ANATOMICAL LANDMARKS IN MANDIBULAR ARCH

Is divided into:
   a. Supporting structures
   b. Limiting structures
   c. Relief areas

**a. Supporting structures:**
   1. Residual alveolar ridge.
   2. Buccal shelf area.

The **primary stress bearing** area represented by the **Buccal Shelf Area**, while the **secondary stress bearing** areas represented by the **Residual Alveolar Ridge**.

**1. Residual alveolar ridge**
The bony process that remains after loss of teeth is known as residual alveolar ridge bone. The size and shape of the ridge varies from one patient to another. The bone of crest of lower residual ridge is made of spongy bone therefore may not be favorable as a primary stress bearing area for the lower denture.

**2. Buccal Shelf Area:**
It is bounded medially by the crest of residual ridge, laterally by the external oblique line, anteriorly by the buccal frenum and distally by the retromolar pad.
It is considered **primary stress bearing area** for the lower denture because:
   1- It is covered by compact bone (very dense)
   2- It is perpendicular to the vertical masticatory force.
b. Limiting structures:
1. Labial Frenum
2. Labial vestibule
3. Buccal frenum
4. Buccal vestibule
5. Lingual frenum
6. Retromolar pad
7. Alveolo-lingual sulcus
8. External oblique line

1. Labial Frenum
It is a fold of mucous membrane. It may be single or multiple, fine or broad. It may contain fibrous band attached to the *orbicularis oris muscle* and therefore it may be active in mastication.

2. Labial vestibule (sulcus)
It extends from the labial frenum to the buccal frenum.

3. Buccal Frenum:
A fold of mucous membrane extended from the buccal mucous membrane reflection area toward the slopes of residual ridge.
It may be single or multiple, broad or narrow. It may be activated in function by the muscles.

4. Buccal vestibule:
It extends from the buccal frenum to the distal end of the arch. It is bounded externally by the cheek and internally by the residual ridge.
5. Lingual Frenum
It is a fold of mucous membrane can be observed when the tongue is elevated, extending along the floor of the mouth to the under surface of the tongue. It will produce the lingual notch in the denture. This frenum is activated when the tongue is moved.

6. Retromolar Pad:
It is pear shaped area of soft tissue at the distal end of residual ridge. Histologically; it contains:
- glandular tissue
- lower margin of pterygomandibular raphe
- Fibers of buccinator and superior constrictor muscles.
- Fibers from temporalis tendon.

This pad must be covered by the denture to provide posterior peripheral seal of the lower denture.

7. Alveolo-lingual Sulcus (Lingual Vestibule)
It is extended from the lingual frenum to the retromylohyiod curtain. This space is filled by the lingual flange of the denture. It can be divided into:

A. Anterior region: It extends from the lingual frenum back to the premylohyoid fossa.
B. Middle region: It is extended from the premylohyoid fossa back to the distal end of the mylohyoid ridge.
   Here the mylohyoid muscle (which arises from mylohyoid ridge) is important in determining the contour of the lingual flange.
C. Posterior region: Is the retromylohyoid fossa, it is extends from the end of mylohyoid ridge to retromylohyoid curtain.

Proper recording of impression gives typical S-shape of the lingual flange.
8. **External Oblique Ridge**
It is a ridge of dense bone extended from just above the mental foramen superiorly and distally to be continuous with the anterior border of the ramus. This line is the attachment site of the *buccinator muscle*. It is a guide for lateral termination of mandibular buccal flange.

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**C. Relief Areas:**

1. Mental Foramen.
2. Genial tubercles.
3. Torus mandibularis.
4. Mylohyoid ridge.

**1. Mental Foramen**
It is located on the external surface of the mandible between the 1st and 2nd premolar area.
In case of severe resorption of residual ridge; the denture should be relieved over the foramen to prevent pressure on the *mental nerves and blood vessels.*
2. Genial tubercles
These are pair of bony structures found anteriorly on the lingual side of the mandible. They give attachment to the genioglossus and geniohyoid muscles. With excessive resorbed ridge, they become prominent and adequate relief should be provided.

3. Torus Mandibularis
These are bony exostosis composed of dense cortical bone covered by mucous membrane found on the lingual surface of the mandible at premolar area. It has to be relieved or surgically corrected.

4. Mylohyoid Ridge:
It is a bony crest on the lingual surface of the mandible. This ridge starts near the inferior border of the mandible in the incisor region but becomes higher posteriorly until it terminates near the 3rd molar area. It is the area where the mylohyoid muscle attached.