightly convex.
- Distal outline is more convex.
- Incisal outline is straight and perpendicular to the long axis of the tooth.  
*Line bisecting the Root Apex*
- The cervical line is convex root-wards. *or concave crown wards*



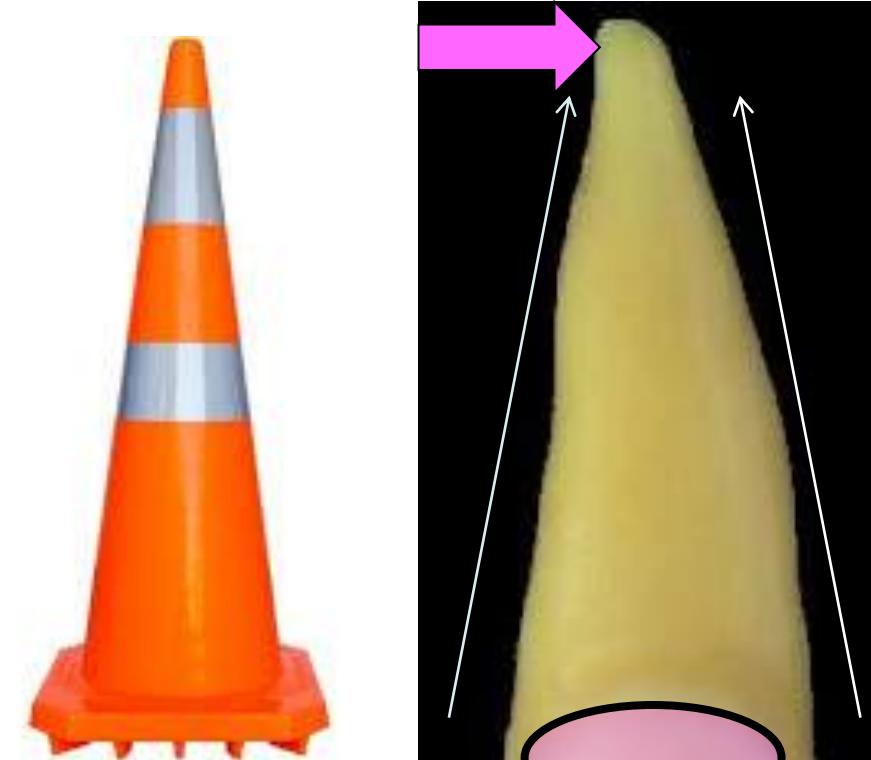
- The mesio-incisal angle is **sharp**.
- The disto-incisal angle is **rounded**.

### 😊 Surface anatomy:

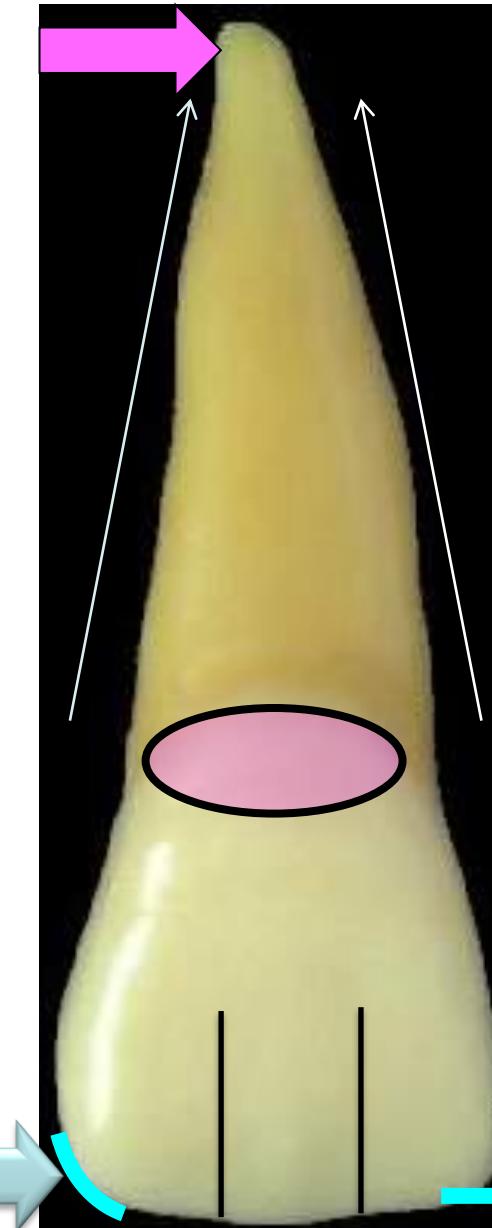
- The surface is smoothly convex, it is flattened incisally.
- Cervical ridge located at cervical third.
- 2 developmental grooves.

### 😊 The root:

- It has a single root.
- It is cone shape with blunt apex.



D.I  
angle

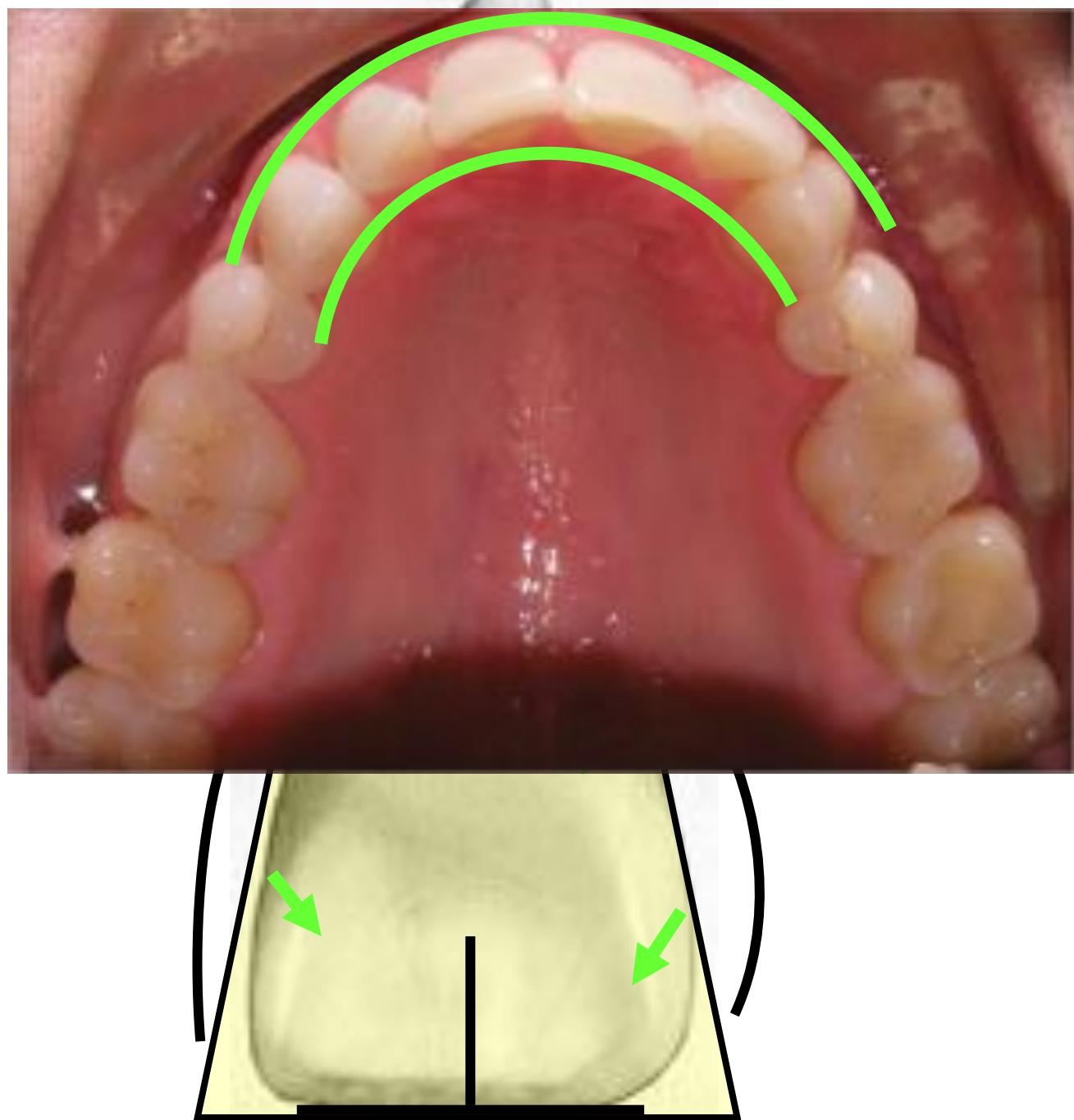


M.I  
angle

# Lingual aspect

- It has the same geometric outline and outline as the labial surface.
- The mesial and distal sides of the crown and root converge **lingually (the lingual surface is narrower than the labial surface).**
- This convergence to accommodate with the horseshoe shaped of the alveolar process.

The facial surface is larger than the lingual surface.



# Surface anatomy

## The elevations:

1- The cingulum ( present at cervical 1/3.

2- Marginal ridges.

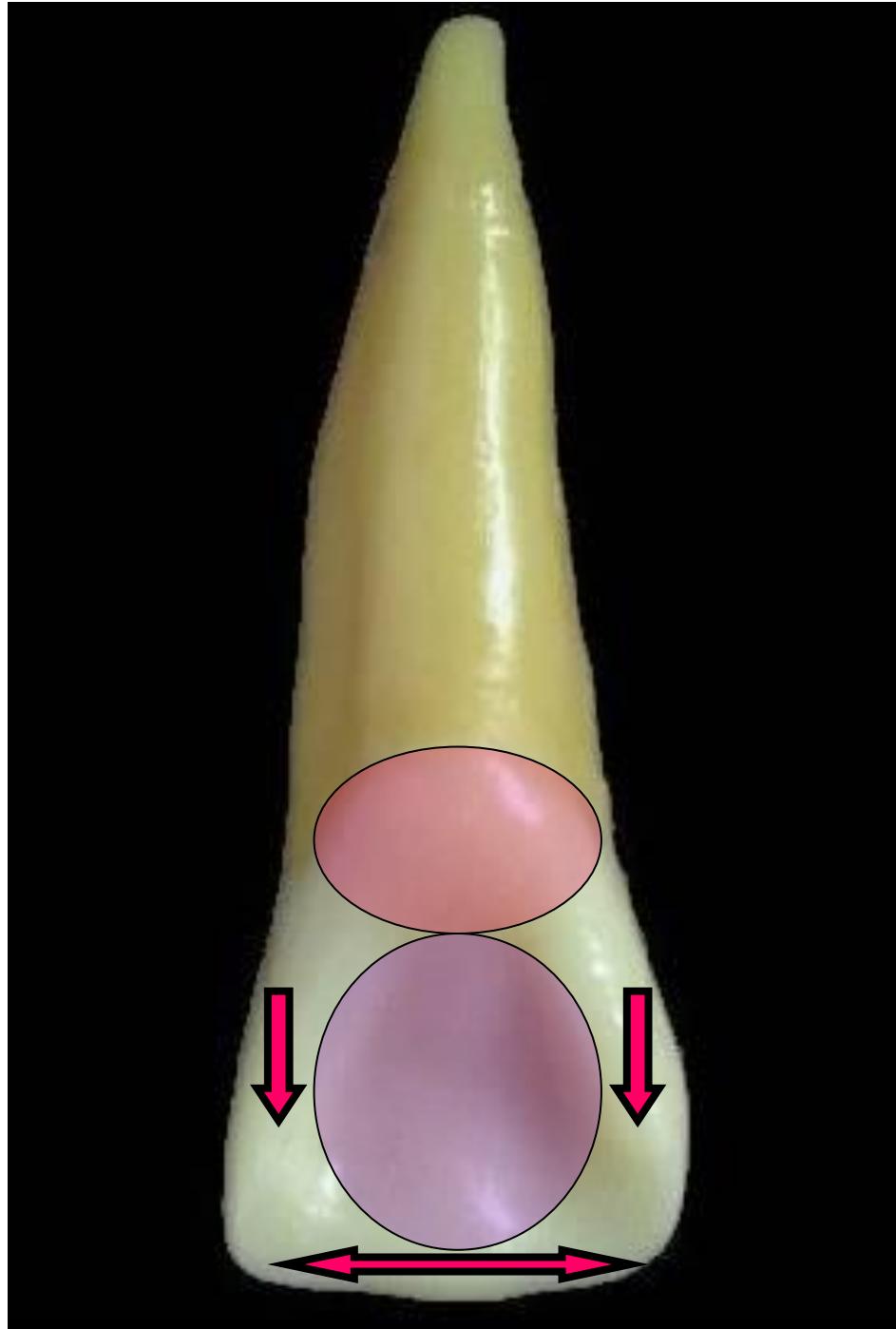
- Mesial marginal ridge.

- Distal marginal ridge.

- Incisal ridge.

## The depressions:

- The lingual fossa ( it lies between the previous elevations).



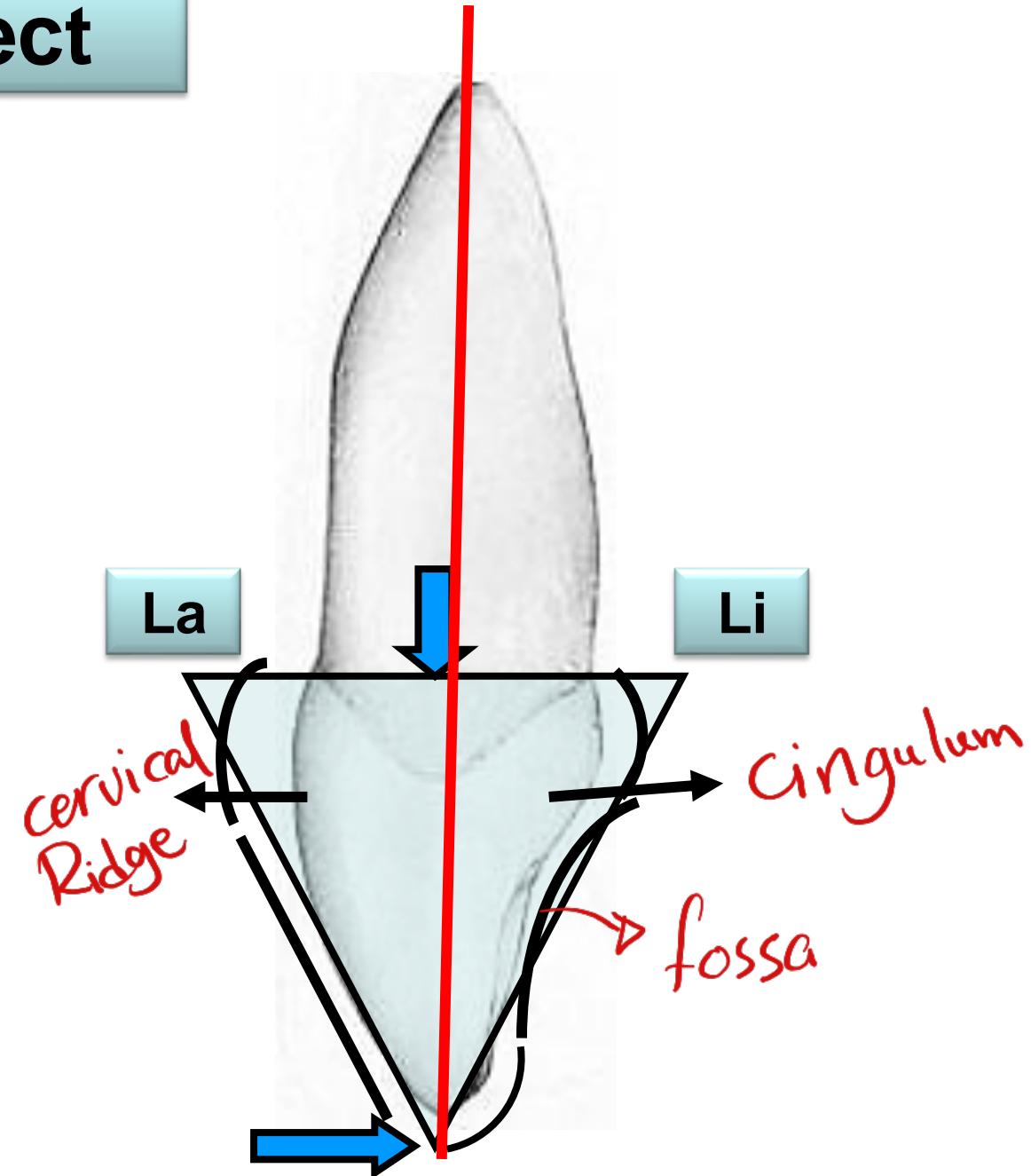
# Mesial aspect

## Geometric outline of the crown:

- Triangular: base... cervically & apex... incisally.
- The incisal ridge is on a line that bisects the center of the root.

## The outline:

- Labial: **convex** at cervical 1/3 (cervical ridge).
- Then become **flat** to the incisal ridge.
- Lingual: **convex** at cervical 1/3 (cingulum).
- Then **concave** at the lingual fossa.
- Then **slightly convex** for the incisal ridge.





સ્લો ર્યૂડ ડિસ્ટ્લ

- The mesial cervical curvature is convex incisally. It is greater than any other teeth in the mouth.

### Surface anatomy:

- The mesial surface is convex with the maximum convexity near the mesio-incisal angle (the contact area)

### The root:

- It is cone shape with blunt apex.



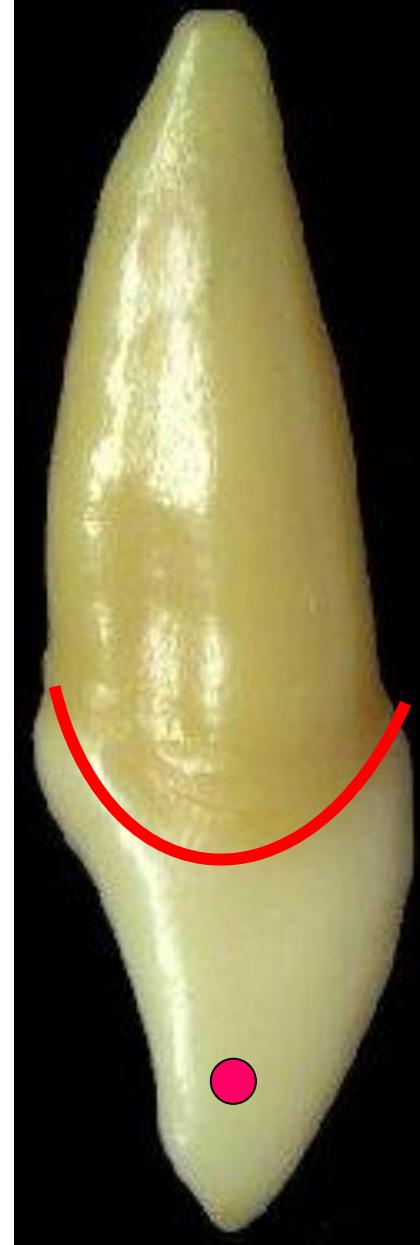
# distal aspect

Similar to the mesial aspect but differ in.

*2.5 mm*

- The cervical line curvature is less than mesial (by 1 mm).

-The contact area located at the junction between incisal & middle 1/3 s.

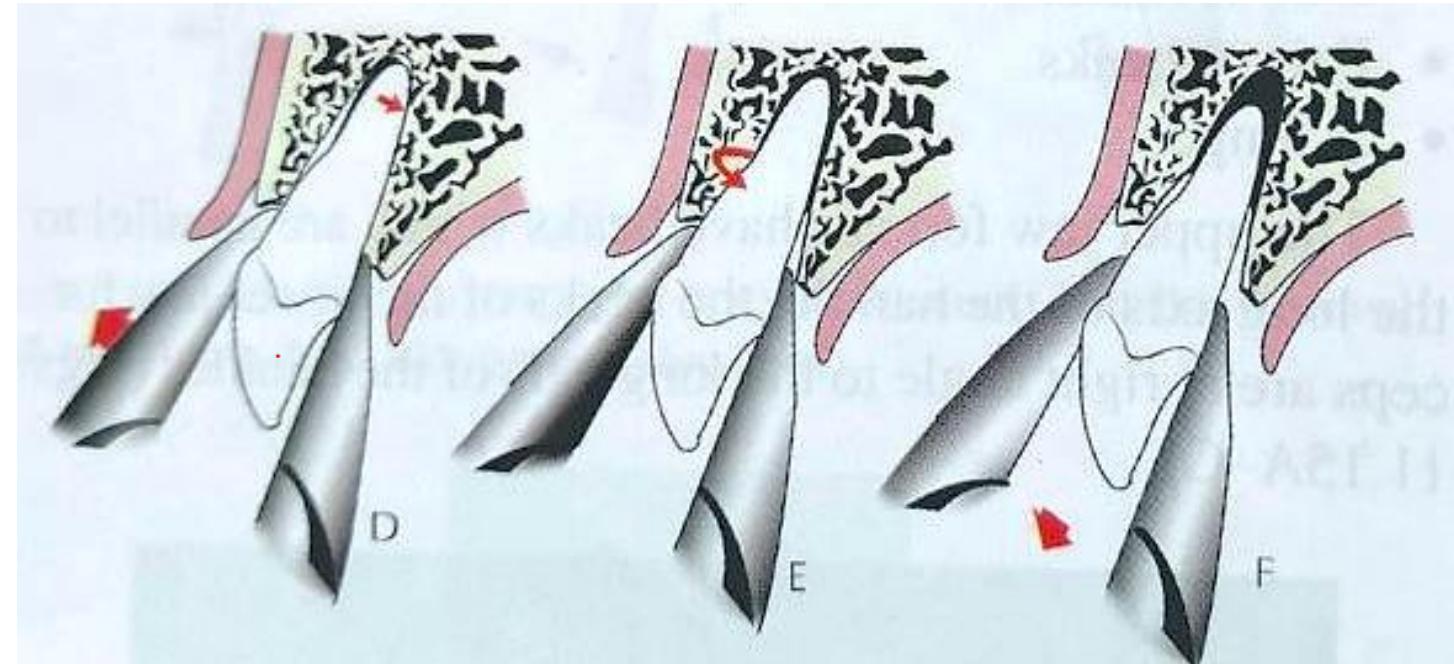
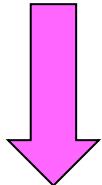




# Clinical significance

- **Upper central incisor root:**

**cone shape with blunt apex & centralized on the long axis of the tooth.**



**Rotation movement for extraction**

# Incisal aspect

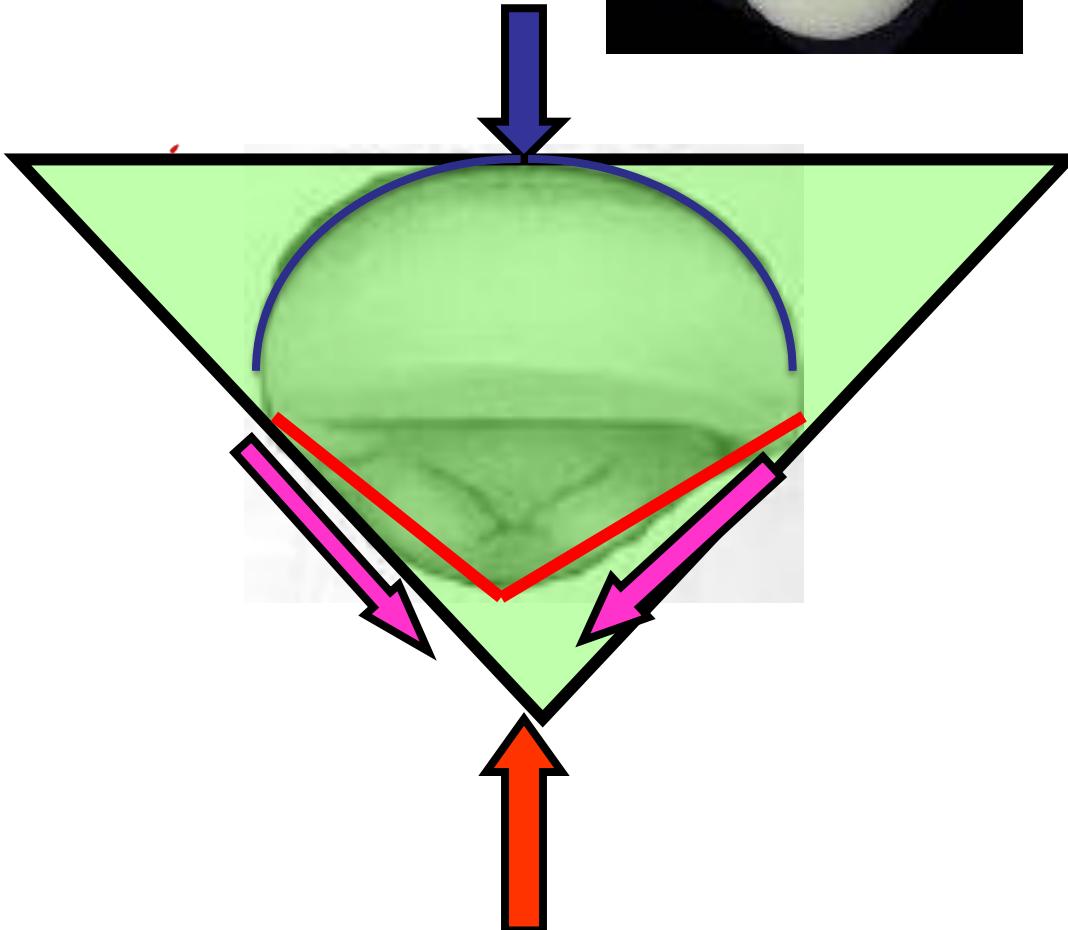
## Geometric outline of the crown:

Triangular in shape.

- The base is placed **labially** and the apex **lingually**.

⦿ The labial surface is broad and flat. The cervical portion of the crown is convex (cervical ridge).

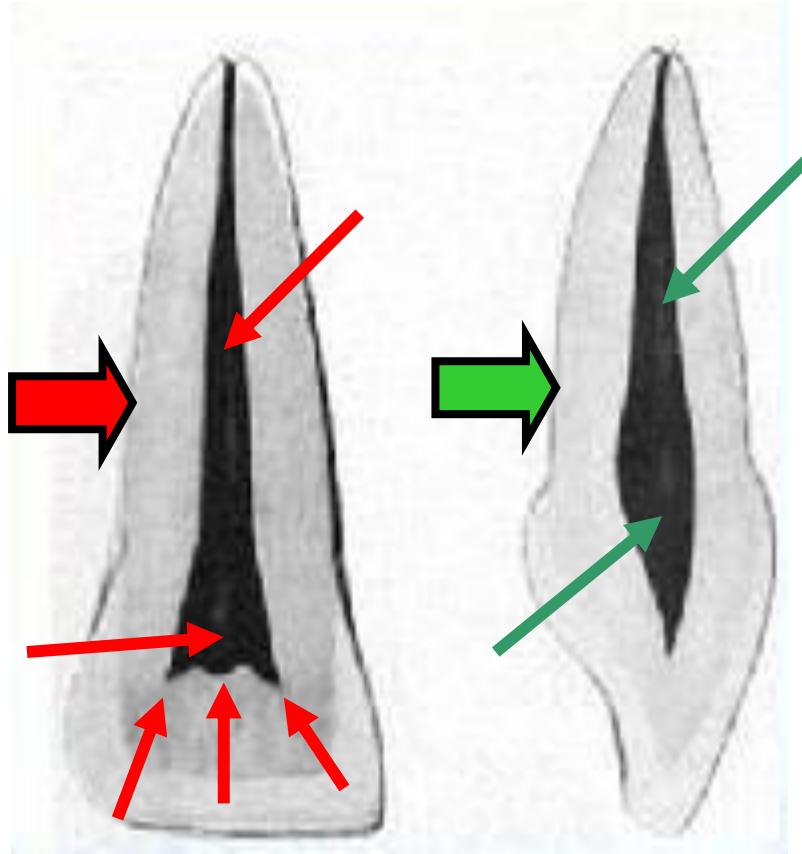
⦿ The lingual outline tapers lingually to the cingulum (lingual convergence).



## Pulp cavity

### ► Mesio-distal section

- The pulp chamber is wide conforming the shape of the crown.
- It presents three pulp horns corresponding to the three mamelons.
- The root canal tapers towards the apex.



### ► Labio-lingual section

- The pulp chamber pointed incisally, then follows the increase in the crown dimension cervically.

- The root canal tapers gradually as it traverse the root ending in a constriction at the apex (the apical foramen).





# Permanent Maxillary lateral Incisor

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## Chronology

First evidence of calcification

Enamel completed

## Eruption

Root completed

1 year

4-5 years

8-9 years

11 years

## Type and function

incising food & esthetic.

## No. of lobes

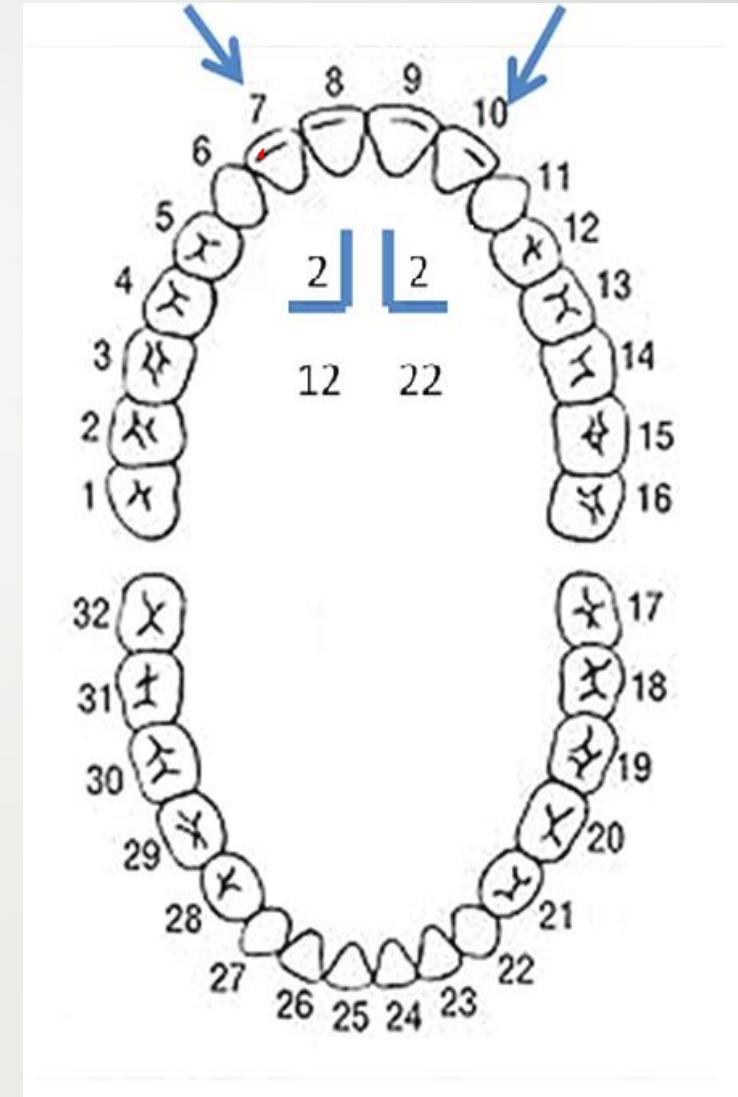
4 lobes (3 mamelons & 1 cingulum)

Development of the teeth Age 8



# Numbering system

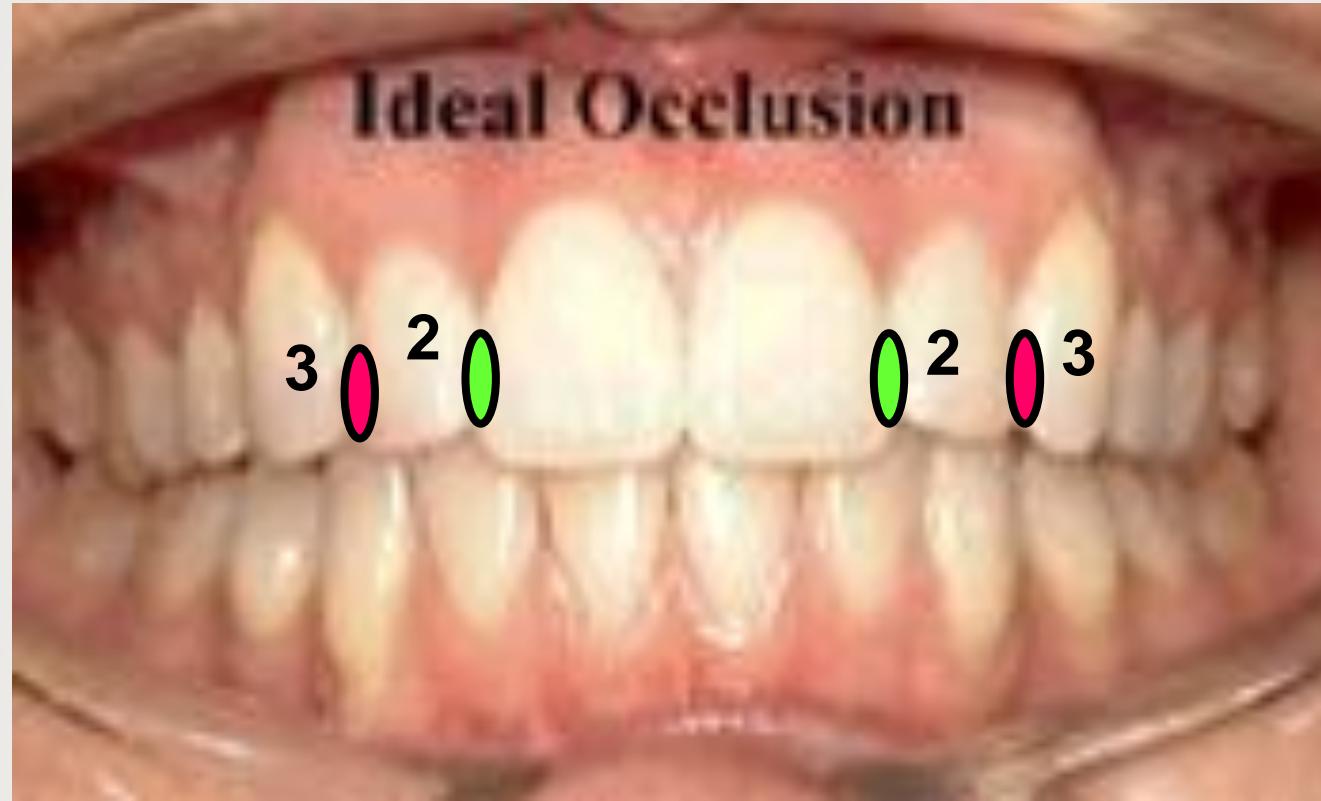
	Maxillary right lateral incisor	Maxillary left lateral incisor
Universal system	# 7	# 10
2 digit system	12	22
Palmer notation system	<u>2</u>	<u>2</u>



## Relation

**mesially** with the central incisor

**distally** with the mesial surface of the canine.



## No. of surfaces

It has four surfaces and incisal aspect.

*the same of central*



Labial



Lingual



Mesial



Distal

## No. of roots

It has one root.

Incisal



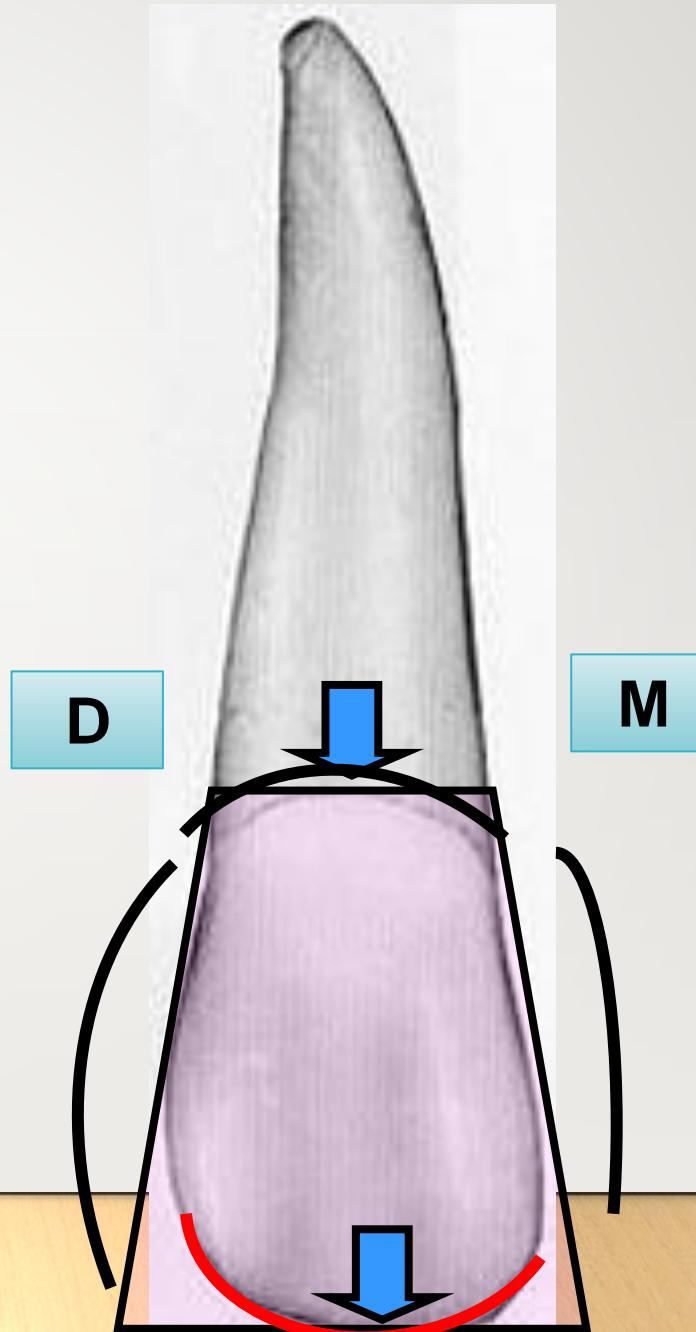
## Labial aspect

### Geometrical outline of the crown: Trapezoid

- The short side cervically
- The long side incisally

### The outline:

- Mesial outline is slightly convex The crest at junction of incisal and middle thirds .
- Distal outline is more convex.
- **Incisal outline** is more curved than the central incisor.
- The cervical line is convex root-wards.



- The **mesio-incisal angle** is **rounded**.
- The **disto-incisal angle** is **more rounded**.

### Surface anatomy:

- The surface is more convex than the central incisor.

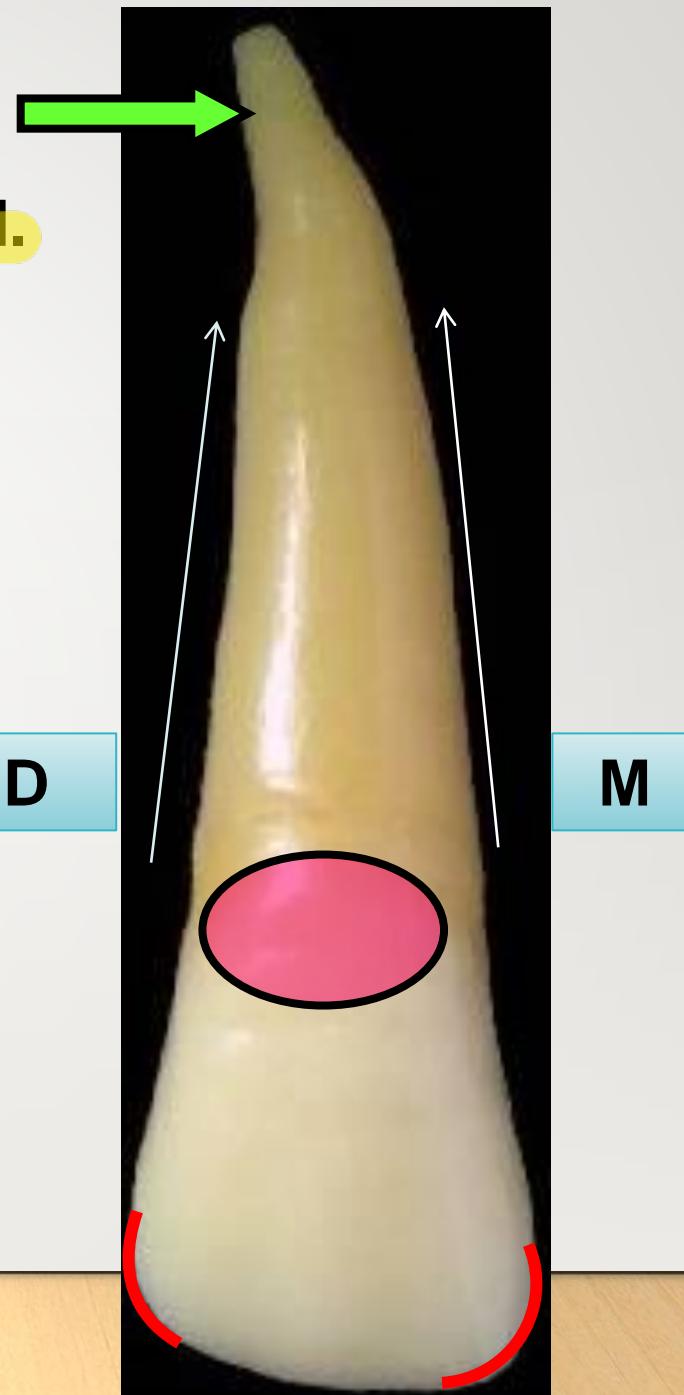
- Elevation: Cervical ridge

- Depression: no

### The root:

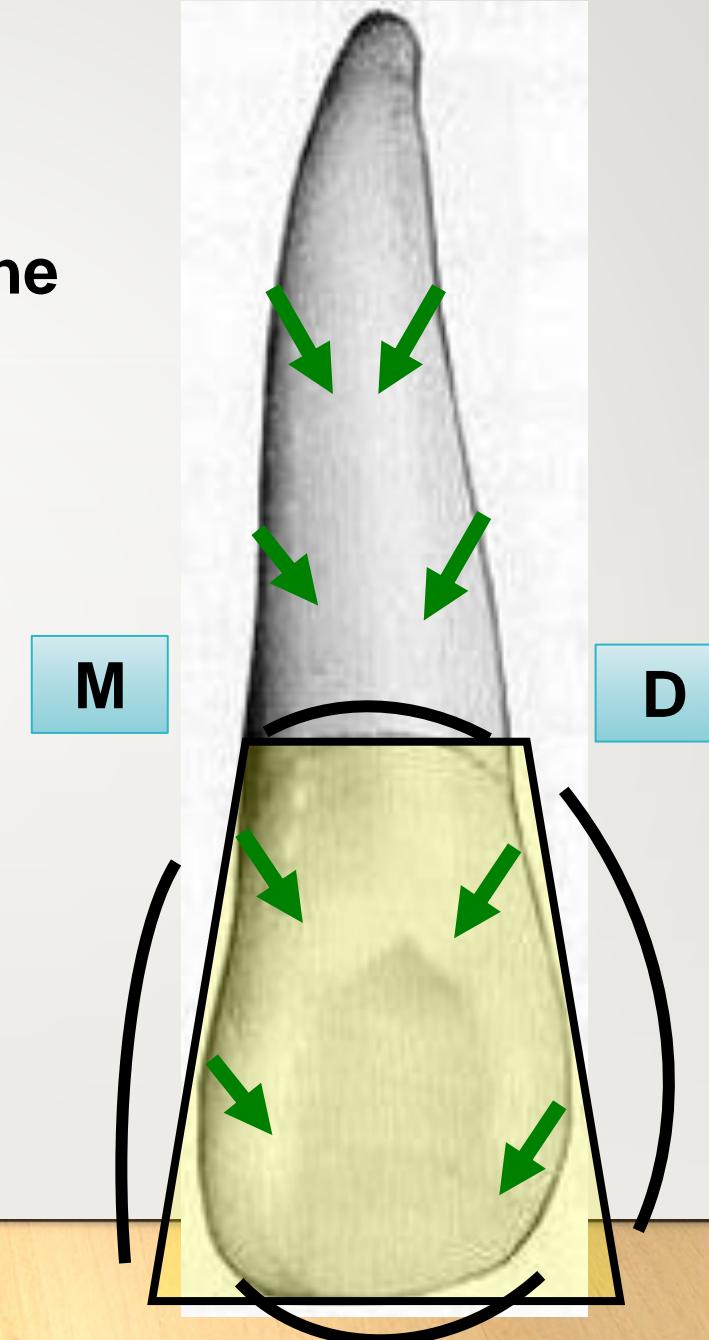
- It has a single root.

- It tapers evenly to apical 1/3 , then **curve** distally with a pointed apex.



## Lingual aspect

- geometrical outline and outline as the labial surface.
- The mesial and distal sides of the crown and root converge **lingually**



# Surface anatomy:

## The elevations:

- 1- The cingulum
- 2- Marginal ridges.
  - Mesial marginal ridge.
  - Distal marginal ridge.
  - Incisal ridge.

## The depressions:

- The lingual fossa (V- shape)

 **NB: All elevations and depression are**  
**lower than the upper central**  
**incisor.**

*(05/19)*



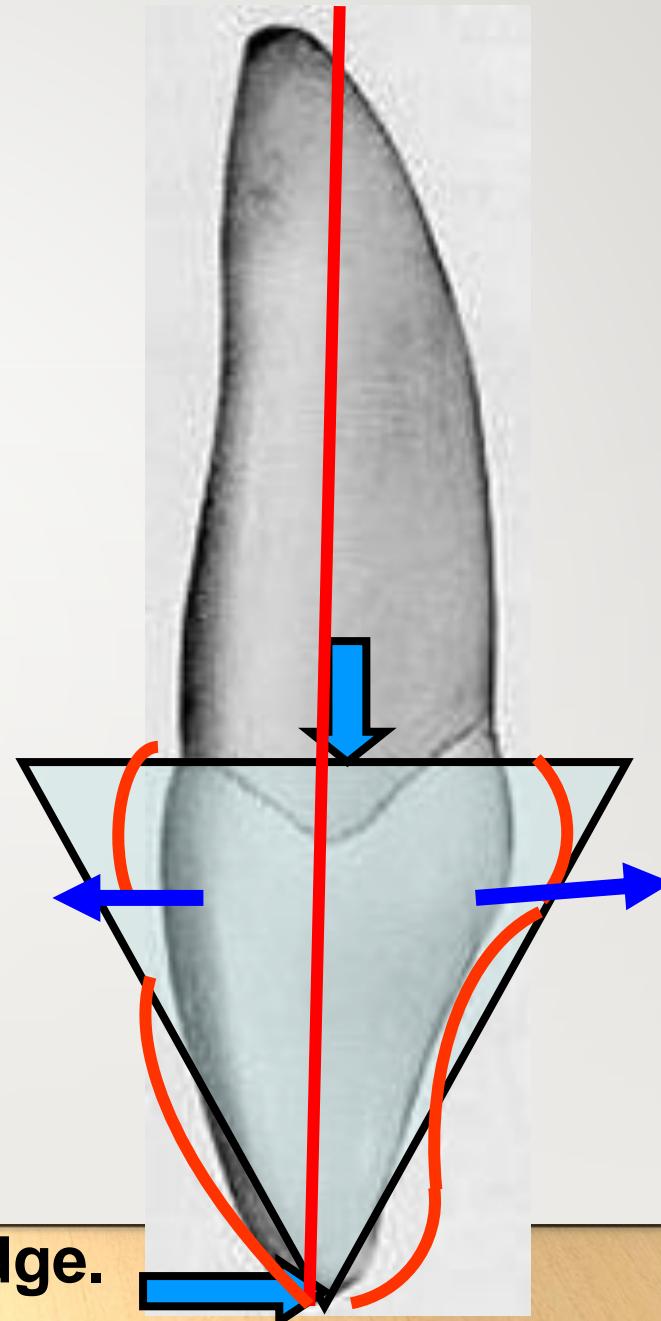
# Mesial aspect

## Geometrical outline of the crown:

- Triangular; the base cervically & the apex incisally.
- The incisal ridge is on a line that bisects the centre of the root.

## The outline:

- **The labial outline** is convex at cervical 1/3 ( cervical ridge).
- Then become slightly convex to the incisal ridge.
- **The lingual outline** is convex at cervical 1/3 (cingulum).
- Then concave at the lingual fossa.
- Then slightly convex for the incisal ridge.



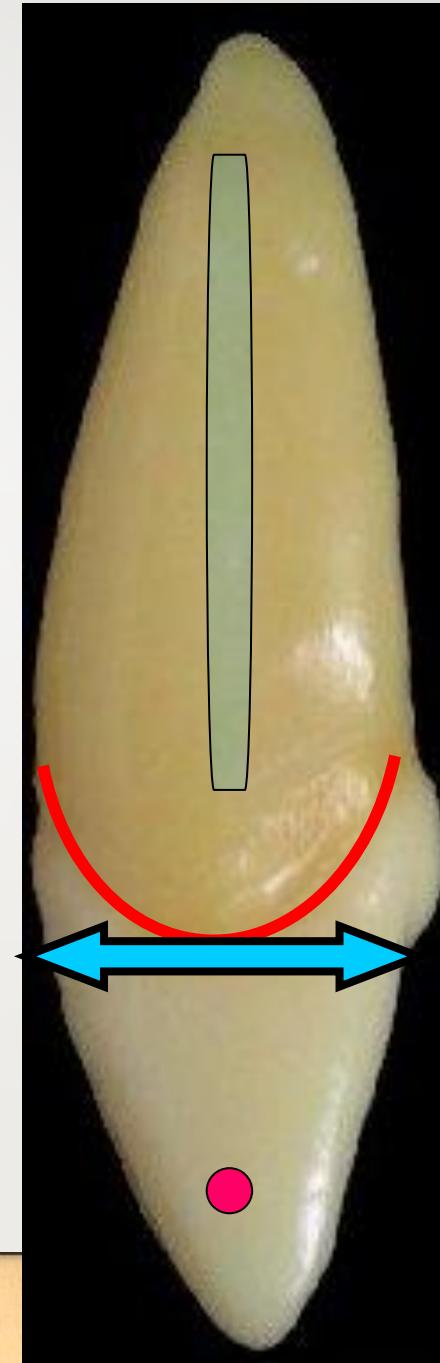
- The mesial cervical line is convex incisally.

### Surface anatomy:

- The labio-lingual measurement is less than the central incisor by about 1mm.
- The mesial surface is convex with the maximum convexity at the junction of the incisal and middle 1/3s ( the contact area)

### The root:

- The root appears longer than the central incisor
- It is cone shape with blunt apex. It has developmental depression.



## The distal aspect

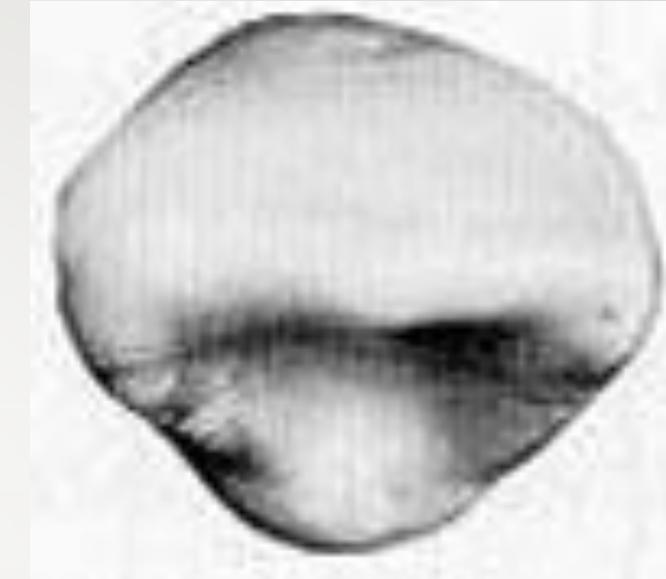
**Similar to the mesial aspect but differ in:**

- The cervical line curvature is less than mesial ( by 1 mm).
- The contact area located at the middle 1/3 (more cervially).
- It is smaller and more convex than the mesial.



## Incisal aspect

- It may resemble the central incisor
- except the cingulum and the incisal ridge are more prominent..



L



C

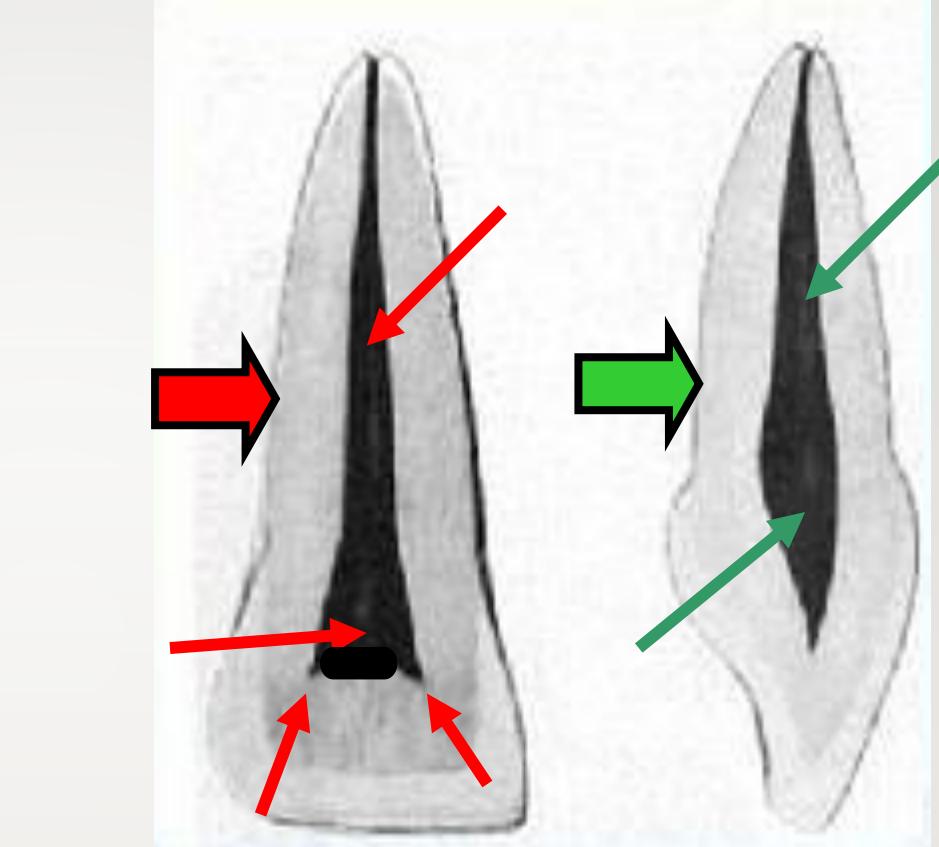
## Pulp cavity

### ► Mesio-distal section

- The pulp chamber is wide conforming the shape of the crown.
- It does not have three sharp pulp horns.
- The root canal tapers towards the apex.

### ► Labio-lingual section

- The pulp chamber pointed incisally, then follows the increase in the crown dimension cervically.



- The root canal tapers gradually as it traverse the root ending in a constriction at the apex (the apical foramen).



## Clinical significance



- Peg-shaped upper lateral incisor :

Only 3 lobes.... Middle one is missed

- upper lateral incisor may be absent :

Congenitally missed

- Deep & prominent developmental pit:

At the top of cingulum & l.fossa



**Identify the tooth, the aspects and tell FOUR differences between the lateral and central incisor.**

**Answer**

**A- P. Upper central incisor.**

**B- P. Upper lateral incisor**

**Lingual aspect**

**1- Size.**

**2- The elevations and depressions**

**3- The incisal angles.**

**4- The root.**



**A**



**B**

Thank You

So Much