IN THE NAME OF ALLAH THE MOST GRACIOUS THE MOST MERCIFUL


"إِنَّا كُلَّ شيءٍ خلقناهُ بقدَر"

Physiologic Form of the Teeth and The Periodontium

It is assumed that the form of the teeth and their arrangement are related to *incising* or *crushing* food without causing damage to their supporting tissues (The periodontium).

II. The indirect factors are:

1-Crown form: **which includes:**

A. Proximal maximal contour.

B. Facial and lingual maximal contour(discussed under the direct factors).

C. Crown outline(discussed under the geometric outline).

2-Roof form:

A. Length, number and distribution.

B. Root outline.

3-Angulation of crown and root:

A. Lingual angulations of the crown of lower posterior teeth.

B. Distal angulations of crown and root of permanent molars.

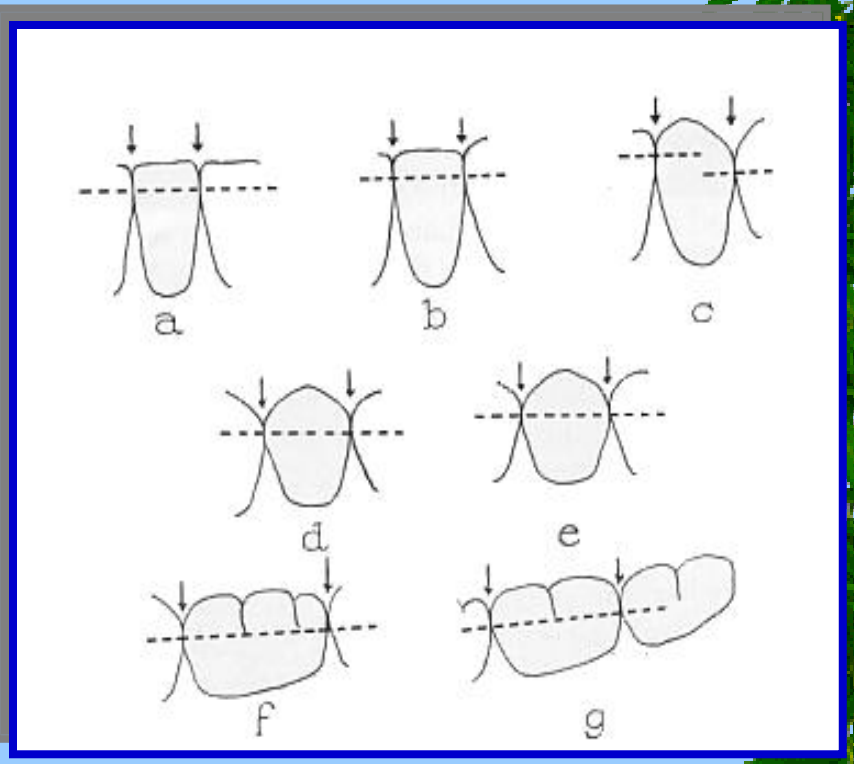
4-The self-cleansing ability of the tooth.

A- Proximal maximal contour:

It is the <u>crest of curvature</u> of the mesial and distal surfaces of the crown at the contact area.

***It can be noted from the facial or lingual aspects.

***Its position differs among the various teeth.

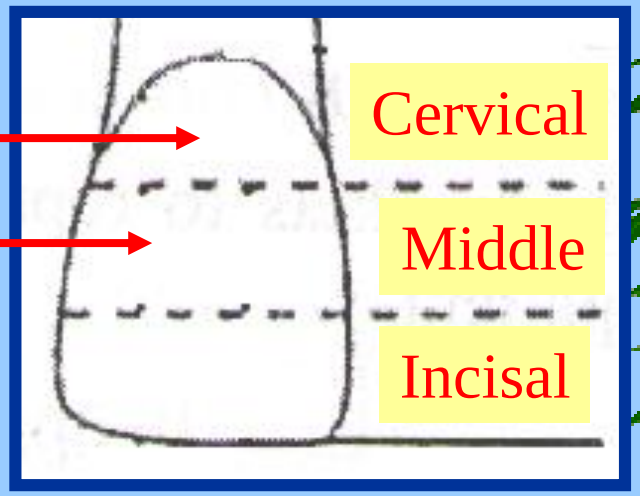


In anterior teeth

Proximal maximal contour is located in the incisal third of the crown.

This is due to

The reduction of mesiodistal diameter at the cervical and middle thirds

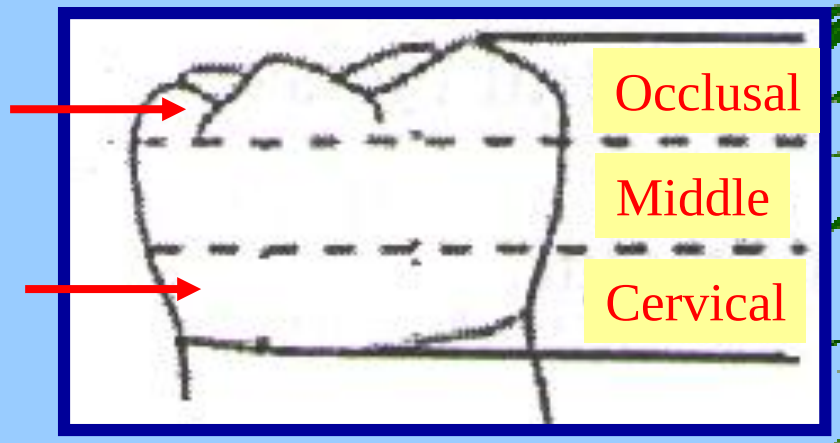


In posterior teeth

Proximal maximal contour is located in the middle third of the crown.

This is due to

The reduction of mesiodistal diameter at the occlusal and cervical thirds



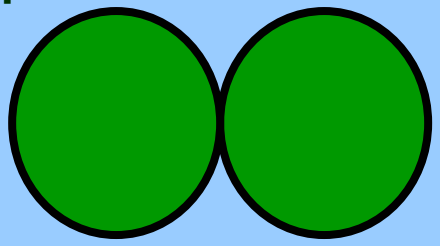
Significances of the proximal maximal contour of the crown:

1. it is responsible for the development of interproximal form including the embrasure, interproximal space and the proximal contact of the adjacent crowns.

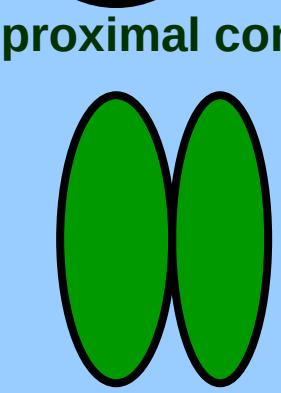
2. Proper proximal maximal contour efficiently functioning to protect the periodontium.

3. It governs the design of the interproximal form and directly proportional to the size of embrasure and interproximal spac, while it Is inversely proportional to the extent of proximal contact relation.

proximal contour of the crown → in the size of the embrasure, and interproximal space



proximal contour of the crown → in the size of the contact area



2- Root form:

- Length
- Number
- Distribution
- Root outline

***The roots are the tools responsible for the transmission of occlusal forces to the jaw.**

***They must do this with the least injurious to the investing periodontium.**

***Length and number of roots

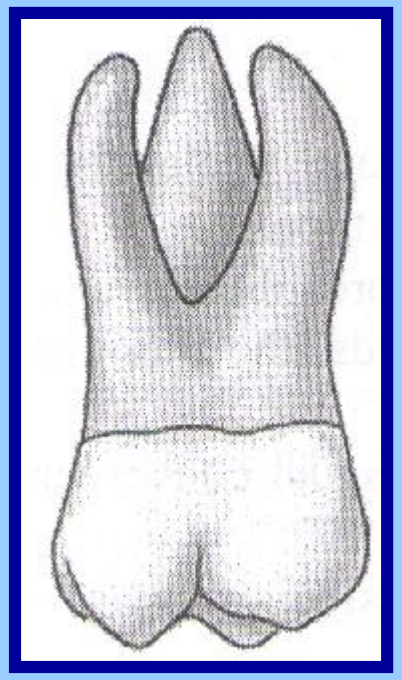
**Teeth have single root if they do little work, as biting of food → incisors

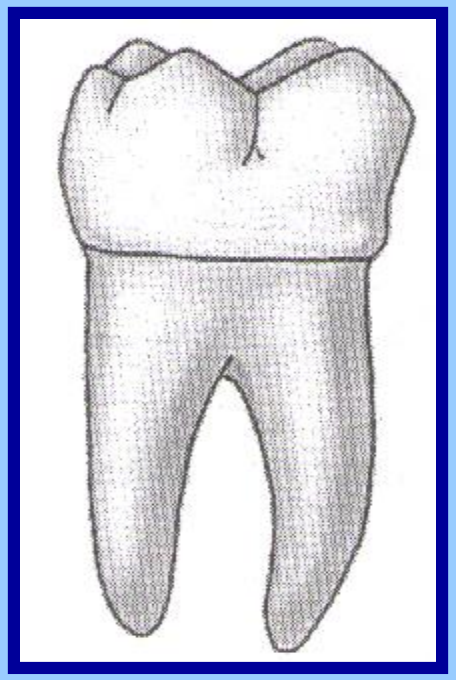
**The root remains single but long in teeth that pierce and tear elastic or tough food → canines .

**When teeth perform extra work as food mastication so more than one root is needed as in → Premolars and molars.

*** Root distribution

Three roots in upper molar teeth





two roots in lower molar teeth

Root distribution is too valuable in transmitting the occlusal forces into wide area in the jaw.

This causes gradual reduction of forces as they traverse longer path in bone of the jaw, thus, preserving the integrity of alveolar bone and the periodontal ligament.

Root outline:

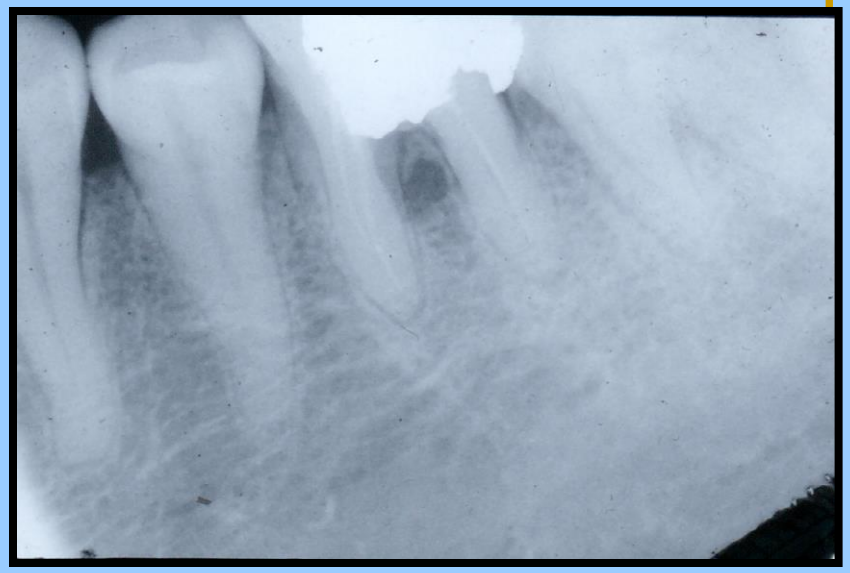
facially (labially& buccaly), It is cone shape

This cone shaped root → **provide the interdental space for bone**

Support these roots and their investing tissues

Holds the gingiva into normal level.

Acts as a medium for the cross of blood supply to the periodontium.



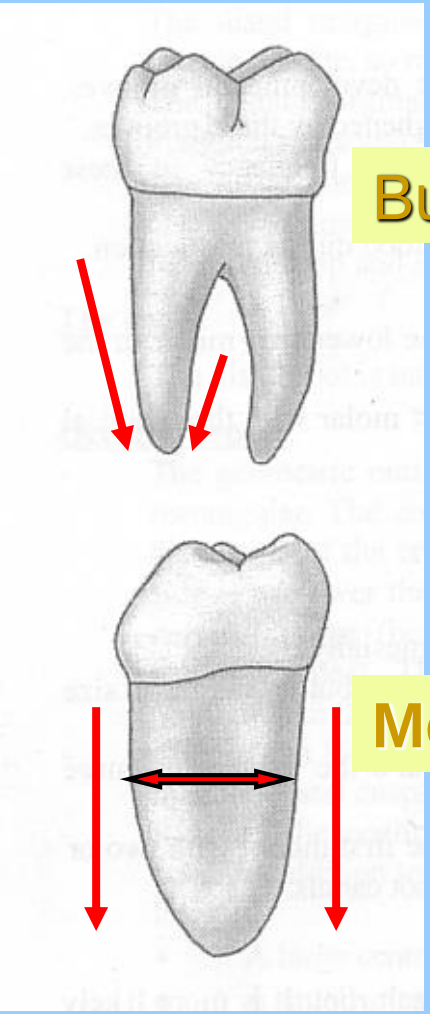
Root outline:

Proximally → **almost quadrant**

The wider dimension of the root proximally is to

↓

compensate for its narrow dimensions facially.



3-Angulation of root and crown:

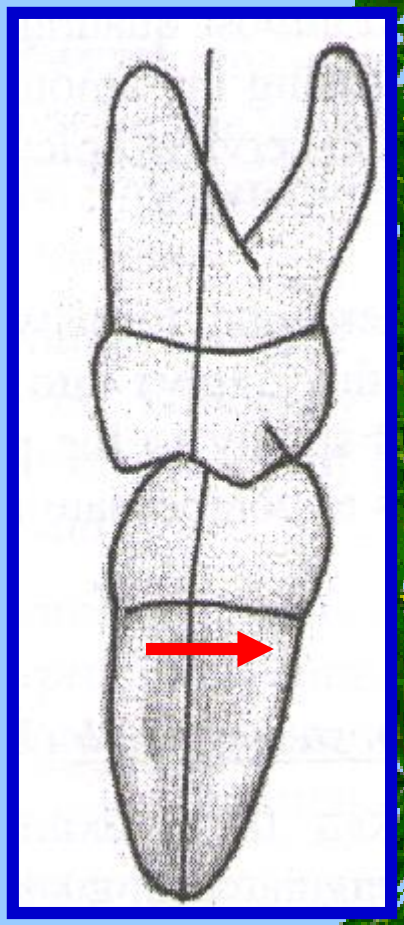
A- Lingual angulation of crown of lower posterior teeth

**The crown is not only angulated lingually to the root of the same tooth, but also to the crown of the opposing tooth when both come into centric occlusion.

**, The axes of the roots of teeth in both arches are kept parallel or continuous.

This arrangement serves in securing physiologic occlusion.

from the proximal aspect of premolars and molars



If this relation is disturbed:

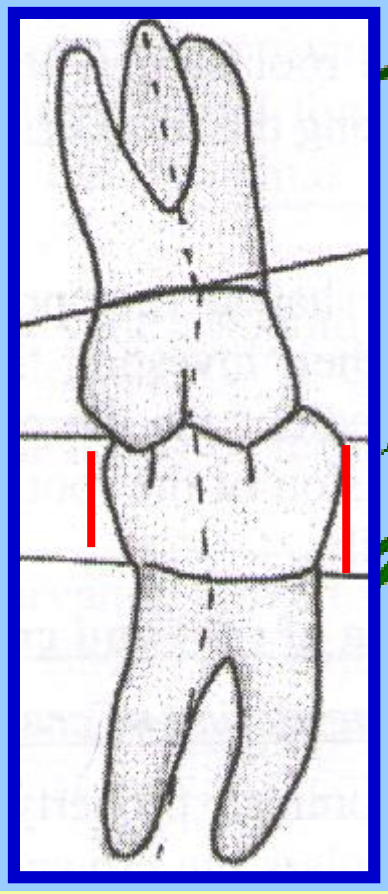
1. Cusps of both arches would clash together.
2. Lose of masticatory function of the teeth.
3. Disturbs the periodontium(traumatic occlusion).

B- Distal angulation of crown and root of permenant molars

from the buccal aspect.

****The distal angulation of the crown is due to the progressive tilt of occlusal surface toward the cervix in a mesiodistal direction, since the crown length distally is less than that found mesially.**

****The roots also incline distally in relation to the tooth cervix, and such inclination is increased posteriorly.**



The distal inclination of *roots* may be the promotion of the mesial drift of teeth which maintains the proximal contact relation, otherwise teeth become separated resulting in the sequelae of the loss of proximal contact.

4-The self cleansing ability of the tooth

It is achieved by:

**Proper form of the teeth with their smooth rounded surfaces.

**Proper alignment of the teeth in the dental arches.

**Normal gingival attachments.

***The smoothness of enamel:**

1. **Helps food substance to slip off the crown.**
2. **Aids in prevention of periodontal disease.**

*** Pits and fissures act as spillways on the occlusal surface of the tooth(reduce occlusal forces).**

When a tooth is :
-Well formed histologically and morphologically
-properly arranged in the dental arch
-Has normal relations to the opposing and adjacent teeth.

It is considered self-cleaning tooth.

Crowding

Excessive Spacing

Missing Teeth

Rotations


1
2
3
4
5
6
7
8

In addition to the direct and indirect factors, There are other factors that also protect the periodontium:

** The brushing activity of the tongue, lips and cheeks.

** The washing effect of the saliva and fluid intake.

** The friction of the food material during mastication.

**The usual home care of the teeth.


THANK YOU
ANY QUESTION ?