



# Dental Anatomy

Lecture (9)

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## **PERMANENT MANDIBULAR SECOND PREMOLARS**

### **Principle identifying features**

1. It is larger than the mandibular first premolars.
2. The cusps are more equal in width with less pointed tips. Usually this tooth has three cusps, one buccal and two lingual ; or may have only two cusps, one buccal and one lingual.
3. The occlusal outline is almost square in appearance with no mesio-lingual developmental groove.

### **Buccal Aspect**

1. The buccal cusp is shorter and less pointed than that of mandibular first premolar.
2. The contact areas are broad and high (appear to be higher because of the shorter buccal cusp).
3. The root is broader mesio-distally than that of mandibular first premolar ending with a more blunt apex.

### **Lingual Aspect**

The lingual surface of the crown is smooth and spheroidal.

From this aspect this tooth differs from the mandibular first premolar in :

1. The lingual cusps are more developed (longer cusps).
2. The less occlusal surface may be seen from this aspect. However because the lingual cusps are slightly shorter than the buccal cusp, part of the buccal portion of the occlusal surface may be seen.

**3.A.In the three cusps type:** There are two lingual cusps, the mesio-lingual is larger than the disto-lingual cusp and are divided by the lingual developmental groove.

**B.In the two cusps type:** There is a large cusp of the same height as in the three cusps type. There is a developmental depression distolingually where the lingual cusp ridge joins the distal marginal ridge.

### **Mesial Aspect**

**From this aspect, this tooth differs from the mandibular first premolar in:**

- 1.The crown and root are wider buccolingually.
- 2.The buccal cusp is not nearly centered over the root trunk and it is shorter .
- 3.The marginal ridge is at a right angle to the long axis of the tooth with less occlusal surface may be seen.
- 4.There is no mesio-lingual developmental groove on the crown.
- 5.The root is longer with more blunt apex.

### **Distal Aspect**

- 1.All three cusps may be seen .
- 2.The distal marginal ridge is lower than that mesially revealing more of the occlusal surface.

### **Occlusal Aspect**

#### **A.Three cusps type:**

- 1.The occlusal aspect is square in shape
- 2.Three cusps: the buccal is the largest, followed by the mesio-lingual cusp, and then the disto-lingual cusp.
- 3.Each cusp has a well-formed triangular ridge separated by deep developmental grooves which form a Y-shaped on the occlusal surface.
- 4.There are a three developmental grooves;

A.Mesial developmental groove travels in a mesiobuccal direction and ends in the mesial triangular fossa just distal to the mesial marginal ridge.

**B.**Distal developmental groove travels in a distobuccal direction, and it is shorter than the mesial groove, ends in the distal triangular fossa mesial to the distal marginal ridge.

**C.**Lingual developmental groove separating the two lingual cusps.

**5.**These grooves converge in a central pit which is placed slightly towards the distal side.

**6.**Supplemental grooves are often seen.

**B. Two cusps type:**

1. Appear more rounded than the more angular three cusps type.
2. There is one well-developed lingual cusp which is large and opposite the buccal cusp.
3. A central developmental groove travels in a mesio-distal direction with its terminals centered in the mesial and distal triangular fossae.

Sometimes mesial and distal developmental pits in the centers of these fossae may be seen.



**Figure (1):**Permanent mandibular second premolar.

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