

Complete Denture



Prof. Dr. Mohammed Alkhafagy

Prosthodontics Curriculum

1-Complete denture prosthesis:

a- Definition.

b- Desired objectives.

2- Anatomy in relation to complete denture, upper maxillary landmark.

3- Anatomy in relation to complete denture, lower maxillary landmark.

4- Impression trays:

a- Definition.

b- Stock tray.

5- Primary impression:

a- Production of study model.

b- Common fault in impression making.

6- Study cast:

Special trays, materials, importance and advantages.

7-Secondary of final impression:

a- Mucostatic impression technique.

b- Functional impression technique.

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8-Final impression materials:

- a- Plaster impression.
- b- Zinc/oxide eugenol paste.
- c- Elastomere impression.
- d- Boxing and production of master cast.

9-Occlusion blocks:

- a- Record bases. Occlusion rims.
- b- Uses of bite rims, occlusal plane.

10-Recording jaw relations:

- a- Maxillo-mandibular relation.
- b- Vertical dimensions.

11-Methods of recording vertical and horizontal relations:

PROSTHODONTICS CURRICULUM

12-Articulators:

- a- Types of articulators.
- b- Face-bow, definition, types.

13-Mounting the cast on the articulator.

Method, common errors.

14- Selection of artificial teeth:

- a- Anterior teeth.
- b- Posterior teeth.
- c- Types of teeth according to material, cusp inclination.

15-Arrangement of artificial teeth:

- a- Guides.
- b- Arrangement of upper and lower six anterior teeth.

16-Arrangement of posterior teeth:

- a- Orientation of occlusion plane.
- b- ⁴Balanced occlusion.

PROSTHODONTICS CURRICULUM

17-Wax contouring of denture.

18-Flasking of denture.

19-Wax elimination:

20-Preparation and packing of acrylic resin:

21- Deflasking of dentures:

22-Abrasive and polishing agents:

23-Selective grinding.

Rules for selective grinding.

24-Denture repair.

Fractured denture, replacing teeth.

25-Relining and rebasing.

Boucher's Prosthodontic Treatment for Edentulous Patients Prosthodontics Textbook



Complete Denture



Prosthetic: The art and science of supply artificial replacement for missing parts of the human body.



Prosthodontics (prosthetic dentistry): Is the dental specialty pertaining to the diagnosis, treatment planning, rehabilitation and maintenance of the oral function, comfort, appearance and healthy of patients with clinical conditions associated with missing or deficient teeth and \ or maxillofacial tissues using biocompatible substitutes.



Prosthesis: An artificial replacement of an absent part of the human body or a therapeutic device to improve or alter function.

Dental prosthesis: An artificial replacement of one or more teeth (up to the entire dentition in either arch) and associated dental \ alveolar structures.



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Maxillary Completed Fixed Bridgework

Fixed dental prosthesis: Any dental prosthesis that is luted, screwed or mechanically attached or otherwise securely retained to natural teeth, tooth roots, and \ or dental implants that furnished the primary support for dental prosthesis.



Removable dental prosthesis: Any dental prosthesis that replaces some or all teeth in partially dentate arch (partial removable dental prosthesis) or edentate arch (complete dental prosthesis). It can be removed from the mouth and replaced at will.



Complete denture prosthesis: The replacement of the natural teeth in the arch and their associated parts by artificial substitutes or the art and science of the restoration of an edentulous mouth.



Objectives of complete denture:

- 1 – Restoration of the function of mastication.
- 2 – Restoration of the facial dimension and contours (esthetic).



Objectives of complete denture:

- 3 – Preservation of the remaining tissues in health.
- 4 – Satisfaction, pleasing and comfort of the patient.
- 5 – Correction of speech due to loss of natural teeth.



General considerations in complete denture construction :

1 – From the operator

- a- Certain degree of diagnostic skills.
- b-Sound knowledge of biological and mechanical principles.
- c-Certain degree of artistic ability to achieve good esthetic requirements.
- d-Careful manipulation of dental materials and devices.



General considerations in complete denture construction :

2 – From the patient:

a-Co – operation with the dentist.

b-Some understanding of the limitation of prosthodontic restoration.

c-Patience during the construction, learning and adjustment of the new prosthesis.



General considerations in complete denture construction :

3 – From the technician:

There should be co – operation between clinical and technical procedures.



Complete dentures are composed of the following:

1 – Basal or impression surface:

The part of a denture that rests on the foundation tissue (the oral structure available to support a denture) and to which teeth are attached.



Complete dentures are composed of the following:

2 – Denture occlusal surface:

The portion of the surface of a denture that make contact with its antagonist.



Complete dentures are composed of the following:

3 – Denture polished surface :

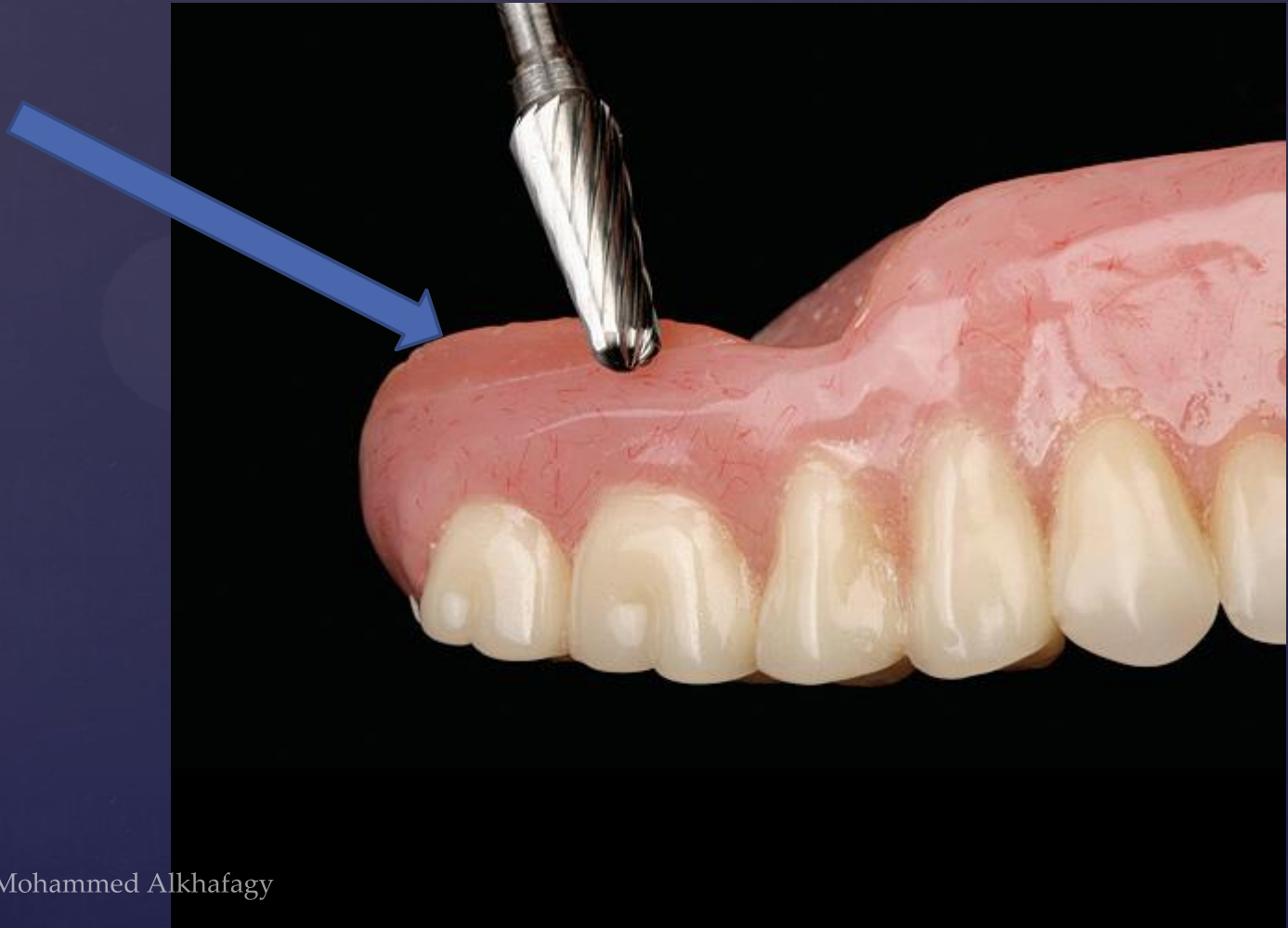
The portion of the surface of a denture that extends in an occlusal direction from the border of the denture and includes the palatal surface. It is the part of the denture base that is usually polished, and it includes the buccal and lingual surfaces of the teeth.





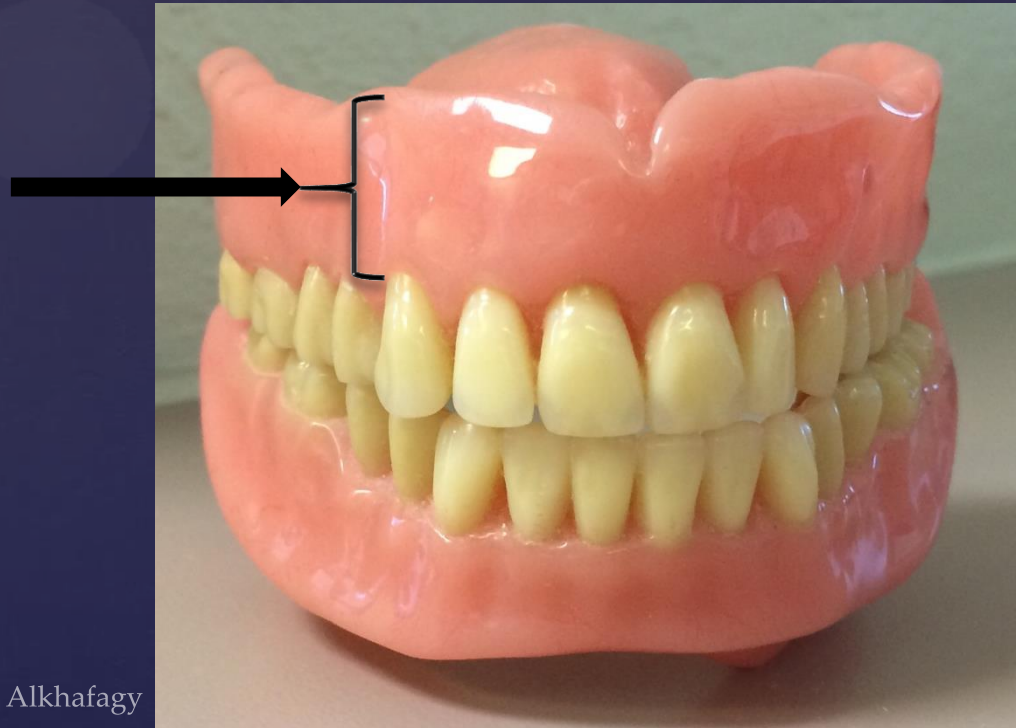
4 – Denture border:

The margins of the denture base at the junction of the polished surface and the impression surface.



5 – Denture flange:

The part of the denture base that extends from the cervical ends of the teeth to the denture border.



**Thank you for
Listening**

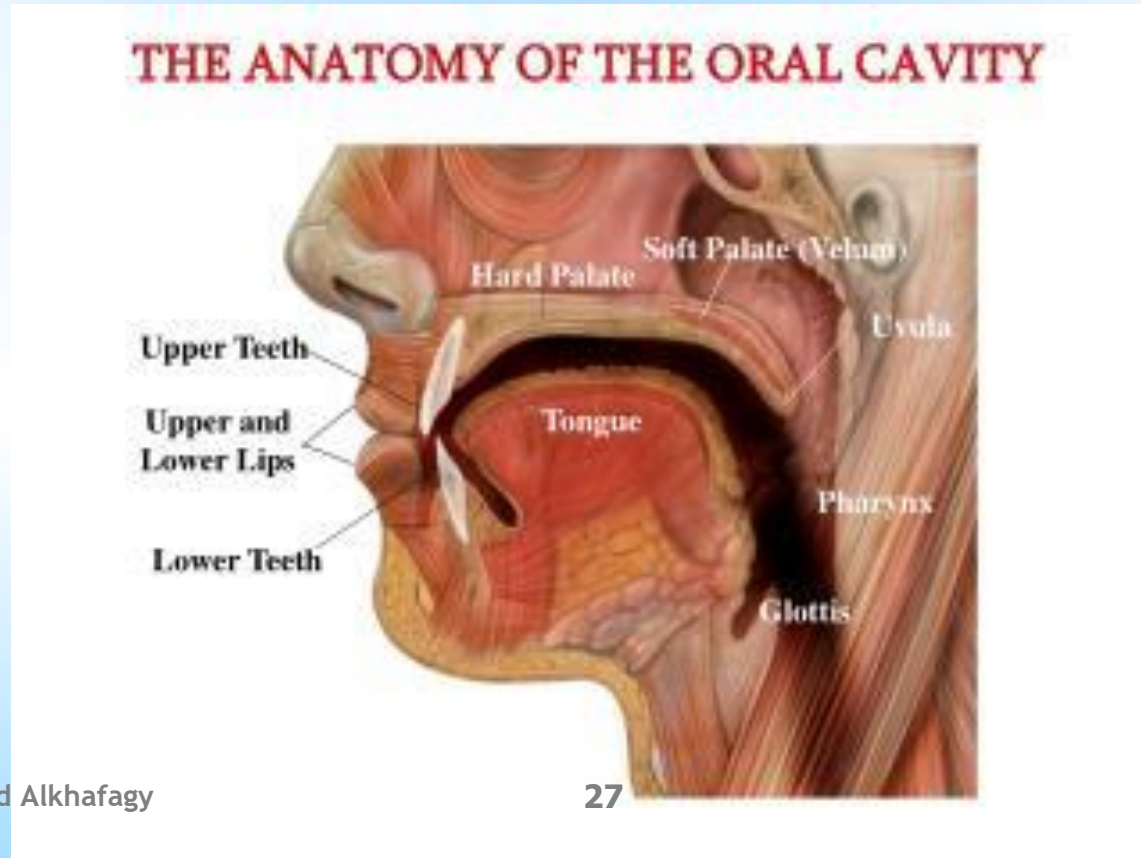


Anatomy and physiology in relation to complete denture construction



Anatomy and physiology in relation to complete denture construction:

The knowledge of oral anatomy and physiology will help the operator and provides enough landmarks to act as positive guide during denture construction.



Anatomy and physiology in relation to complete denture construction:

I – Intra – oral landmarks of prosthetic importance and border structures that limit the periphery of the denture in maxilla and mandible.

II – Extra – oral landmarks of prosthetic importance.

III – Anatomy and physiology of the T. M. J. and mandibular movements.



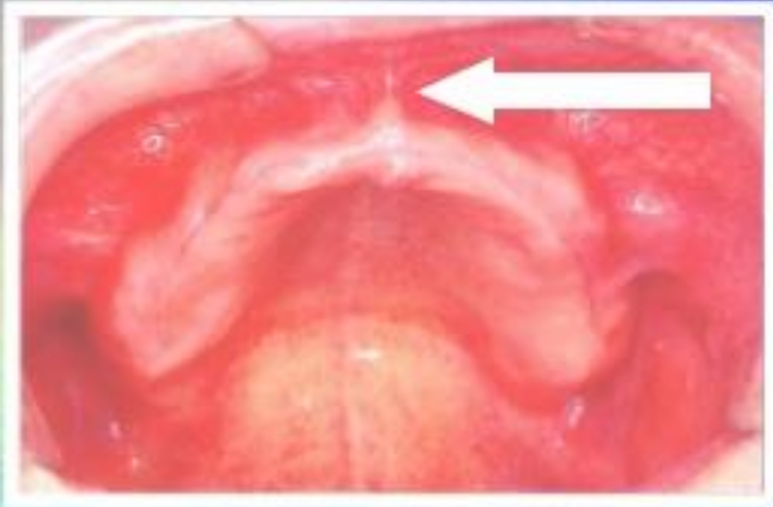
Maxillary arch landmarks

LIMITING STRUCTURES

SUPPORTING STRUCTURES

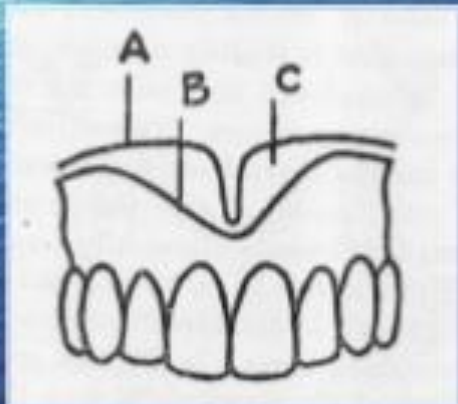
RELIEF AREA

LIMITING STRUCTURES



Labial frenum:

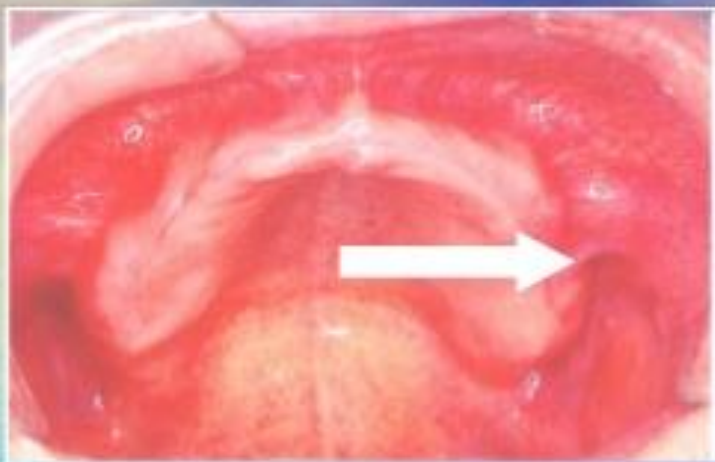
- Fold of mucous membrane at the median line.
- Moves with muscles of lip.
- Adequate relief for muscle activity.
- Proper denture seal.
- Excessive relief weakens denture base.



- A- correct contour
- B –incorrect contour.
- C- area should have been covered.



Buccal frenum:



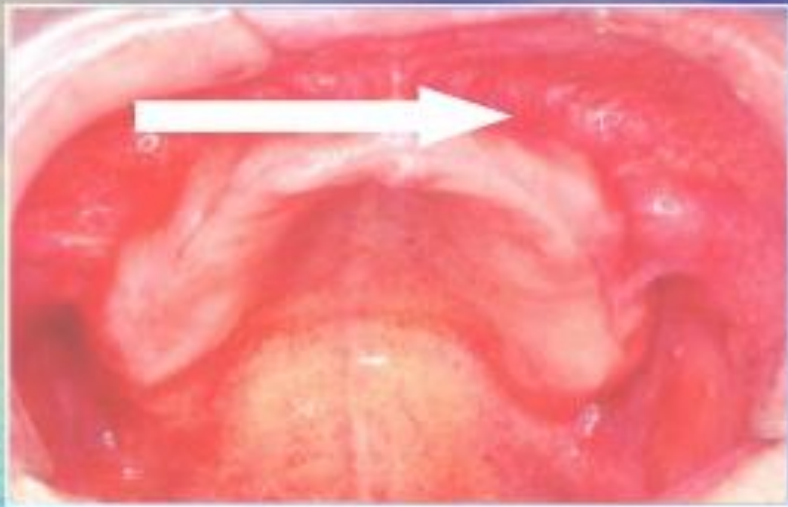
- Single or double folds of mucous membrane.
- Broad and fan shaped.
- Moves with muscles of cheek during speech and mastication.
- Adequate relief for muscle activity, more clearance.



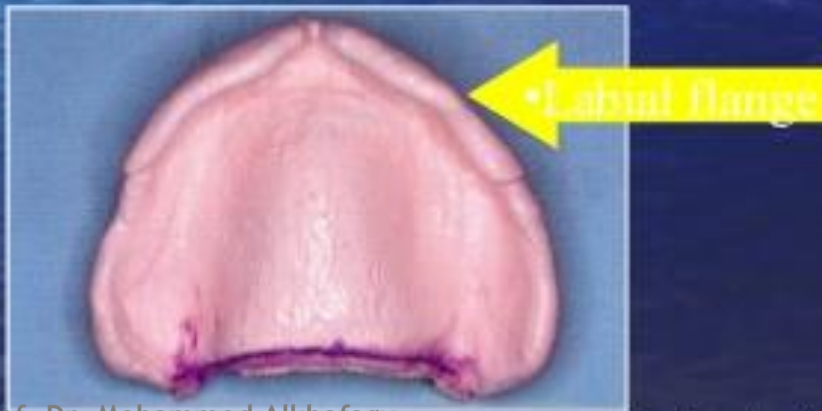
- Maxillary buccal frenum area.
- Denture border contour in buccal frenum area.



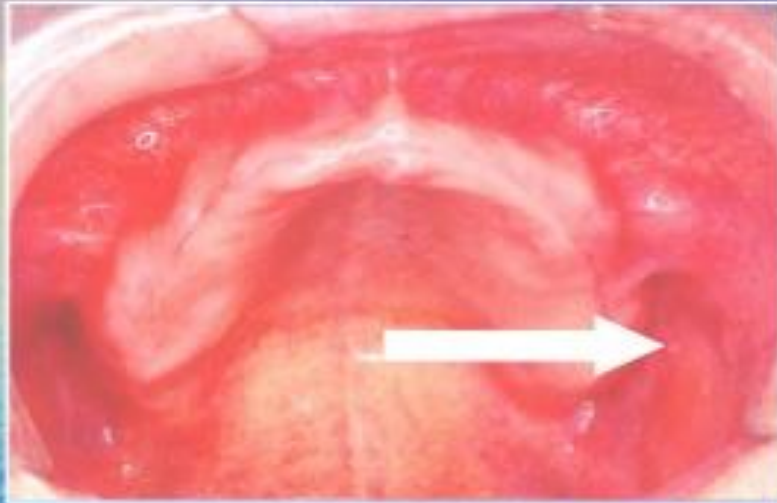
Labial vestibule



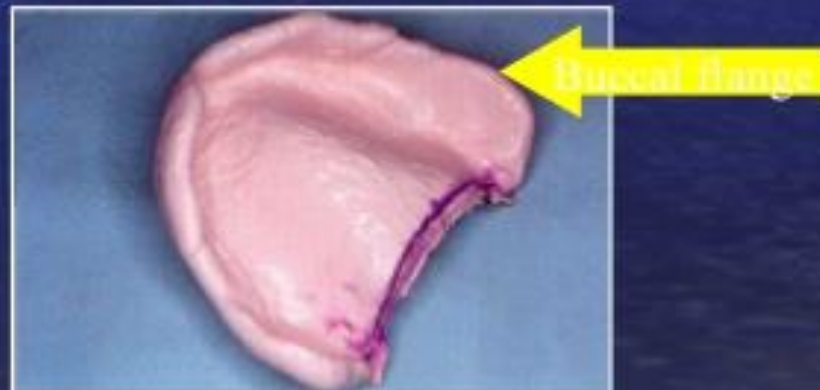
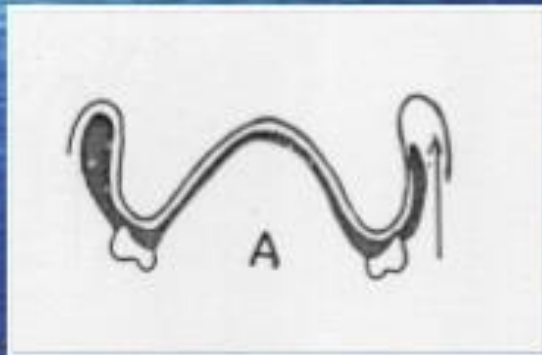
- Labial-buccal frenum.
- Muco-gingival line-limits upper border.
- Record adequate depth/width.
- Overextension causes instability/soreness.
- Proper contouring gives optimal esthetics.



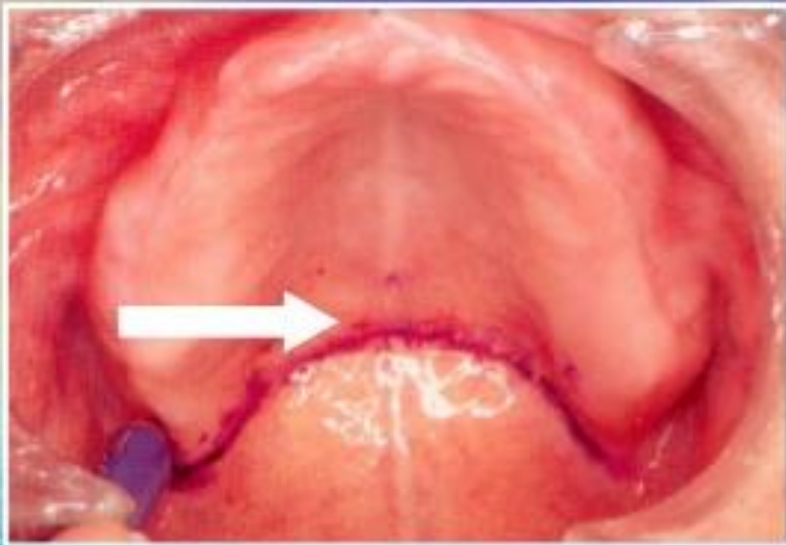
Buccal vestibule



- Buccal frenum to hamular notch.
- Record adequate depth/width.
- Improper extension causes instability/soreness.



Vibrating line:



- Junction of movable and immovable part of soft palate.
- 2mm ant to fovea palatinae.
- Aids to establish PPS.
- Distal end of denture at least to vibrating line.



Post palatal seal area.

- From hamular notch to hamular notch.
- Anterior to vibrating line.
- Aids in retention.

Hamular notch.



- Distal to maxillary tuberosity
- Aids in locating posterior palatal seal.
- Overextension causes soreness.



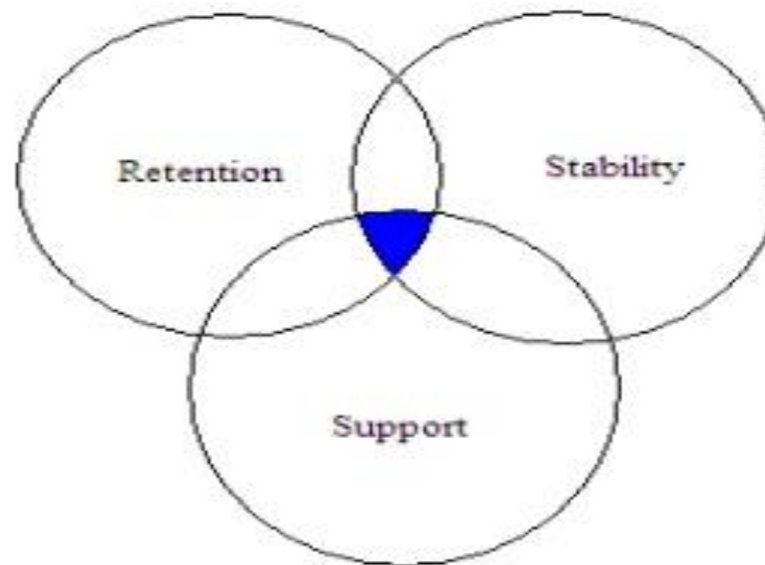
Area of hamular notch

SUPPORTING STRUCTURES

• Factor affecting Successful denture fabrication

PSYCHOLOGIC
COMFORT

PHYSIOLOGIC
COMFORT



 **SUCCESS**

LONGEVITY

Support

is the resistance to the displacement towards the basal tissue or underlying structures.

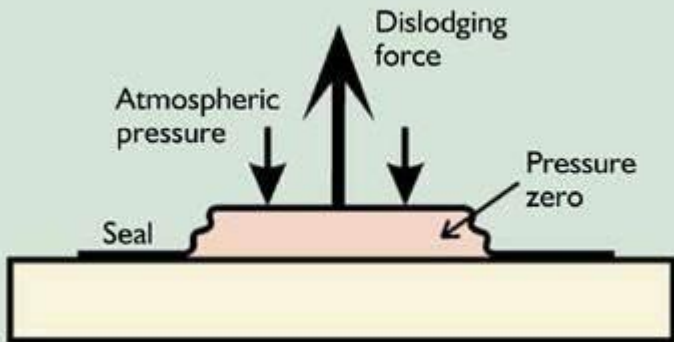




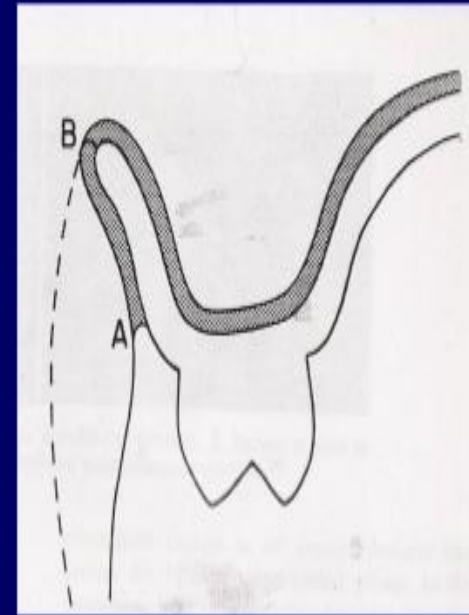
Retention of Complete Denture



Retention*



- Interfacial surface tension plays an important role in the retention of maxillary denture.
- It is totally dependant on the presence of air at the margins of liquid and solid interface.

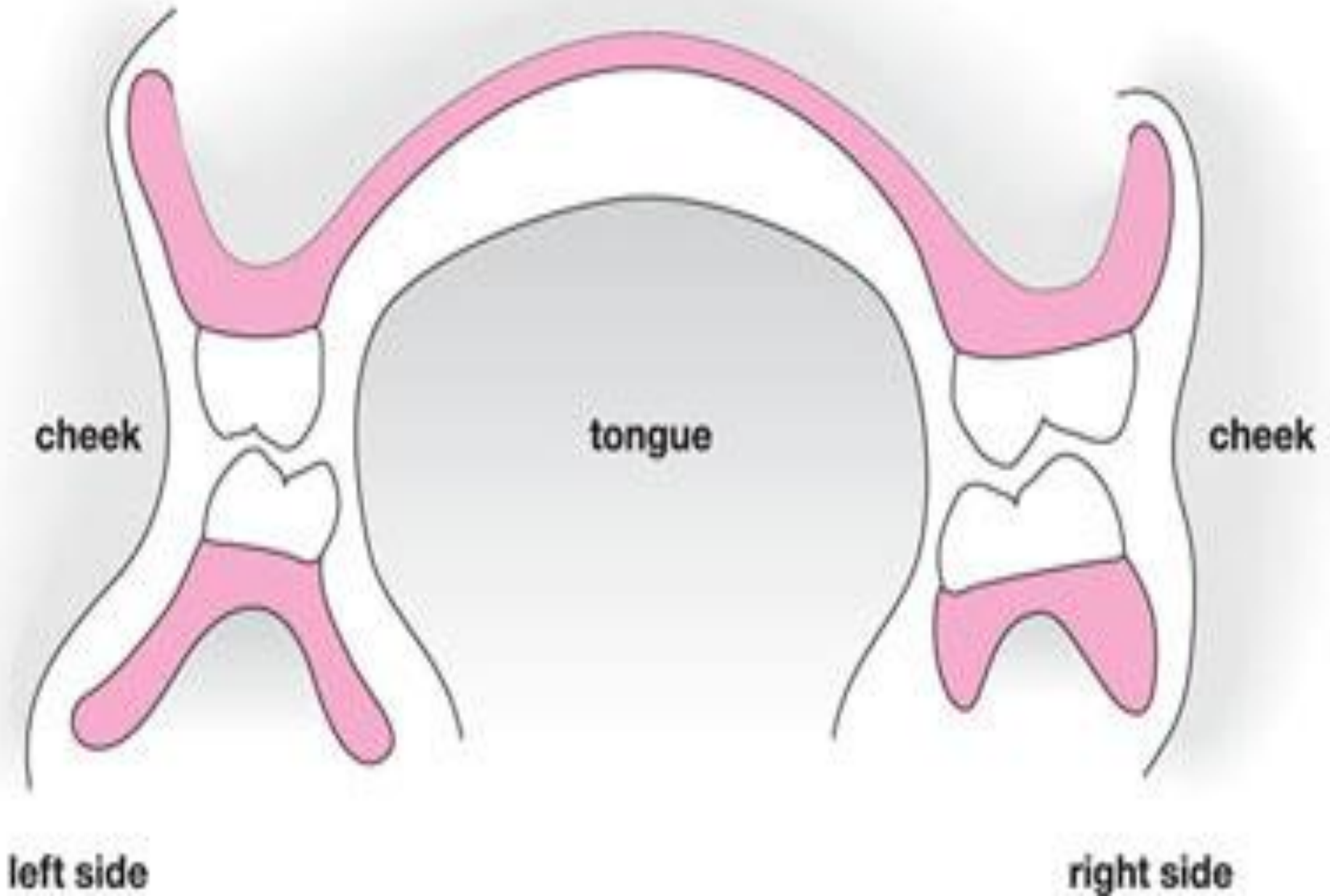


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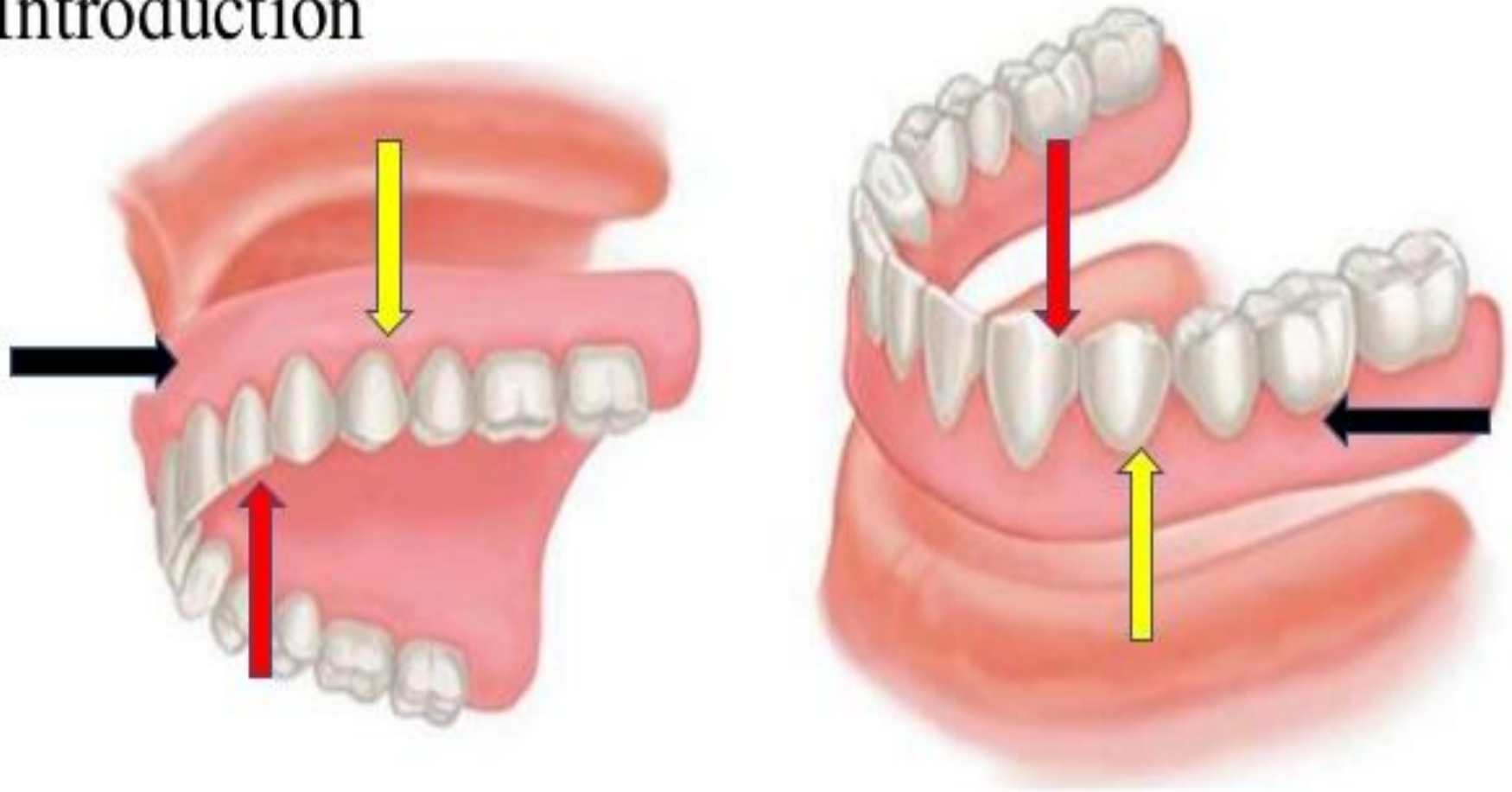
STABILITY

IN

COMPLETE DENTURES



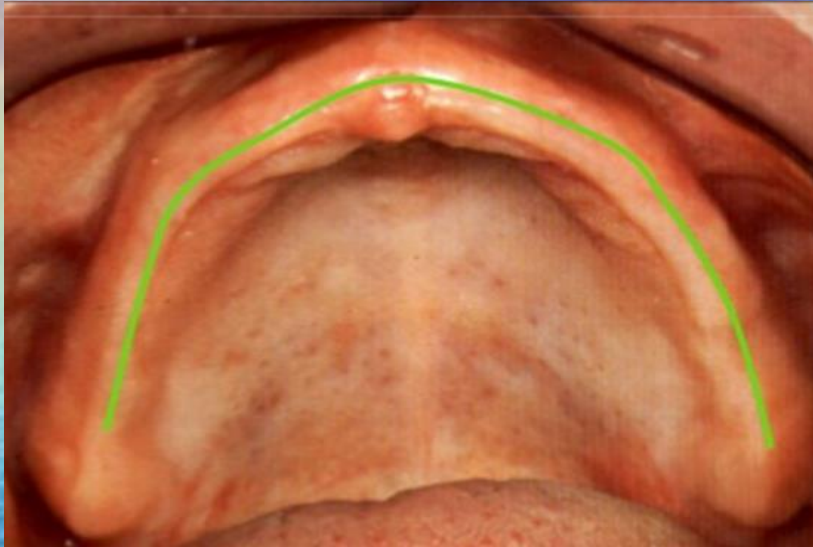
Introduction



-  **Stability**
-  **Support**
-  **Retention**

Alveolar ridge

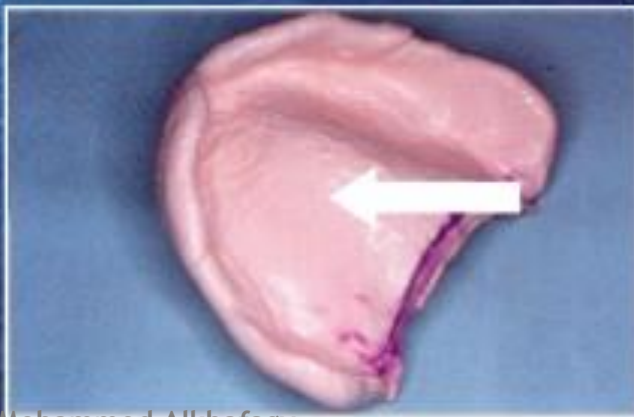
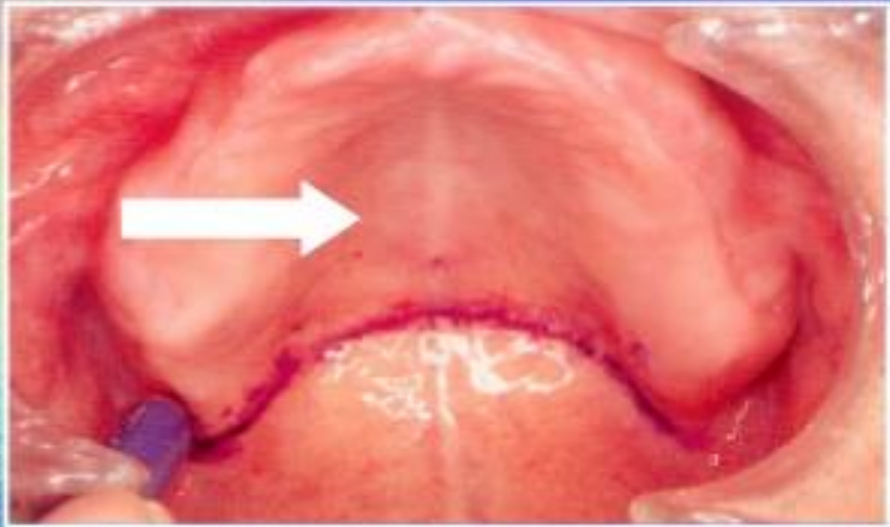
SUPPORTING STRUCTURES



- Residual bone with mucous membrane.
- **Secondary stress bearing area**

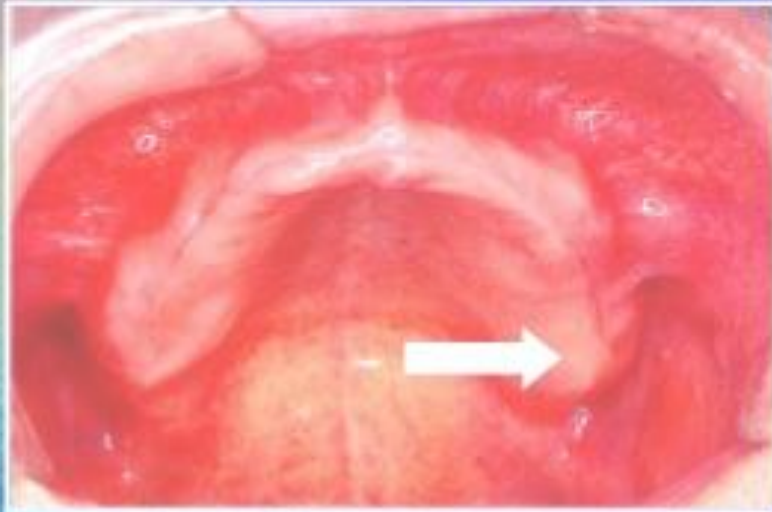


Hard palate

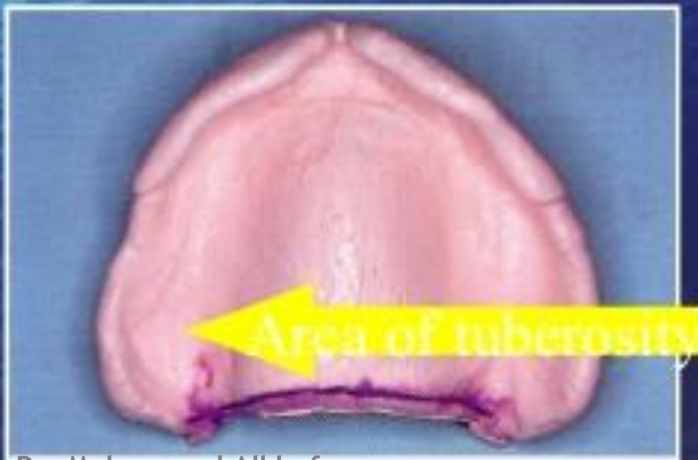


- Support for the maxillary denture.
- Primary stress bearing area- horizontal portion of hard palate lateral to midline.
- Secondary stress bearing area – rugae.

Maxillary tuberosity.



- Distal end of denture must have Coverage-stability/retention.
- Gross enlargement (fibrous or bony) – surgical correction.



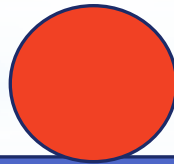
Rugae.

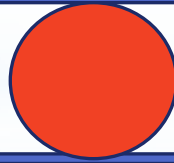


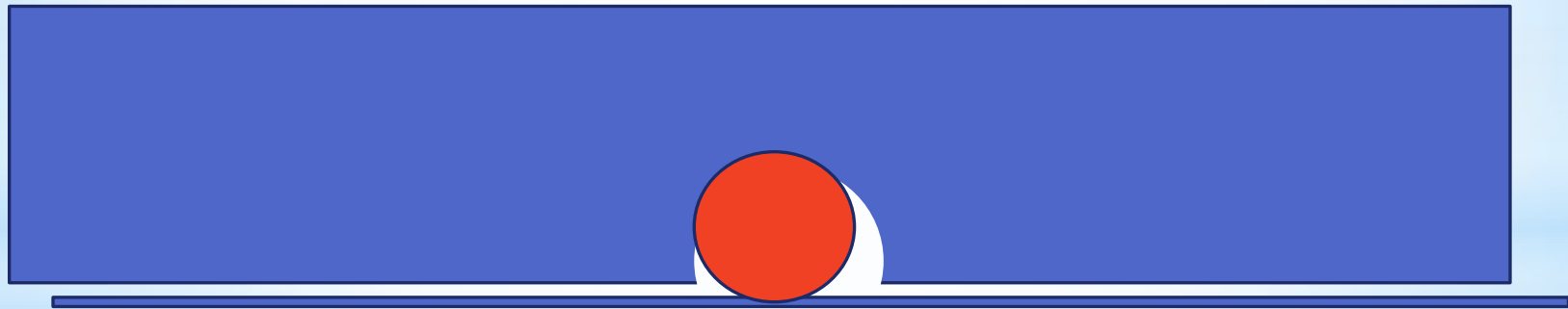
- Irregular shaped rolls of soft tissue.
- Secondary stress bearing area.
- Should not be distorted in the impression.



Relief Areas

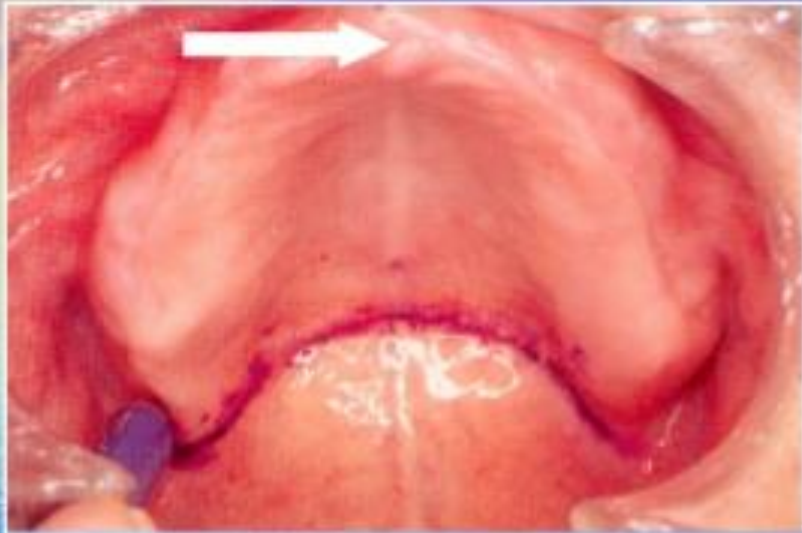








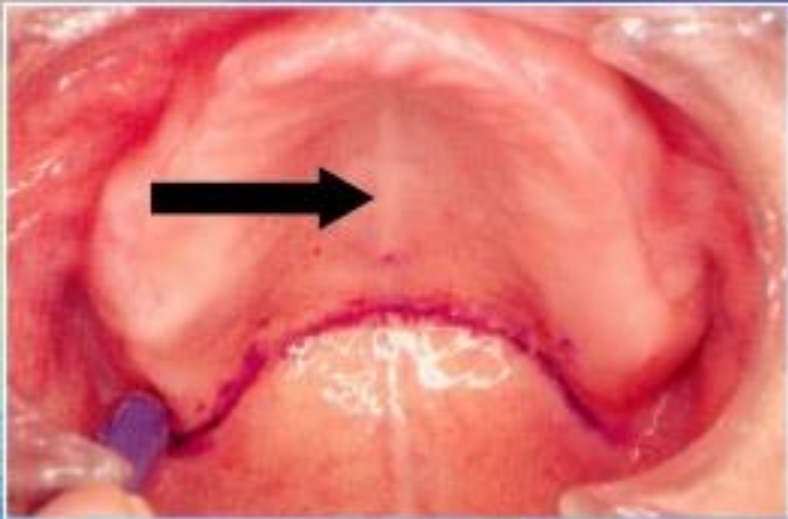
Incisive papilla.



- Elevation of soft tissue over the incisive foramen or nasopalatine canal.
- Location : on or labial to ridge.
- Impingement –burning sensation, parasthesia and pain.
- Relief necessary.



Median palatine raphae.



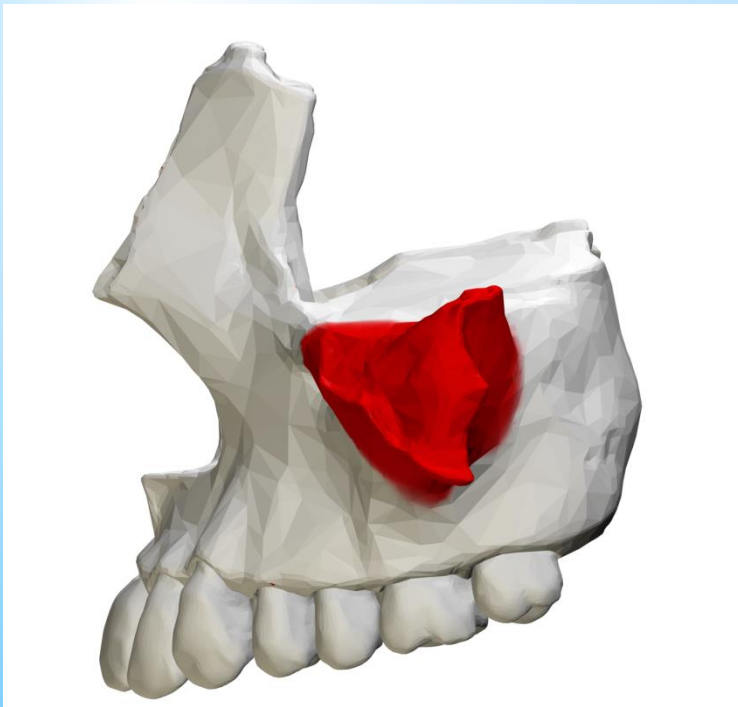
- Extends from incisive papilla to distal end of hard palate.
- Thin mucosal covering and non-resilient..
- Relieve adequately to avoid trauma from denture base.



Canine eminence (cuspid eminence): It is around elevation in the corner of the mouth it represent the location of the root of the canine, which is helpful to be used as a guide for arrangement of the maxillary anterior teeth.



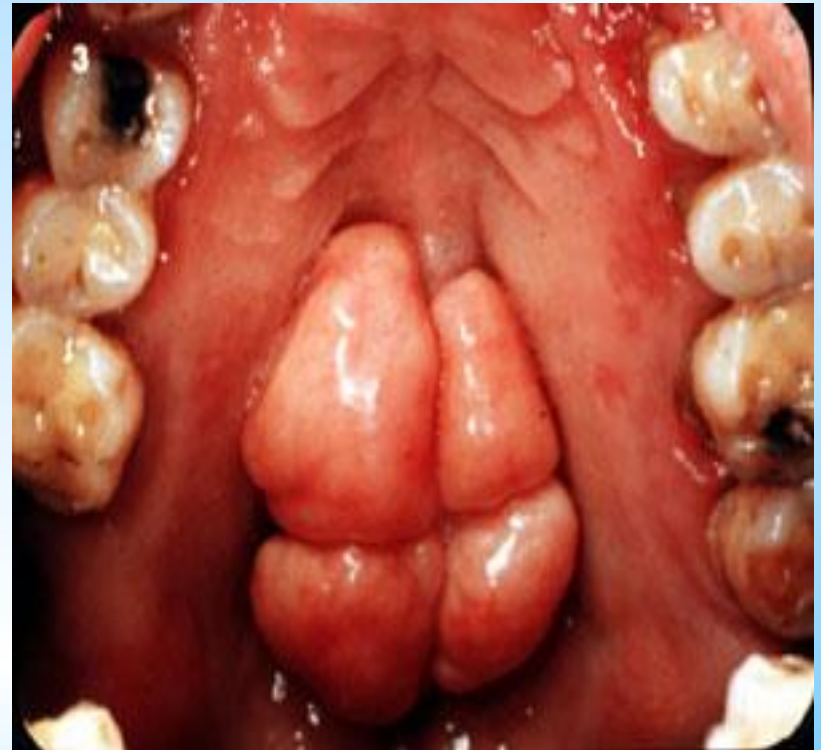
Zygomatic process: It is located opposite to the first molar region, hard area found in the mouth that has been edentulous for long time. Some dentures require relief over this area to prevent soreness of the underlying tissues.



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Torus palatinus: It is a hard bony enlargement that occurs in the midline of the roof of the mouth (hard palate). It is found in 20% of the patients. It should be relieved when it is small and surgically corrected when it is very large and extends to the vibrating line.





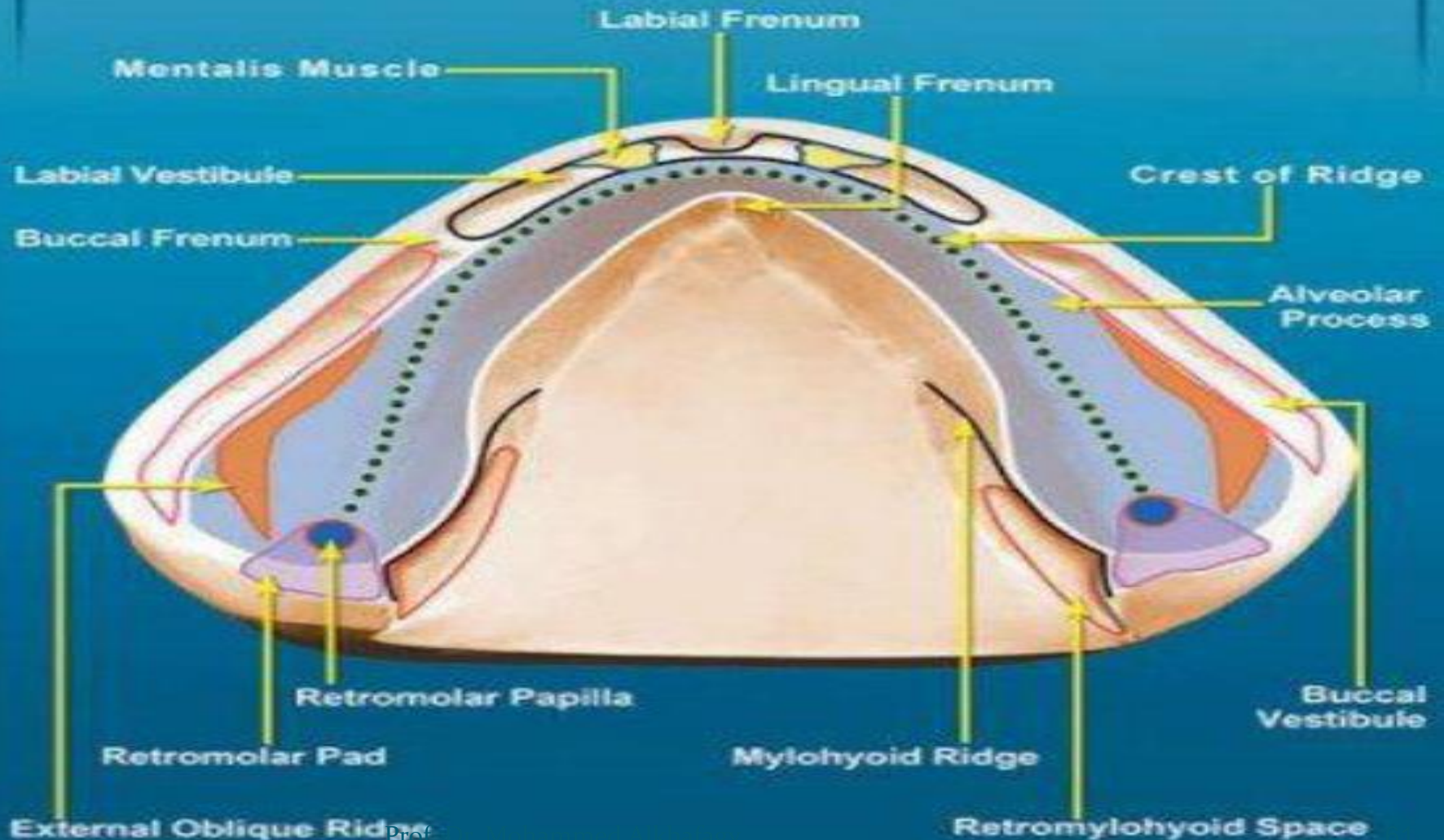
Thank you

Anatomical landmarks of the mandibular arch

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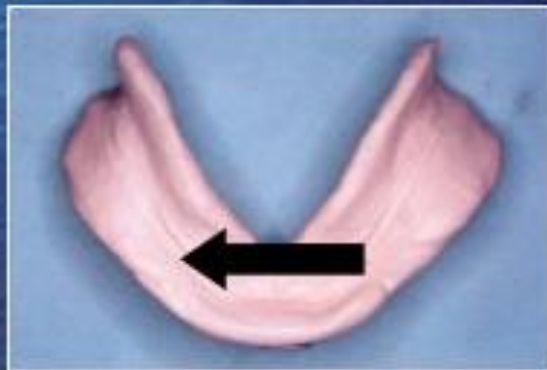
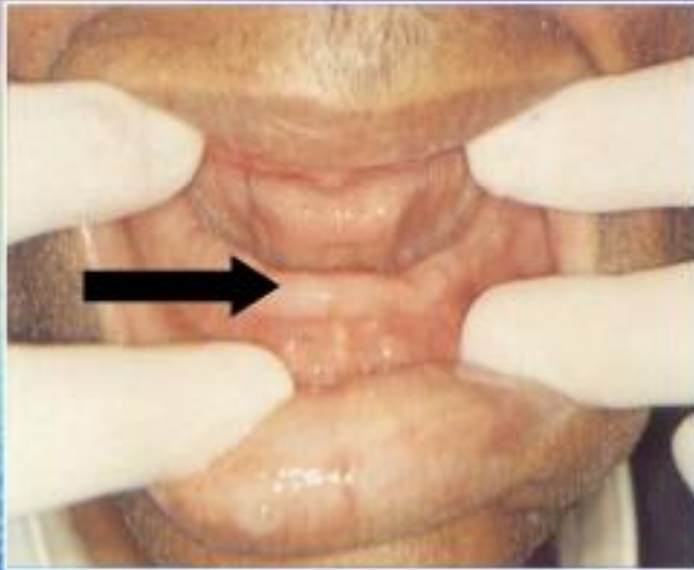
EDENTULOUS FEATURES REFERENCE

Mandibular Arch



A. Supporting structures

Alveolar ridge

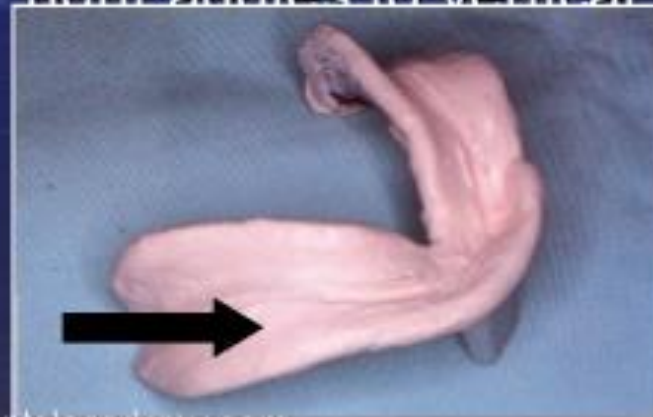


- Residual bone with mucous membrane.
- Crest to be relieved.
- Buccal and lingual slopes are secondary stress bearing areas.

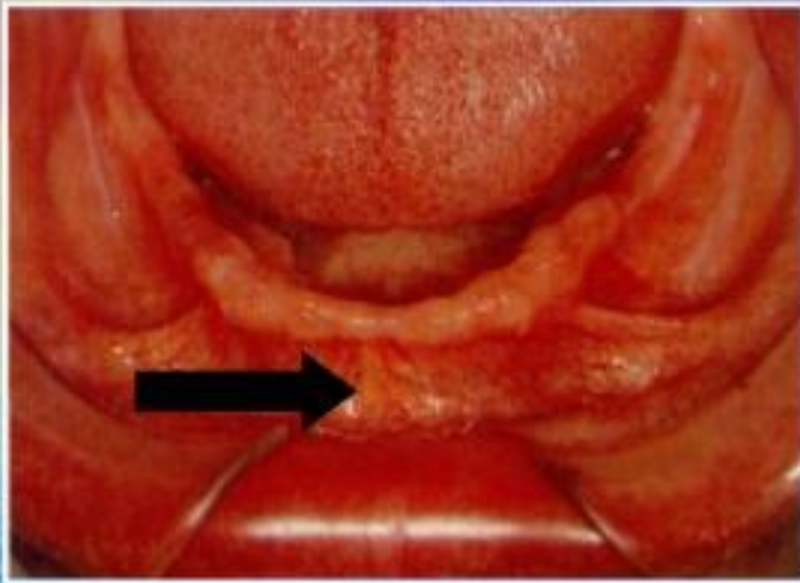
Buccal shelf



- Extends from buccal frenum to retromolar pad.
- Between external oblique ridge and crest of alveolar ridge.
- Primary stress bearing area(cortical bone)- lies at right angles to vertical



b. Limiting structures



Labial frenum.

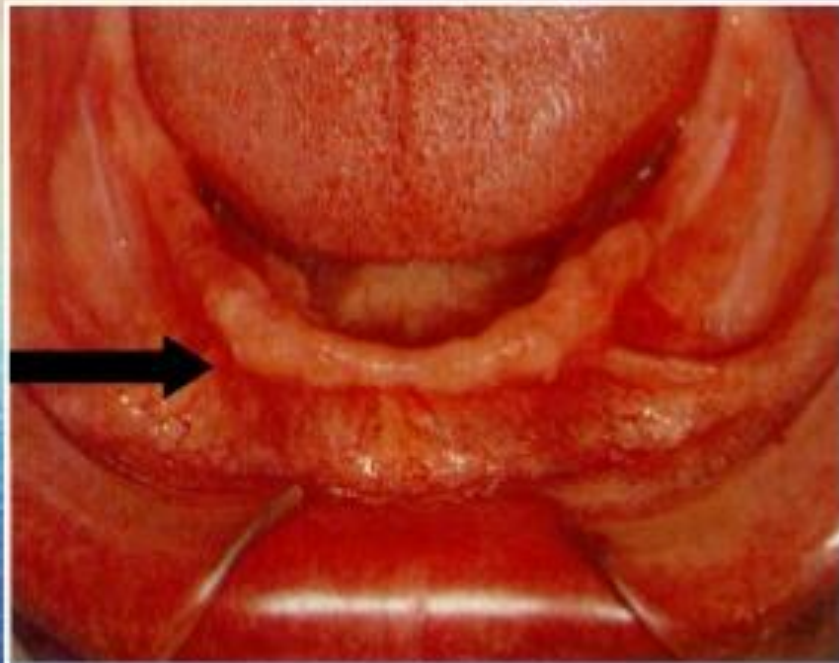
- Shorter and wider than the maxillary frenum.
- Adequate relief for muscle activity (mentalis).
- Proper fit around it maintains seal without soreness.



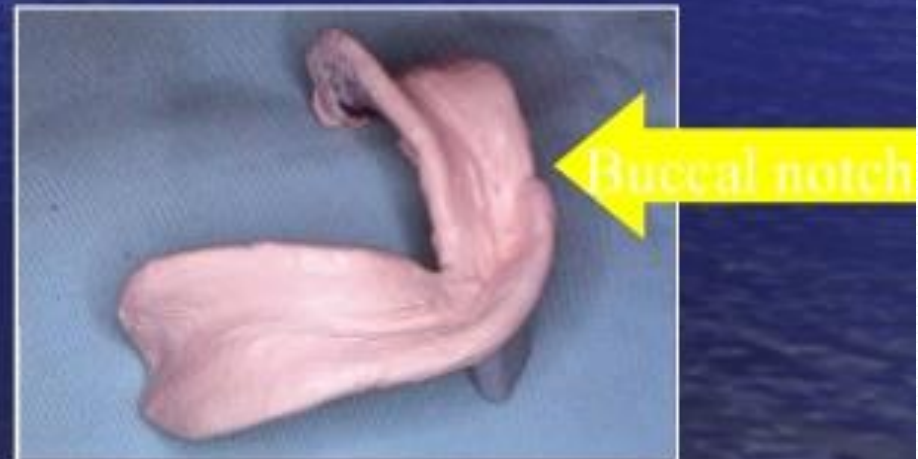




Buccal frenum.

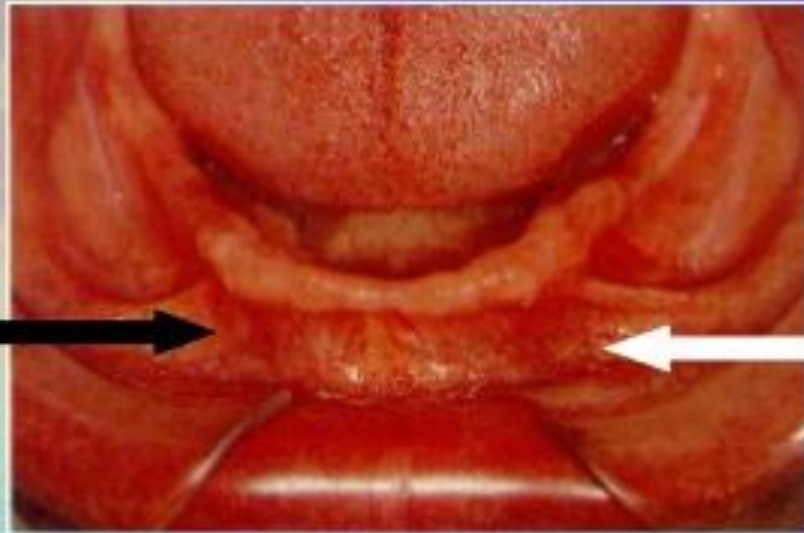


- Adequate relief for muscle activity.
- Proper denture seal.



Labial vestibule.

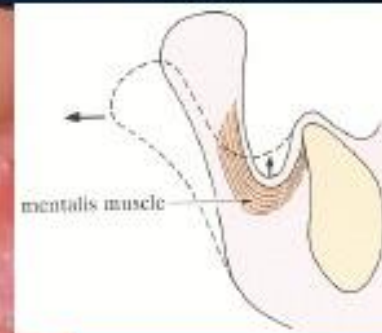
- Labial-buccal frenum.
- Overextension causes instability/soreness.
- Muscles attachment close to the crest of the ridge- limits the denture flange extension.
- Mucolabial fold limits the depth of the flange.
- Record adequate depth and width.
- Proper contouring gives optimal esthetics.



Mandible-Anatomic Landmarks



Labial vestibule



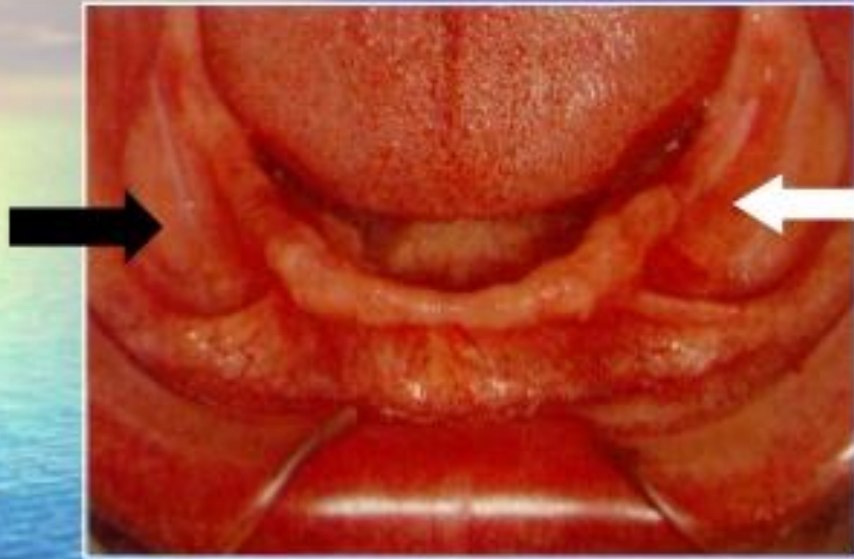
MENTALIS MUSCLE
 Origin – crest of ridge
 Insertion – chin
 Action – raises the lower lip

Labial vestibule- limited inferiorly by the mentalis muscle, internally by the residual ridge and labially by the lip.

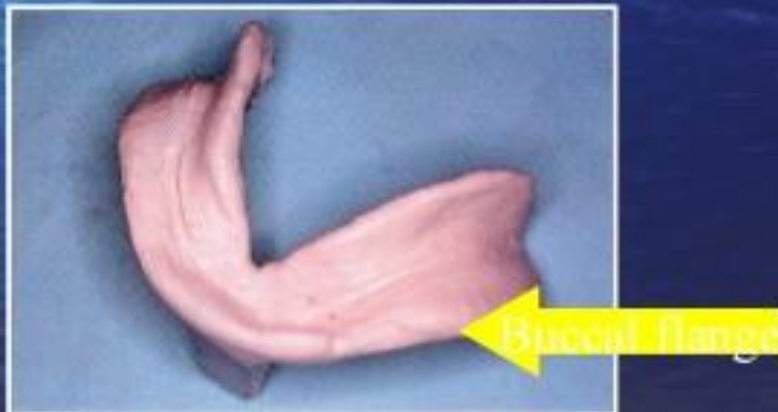
Mentalis- elevates the skin of the chin and turns the lower lip outward. dictates the length and thickness of the labial flange extension of the denture.



Buccal vestibule.

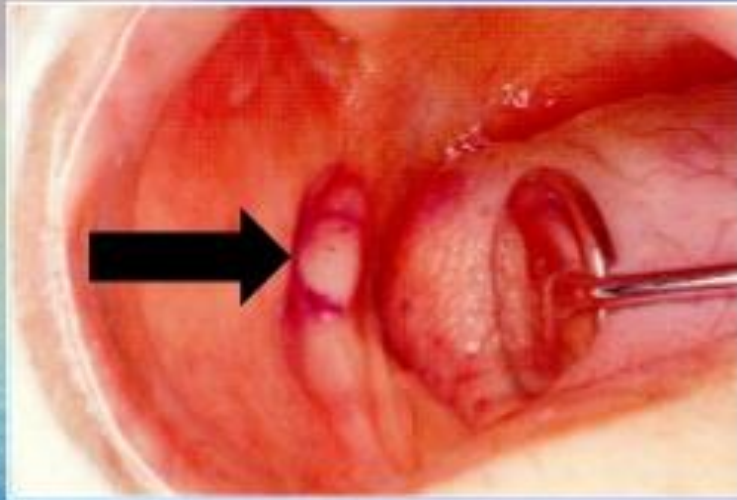


- Buccal frenum-retromolar pad.
- Record adequate depth and width.
- Impression is widest in this area.



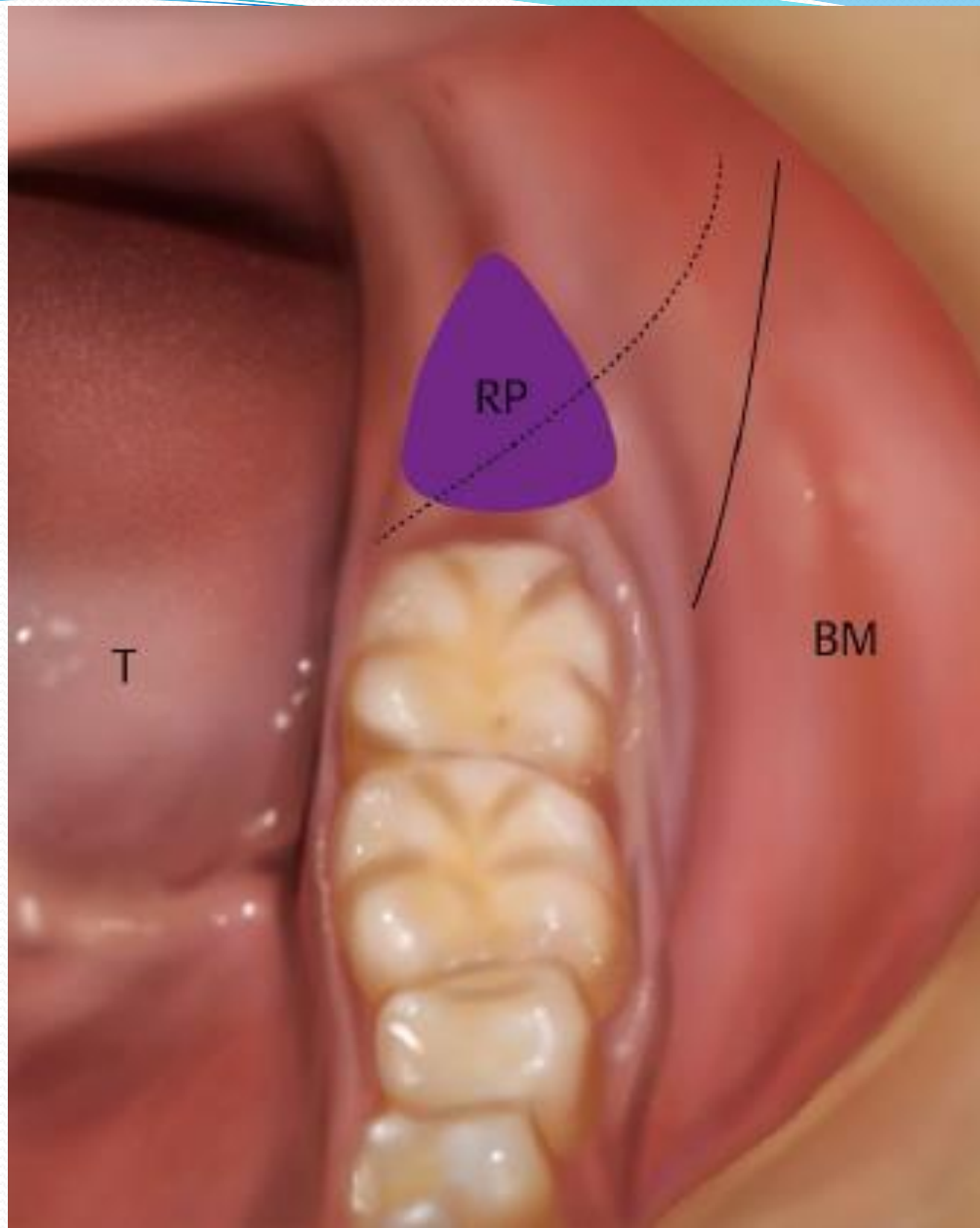


Retromolar pad.



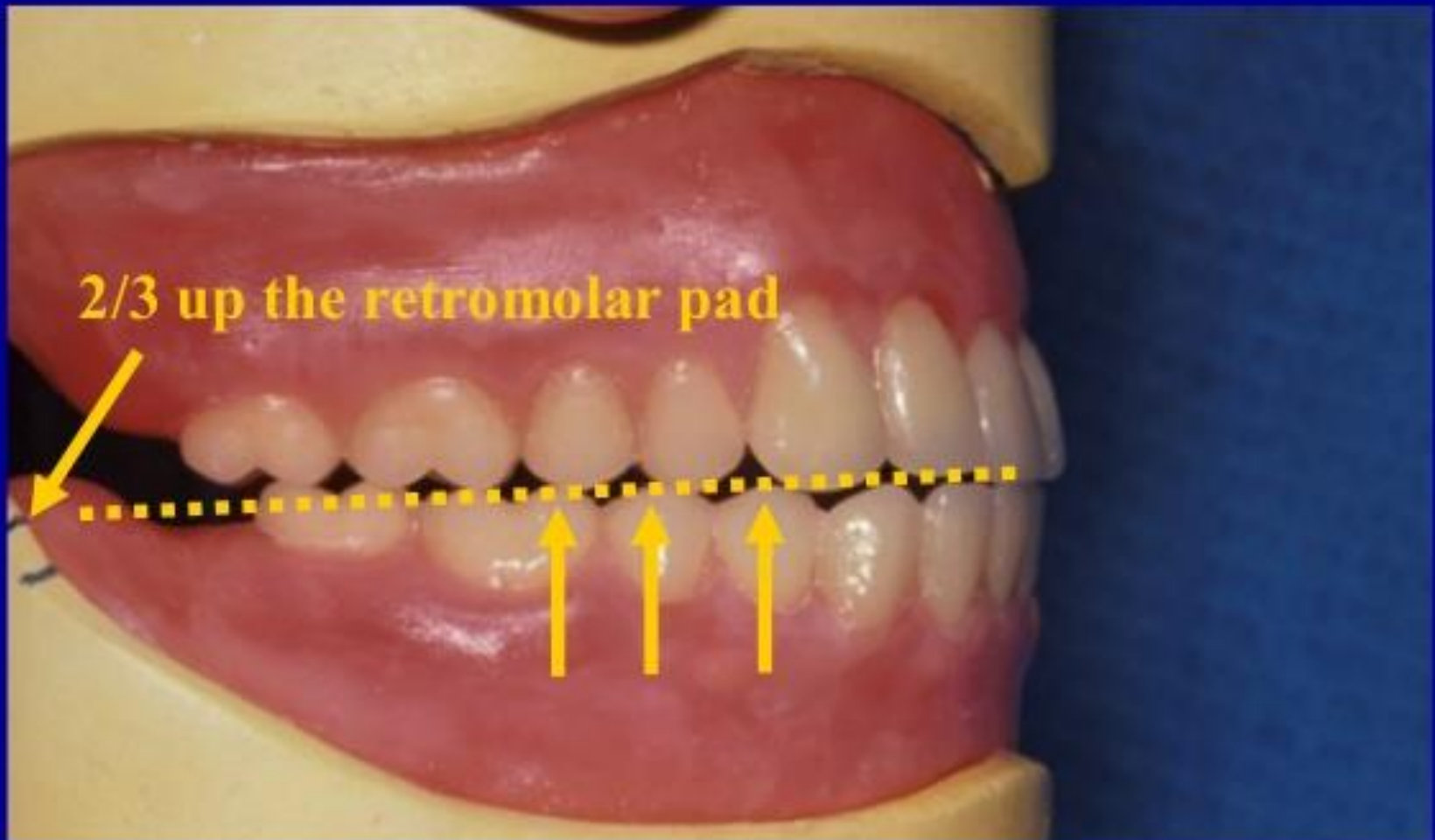
- Triangular soft pad of tissue.
- Posterior end of lower edentulous ridge.
- Limiting landmark of distal extension of complete denture upto ant 2/3 rd of retro molar pad.
- Determines height and width of the occlusal table.



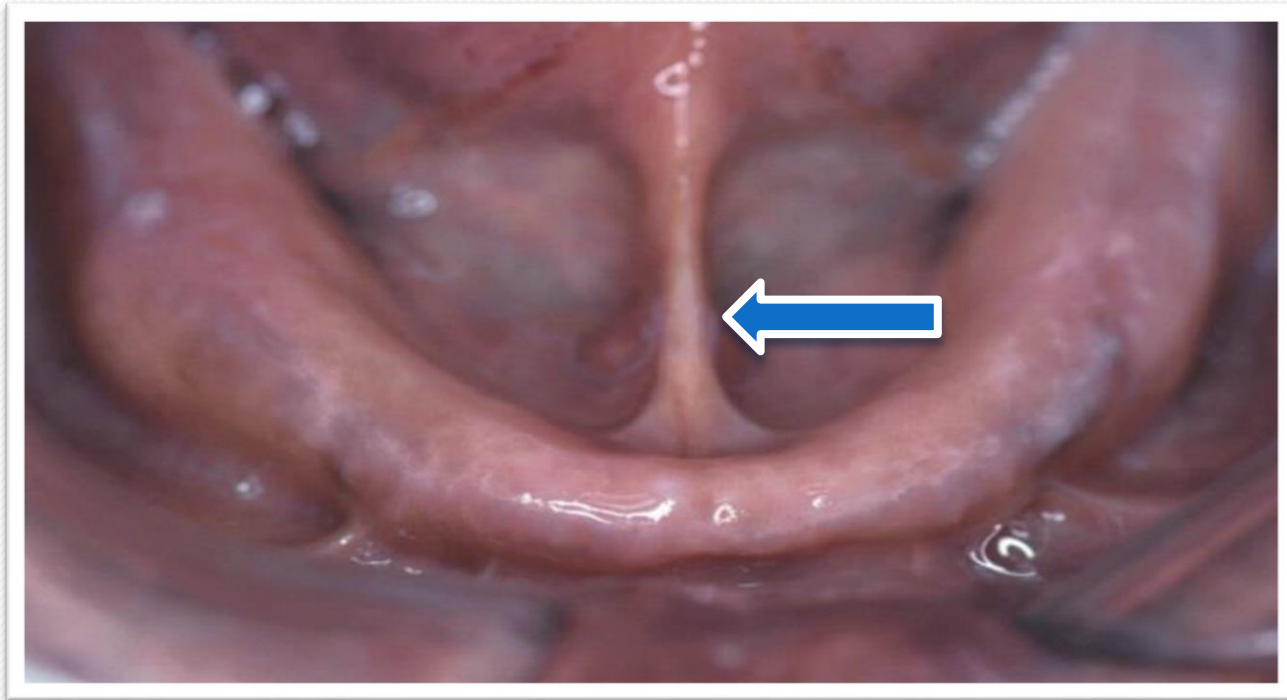


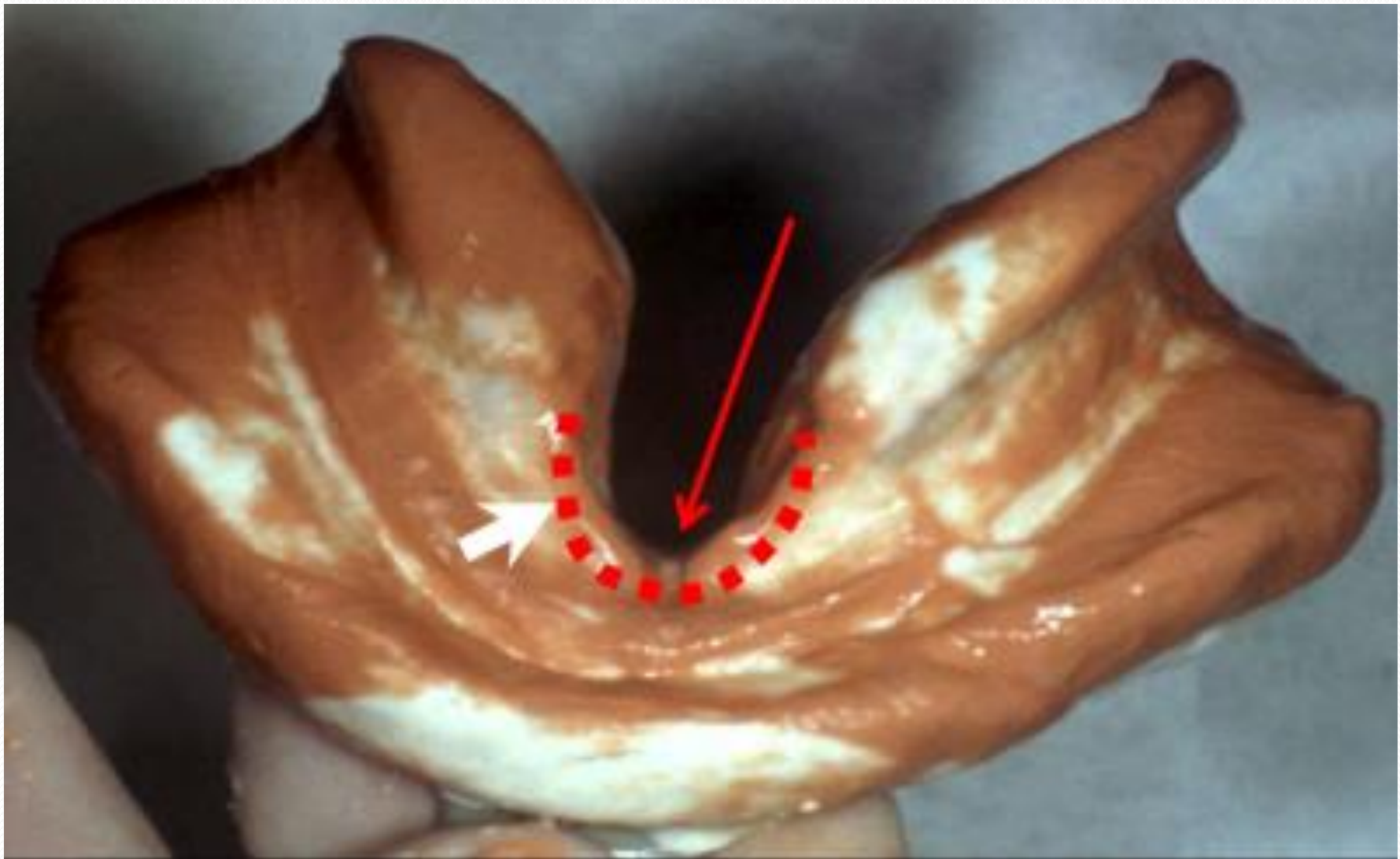


Additional Guidelines for Arranging the Mandibular Posterior Denture Teeth

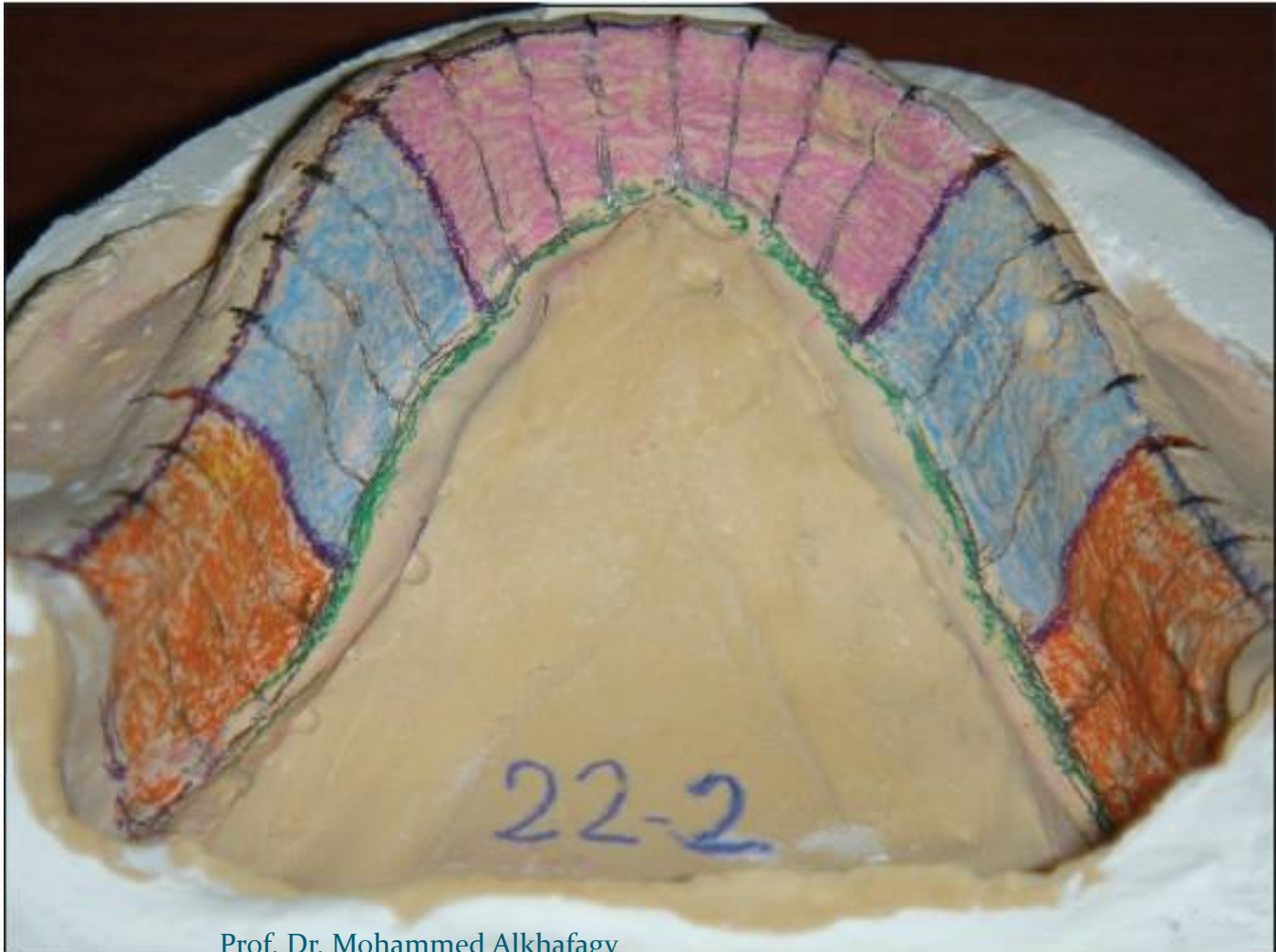


Lingual Frenum:

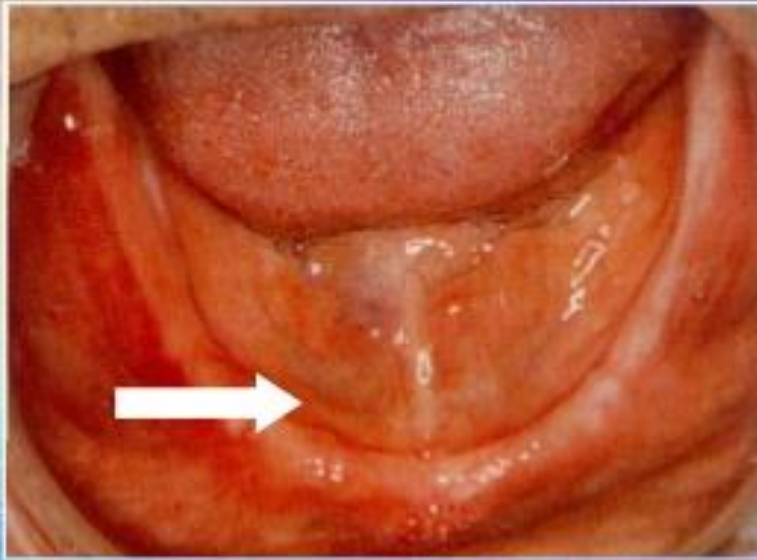




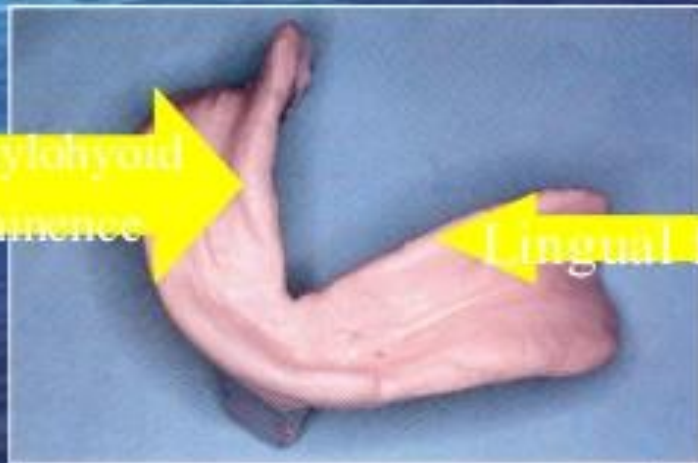
Alveololingual Sulcus



Alveolo-Lingual sulcus.



- Between lingual frenum to retromylohyoid curtain.
- Anterior region- lingual frenum to mylohyoid ridge.
- Premylohyoid fossa- premylohyoid eminence in impression.
- Border of Impression to make contact with the mucosa of the floor of the mouth when tongue touches the upper incisor.
- Overextension causes soreness and instability.



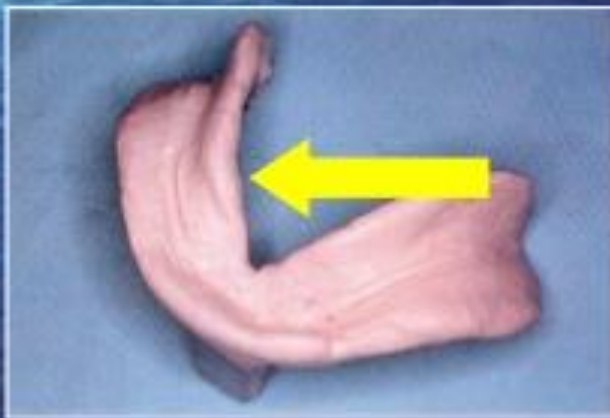


LINGUAL
FLANGE

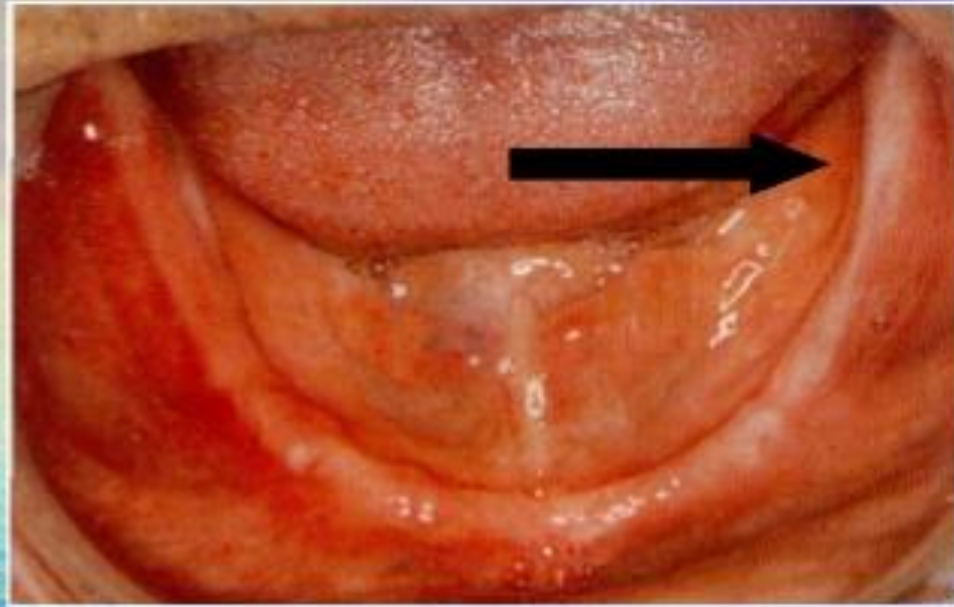
BUCCAL
FLANGE

Middle region.

- From pre-mylohyoid fossa to the distal end of the mylohyoid ridge.
- Lingual flange extends below the level of the mylohyoid ridge- tongue rests on the top of flange and aids in stabilizing the lower denture.







Posterior region.

- The flange passes into the retromylohyoid fossa.
- Proper recording gives typical S – form of the lingual flange.



Retromylohyoid space.



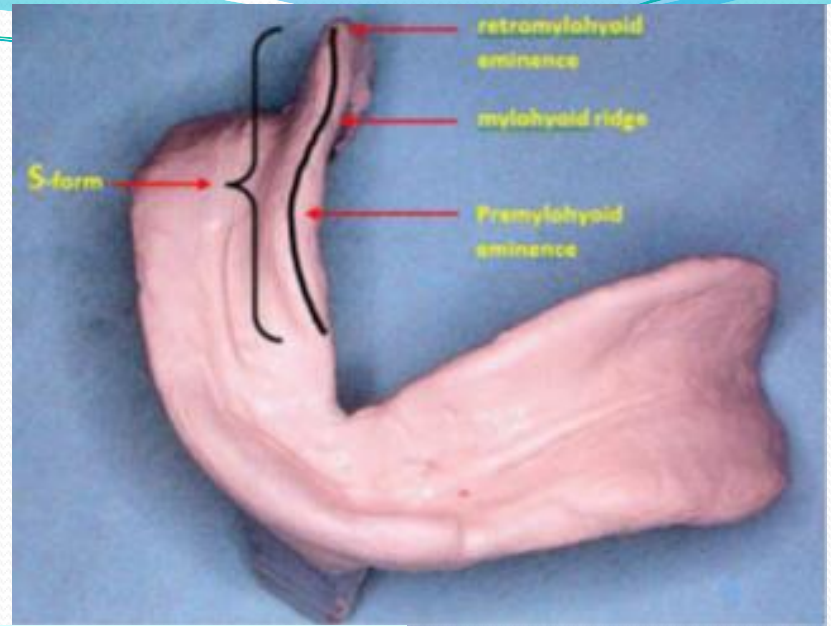
- Distal end of lingual sulcus.
- Area posterior to the mylohyoid muscle.
- Good seal aids in retention and stability.



ALVEOLOLINGUAL SULCUS- RETROMYLOHYOID SPACE

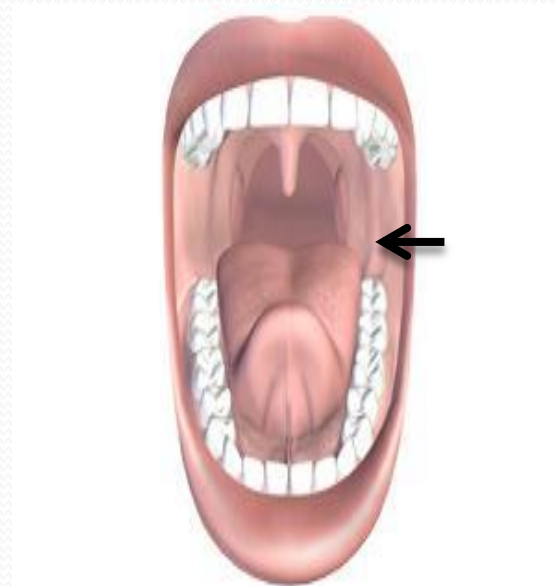
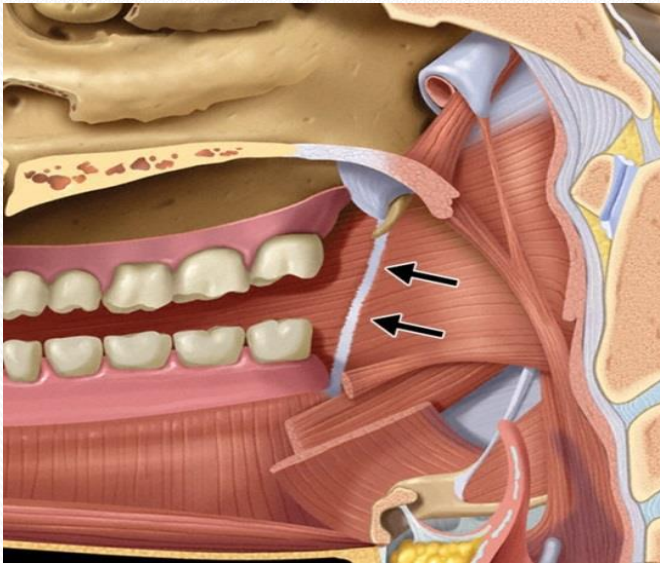
- The retromylohyoid space lies at distal end of the alveololingual sulcus
- It is bounded by anterior tonsillar pillar, posteriorly by the retromylohyoid curtain



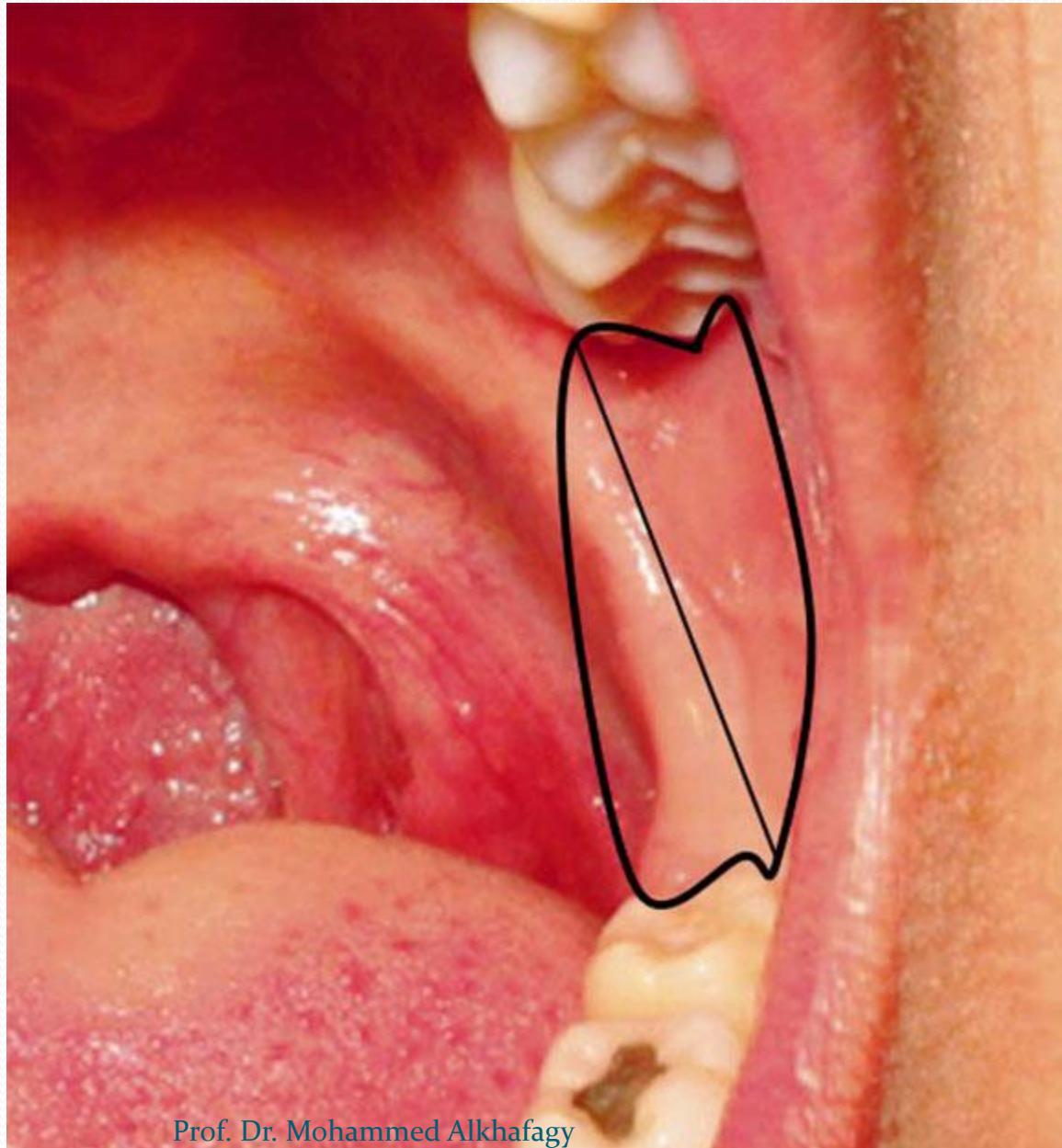


Pterygomandibular raphe or ligament

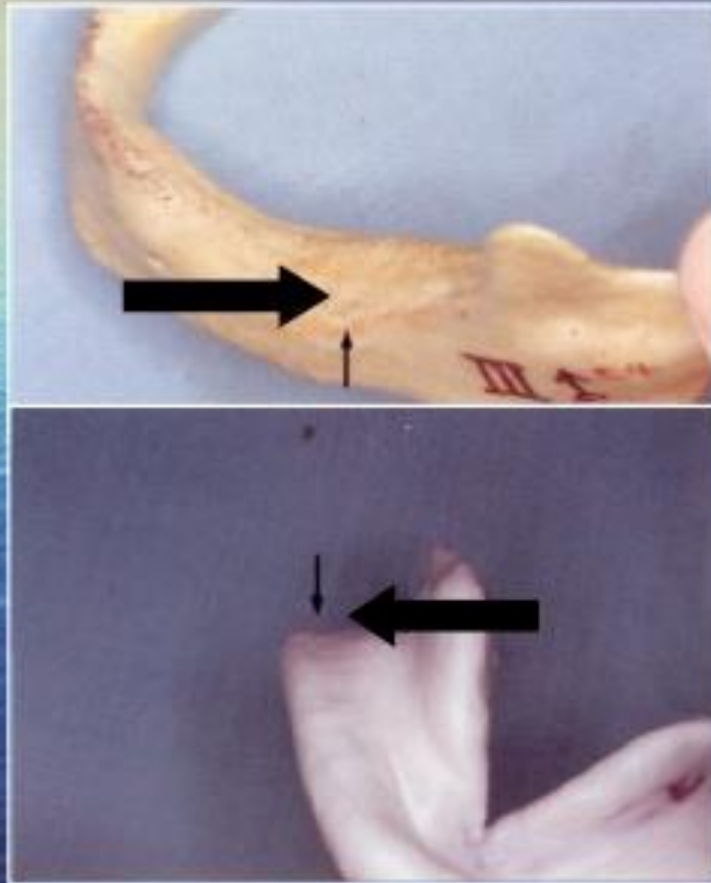
It is union of buccinator and superior constrictor muscles extending from hamular process to retromolar pad, it is stretched during mouth opening



Pterygomandibular raphe or ligament



External oblique ridge.

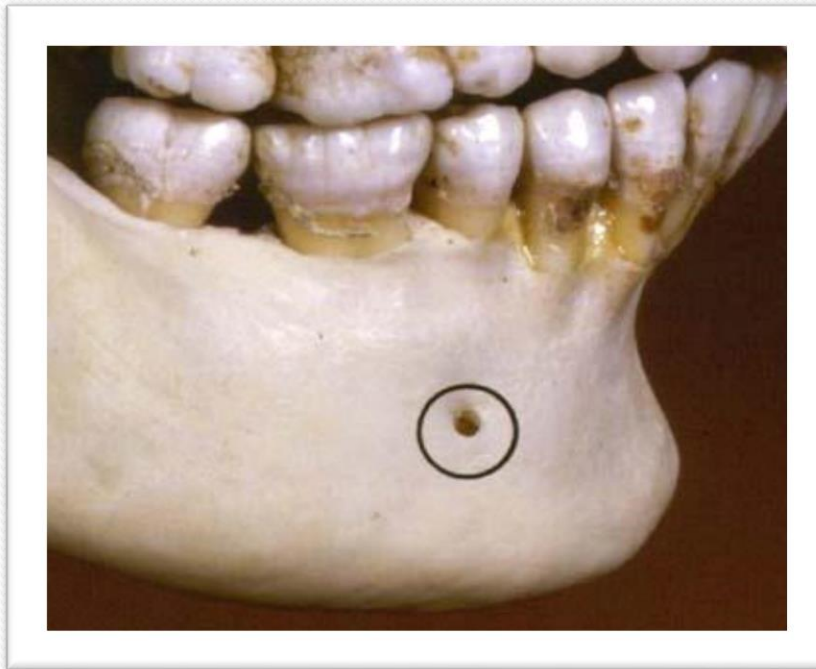


- A bony ridge runs antero-posteriorly outside the buccal shelf.
- Denture border 1-2 mm beyond this ridge.
- Shows as Groove in impression.



Relief Areas

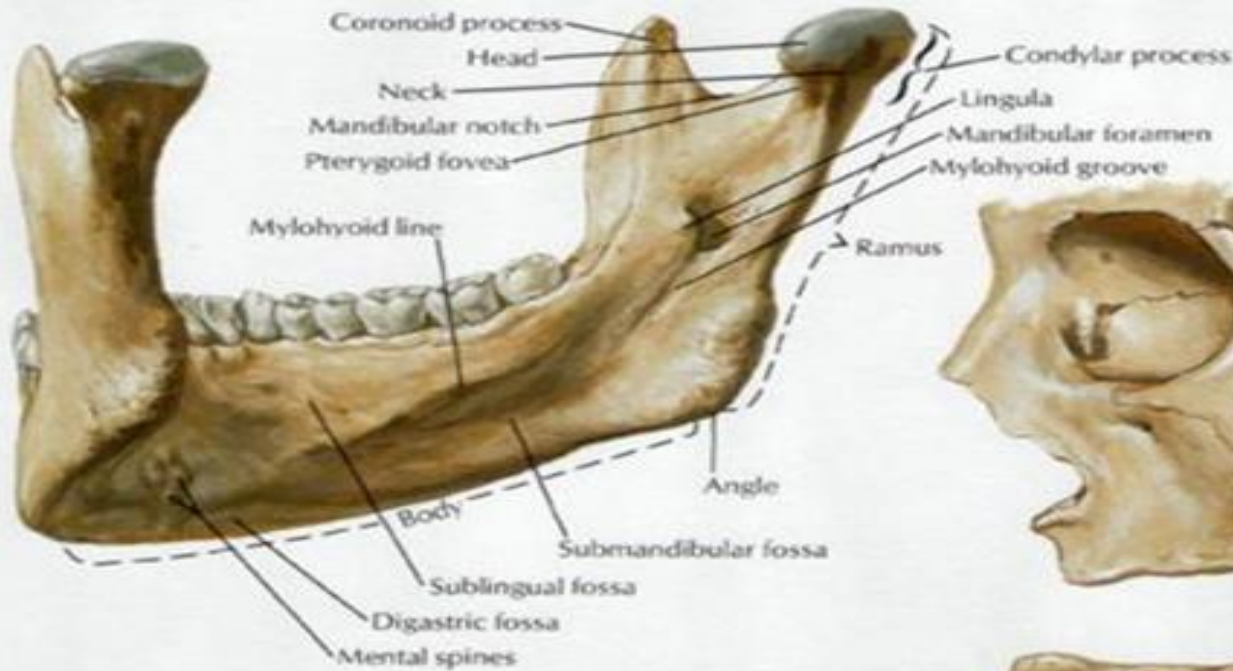
Mental Foramen



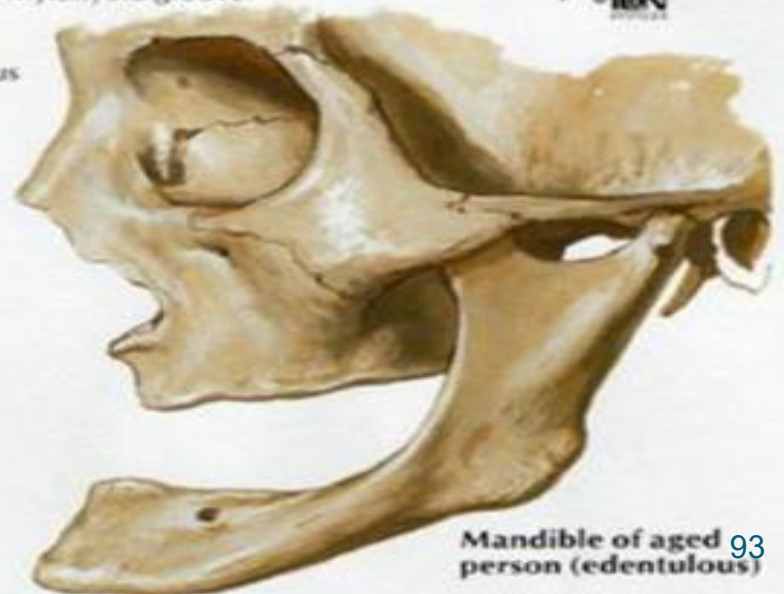
Mandible of infant



**Mandible of adult:
anterolateral superior view**



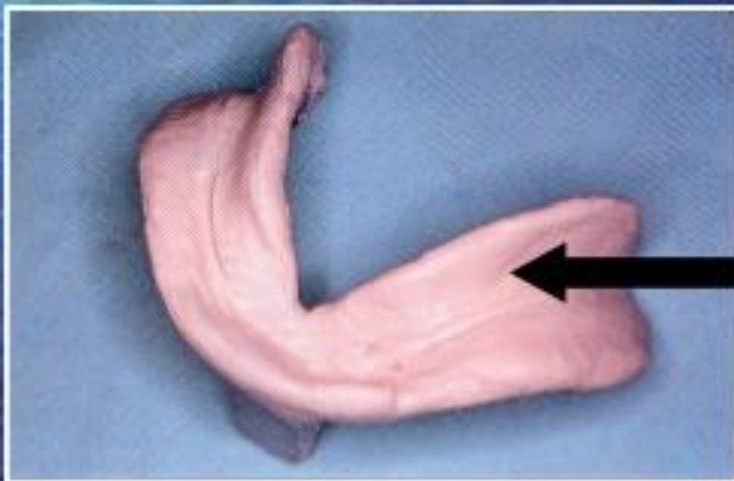
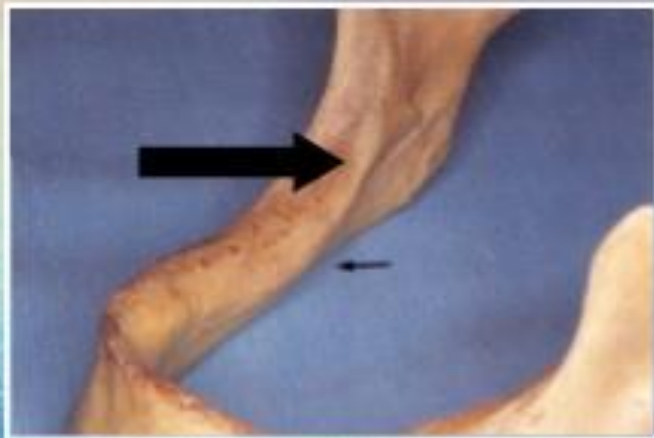
**Mandible of adult:
left posterior view**



**Mandible of aged
person (edentulous)**

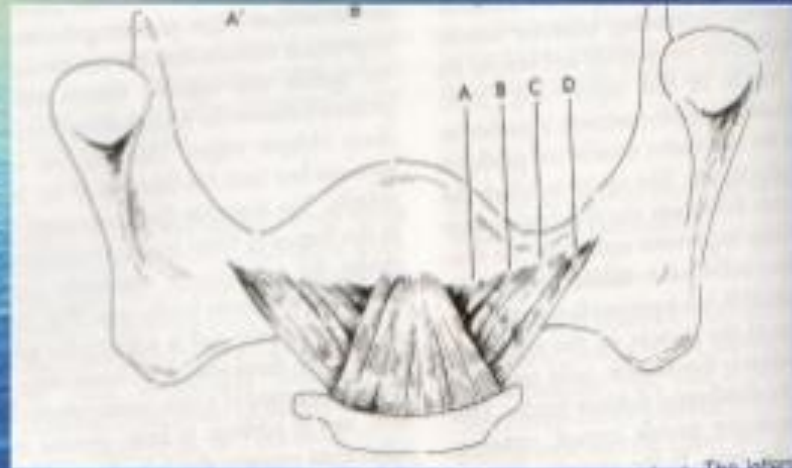
Relief Areas

Mylohyoid ridge.



- Attachment for the mylohyoid muscle.
- Sharp or irregular covered by the mucous membrane.
- Trauma from denture base –relief necessary.

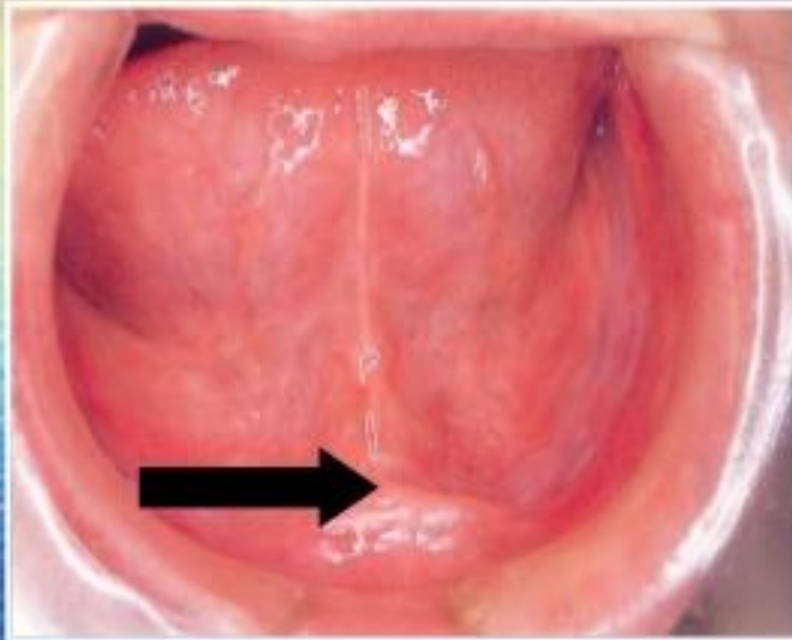
Mylohyoid muscle.



- Floor of the mouth is formed by mylohyoid muscle.
- Lies deep to the sublingual gland in the anterior region- does not affect the border of denture.
- Posterior region –affects the lingual border in swallowing and tongue movements.

Relief Areas

Genial tubercle.

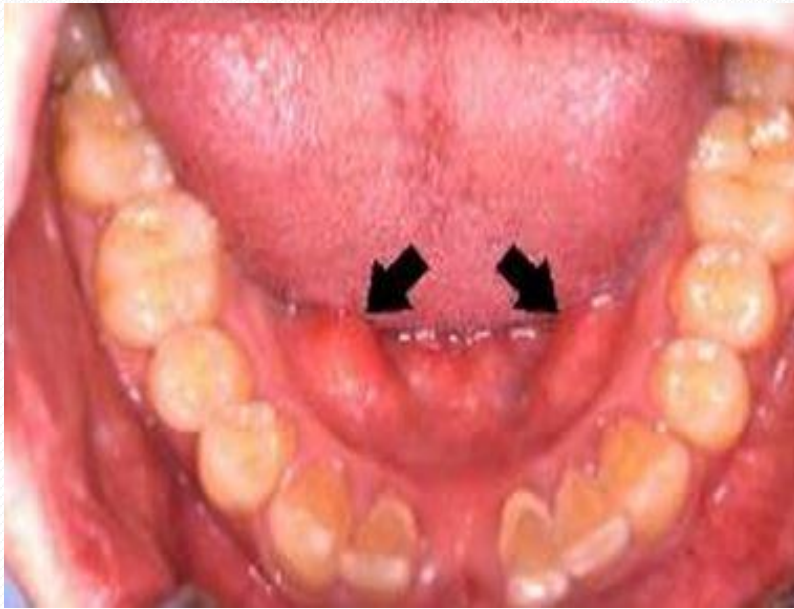


- Area of muscle attachment (Genioglossus and Geniohyoid).
- Lies away from the crest of the ridge.
- Prominent in Resorbed ridges.
- Adequate relief to be provided.



Relief Areas

Torus Mandibularis





Thanks For Listening

