

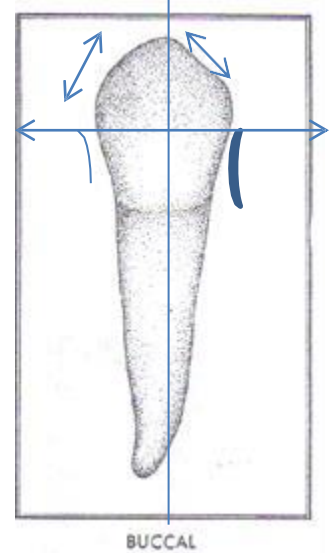


The mandibular first premolar is the fourth tooth from the median line in the mandible and the first posterior tooth. It resembles both the mandibular canine and mandibular second premolar in the function and has some characteristics of each of them. The mandibular first premolar has two cusps like the second premolar buccal cusp and the lingual cusp, but it has only the buccal cusp is the functioning cusp which is long sharp and developed to resemble the cusp form of the canine. The outline of the occlusal aspect is similar to the incisal aspect of the mandibular canine. It has single rounded root.

Buccal Aspect

Mandibular first Premolar

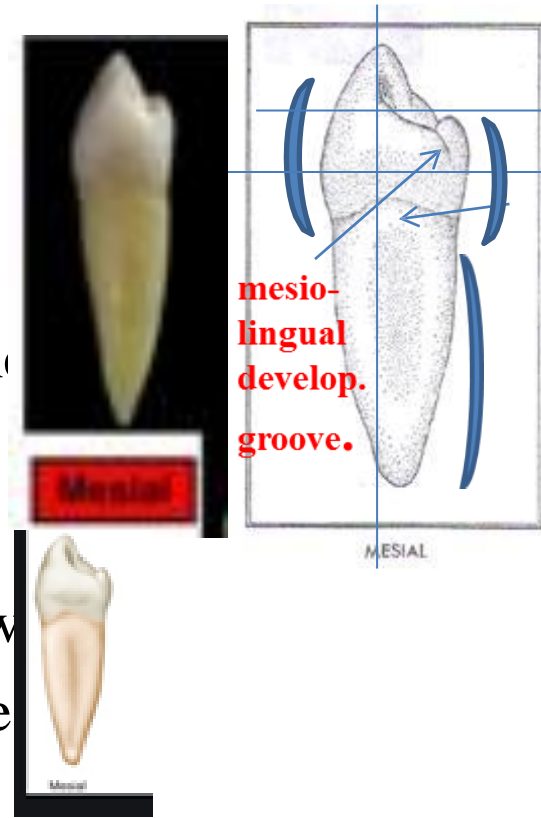
- 1-The buccal cusp tip is large pointed located mesial to the long axis of the crown.
- 2-The mesial slope of the buccal cusp is shorter to the distal slope.
- 3-The mesial and distal contact areas are broad and at the same level which are located at little more than half the distance from the cervix to cusp tip.
- 4-The mesial and the distal outline of the crown from the cervix to the crest of curvature are slightly concave.
- 5-The crown is trapezoidal with a prominent middle buccal ridge which extends from the cusp tip to the cervical line.



Mesial Aspect

Mandibular first Premolar

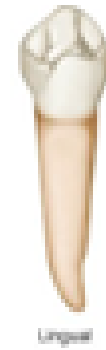
- 1-The tip of the buccal cusp nearly reaches the center of the long axis of the root while the convexity of the lingual outline of the lingual cusp will be lingual to the lingual outline of the root.
- 2-The buccal outline of the crown is much curved with the crest of curvature near the middle third of the crown.
- 3-The lingual outline of the crown is less curved with crest of curvature at the center of the middle third.
- 4-There is well-defined **mesio-lingual developmental groove** on the mesial surface.
- 5-The curvature of the cervical line is slight curve towards the occlusal surface about 1mm.



Lingual Aspect

Mandibular first Premolar

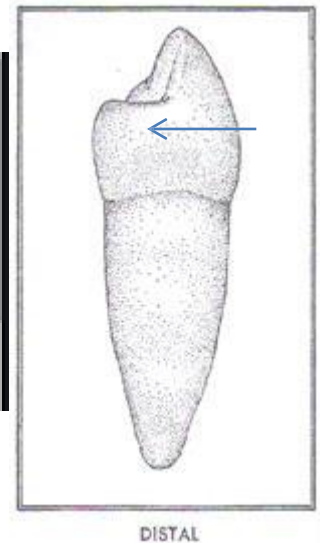
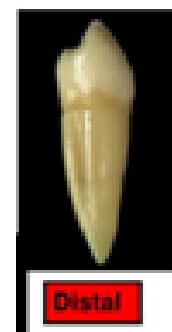
- 1-The lingual aspect has a reverse outline to that of the buccal aspect.
- 2-The lingual cusp is small, poorly developed with the length more than half the height of the buccal cusp.
- 3-There is developmental groove on the mesial of the lingual cusp which is called **mesio-lingual developmental groove**.



Distal Aspect

The distal aspect has the same outline as the mesial with some differences which are:

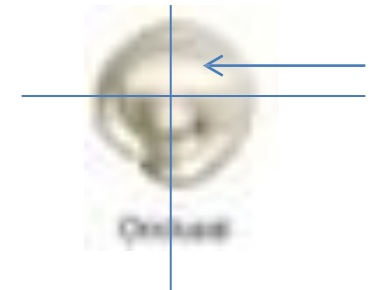
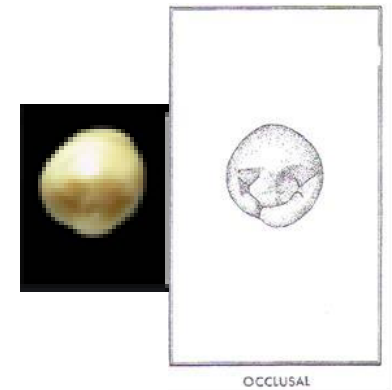
- 1-The curvature of the cervical line is less distally than mesially.
- 2-There is no developmental groove in the distal surface.
- 3-The distal marginal ridge is higher than mesial marginal ridge.



Occlusal Aspect

Mandibular first Premolar

1. It has circular outline from the occlusal aspect.
2. The buccal ridge is prominent.
3. The distal outline is semicircular from the crest of curvature buccally to the crest of curvature lingually. The mesial outline is smaller semicircular arc from the mesio-lingual developmental groove to crest of curve buccally.
4. The mesial contact area is smaller where it contacts the canine than distal contact area where it contacts the second premolar.
5. There are well developed mesial and distal marginal ridges.
6. There are two fossae: mesial and distal fossae.
7. The lingual cusp is small.
8. The triangular ridge of the buccal cusp is large while triangular ridge of the lingual cusp is small.



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Mandibular Second Premolar

The mandibular second premolar is the fifth tooth from the median line in the mandible. It is larger than the mandibular first premolar. There are two forms of this tooth. The first it has three-cusp type one buccal cusp and two lingual cusps which is most common occur. The second form it is the two-cusp type buccal cusp and lingual cusp. The outlines in all aspects are similar but differ only in the occlusal design. It has longer and larger root than the mandibular first premolar.

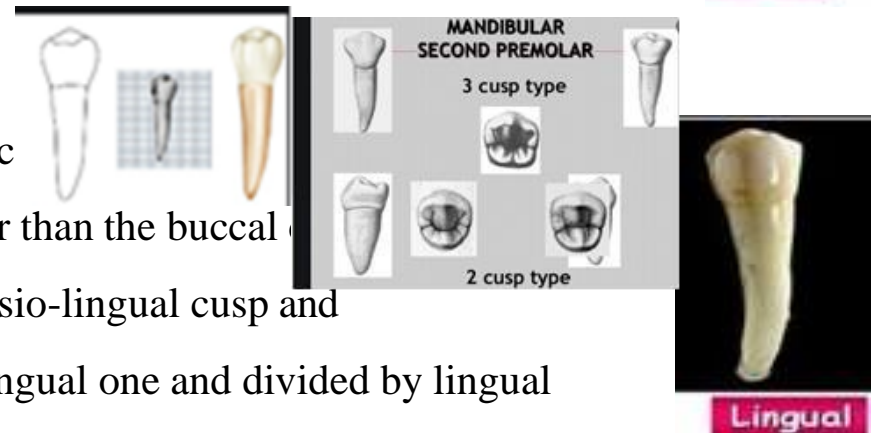
Buccal Aspect

- 1-The buccal cusp is shorter and less pointed than the mandibular first premolar.
- 2-The mesial and distal contact areas are broad and at the same level which are located higher because of the shorter buccal cusp.
- 3-The root is longer.



Lingual Aspect

- 1-The lingual aspect has a reverse outline to that of the buccal
- 2-The lingual cusps are more developed and slightly shorter than the buccal
- 3-**A.** In the three-cusp type: there are two lingual cusps: mesio-lingual cusp and disto-lingual cusp. The mesio-lingual is larger than disto-lingual one and divided by lingual developmental groove. **B.** In two-cusp type: there is a large cusp and the same height as the three cusp-type.



Mandibular Second Premolar

Mesial Aspect



The mandibular second premolar has the general outline of the mandibular first premolar but it differs in:

- 1-The crown and root are wider bucco-lingual dimension than the mandibular first premolar.
- 2-The buccal cusp is not nearly the center of the root and it is shorter.
- 3-The length of the lingual cusp is much near the length of the buccal cusp.
- 4-There is no mesio-lingual developmental groove on the mesial surface of the crown.
- 5-The mesial marginal ridge is higher.



Distal Aspect

The distal aspect has the same outline but it is a reverse. All the three cusps may be seen from this aspect. The distal marginal ridge is lower than that in the mesial aspect

Mandibular First Premolar	Mandibular Second Premolar
	
The crown is narrower BL Rhomboid in shape with narrow occlusal table. Prominent lingual inclination	The crown is wider BL Rhomboid in shape with narrow occlusal table. Lingual inclination less prominent



Occlusal Aspect

The occlusal aspect differs from the first premolar in the Three-cusp type:

1-It occlusal aspect has square outline.

2-Three cusps: the buccal is the largest, followed by the mesio-lingual cusp, and then the disto-lingual cusp.

3-Each cusp has well-formed triangular ridge separated by developmental groove which form the Y – shape on the occlusal surface.

4-The contact areas are broad and flat.

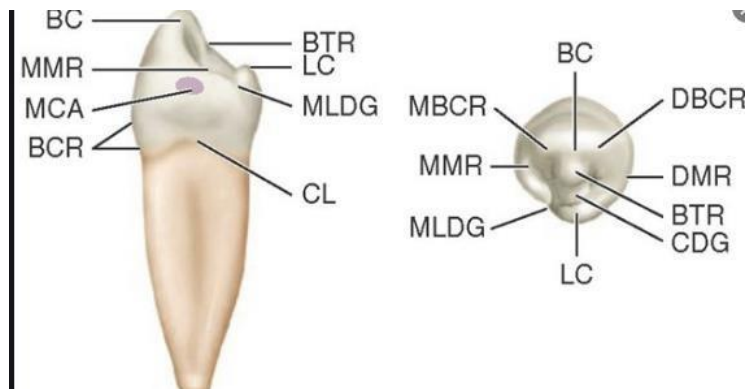
5- There are three developmental grooves:



Mesial developmental groove ending in the mesial triangular fossa.

Distal developmental groove ending in the distal triangular fossa.

Lingual developmental groove separates between two lingual cusps.

6-These developmental grooves meet at the central pit which is located slightly distally.



Mandibular First Premolar	Mandibular Second Premolar
	
The crown is narrower BL Rhomboid in shape with narrow occlusal table. Prominent lingual inclination	The crown is wider BL Rhomboid in shape with narrow occlusal table. Lingual inclination less prominent