Complete Denture Introduction

By: lec. Hala khuder

Definitions

Prosthetics: Replacements for missing parts of the human body.

Prosthesis: An artificial device replaced absent part of human body

Prosthodontics: Is the branch of dentistry dealing with the replacement of missing teeth and associated structures by artificial devices.

Dentulous: An individual who has his/her natural teeth

present.



Edentulous: The individual who has lost his/her natural teeth.

Depending on the number of teeth missing they may be partially or completely edentulous.





Why we replace missing teeth

- Eating (digestion and nutritional problem)
- Speaking
- Smile



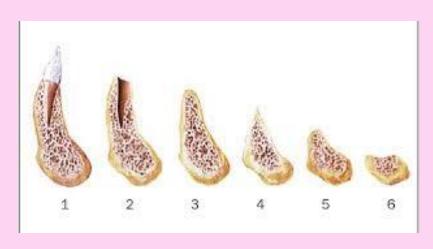
The lips change because they no longer have support .The muscles around the lips may begin to change, causing more wrinkles than normal, making patient look older.





Tooth loss result in loss of jaw bone





Extreme loss of bone can make an individual more prone to jaw fractures

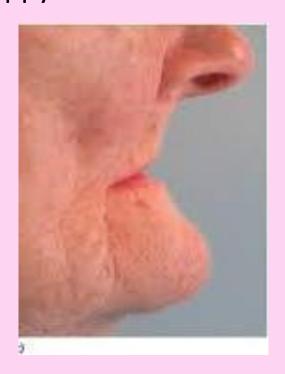






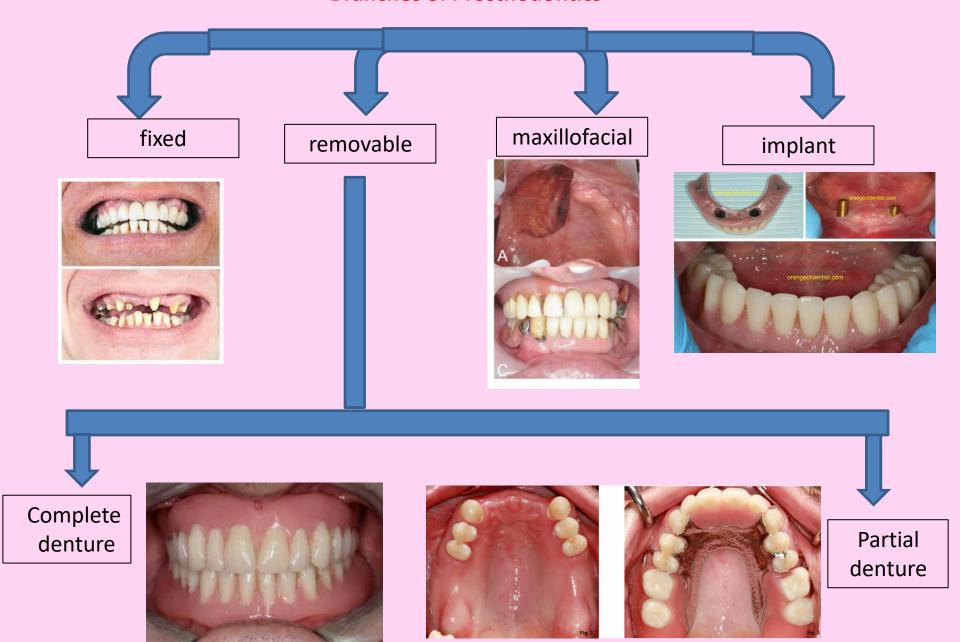


The distance from nose to chin can decrease and the lower third of the face partially collapses. With a lack of structural support, the lips sag; that's why toothless people often appear unhappy.





Branches of Prosthodontics



Complete denture:

A removable dental prosthesis that replaces the entire dentition and associated structures of the maxilla and mandible.



Objectives

1. Restoration of esthetics.







- 2. Restoration of speech.
- 3. Restoration of mastication (chewing).
- 4. Preservation of the remaining tissue health.
- 5. Patient satisfaction and comfort.

Parts of Complete Denture

A) Denture Base:

which cover the edentulous tissue area and carries the artificial teeth.

B) Teeth:

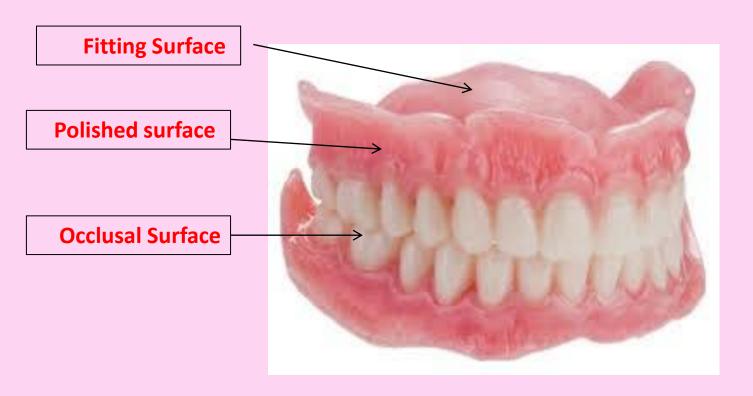
which are attached to the denture base for the purpose of chewing, esthetic, phonetics..etc

Denture has 3 surfaces

Polished surface The outer surface of the denture and in contact to the muscle of cheek and tongue.

Fitting Surface (tissue surfsce) The inner surface of the denture that contact to the oral mucosa

Occlusal Surface: A surface of posterior teeth or occlusion rim that is intended to make contact with opposing occlusasurface

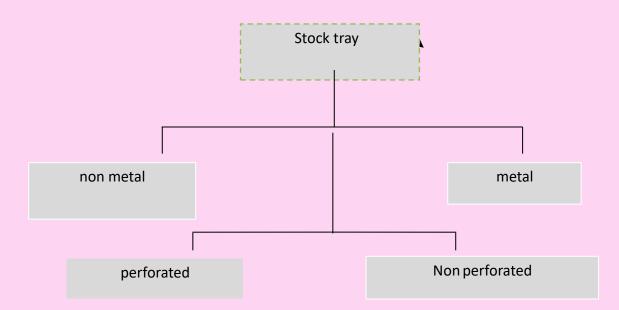


Steps in CD Construction

CD construction needs clinical steps (6 visits) and laboratory steps

- 1) Diagnosis, treatment plan, primary impression (preliminary)
- 2) Pouring primary impressin and fabrication of special tray
- 3) Border molding and final impression
- Pouring final impressin and fabrication of recod base and bite rim
- 5) Jaw relation record
- 6) Mounting and arrengment of artificial teeth
- 7) Try-in the teeth
- 8) Festooning, falsking, wax elimenation, packing, curing and finishimg and polishing
- 9) Insertion of the denture
- 10) Post-insertion adjustment

1. Tray Selection: it is a device used to carry, confine and control the impression material from the patient's mouth while making an impression. During impression making, the tray facilitates insertion and removal of impression material from the patient's mouth.



2. Primary Impression

Negative replica of the oral tissues done for the purpose of diagnosis or construction of tray used for this impression a stock tray.

We use in this step one of the following materials:

- 1. Alginate
- 2. Impression compound



3. Primary Cast

After taking the first impression cast on we pour the impression to make the primary cast.



4. Special Tray

A custom made device prepared for the particular patient which is used to carry Confine and control an impression material while making an impression.



5-Final Impression

The impression that represents the completion of the registration of the surface or object. It is an impression made for the purpose of fabrication of prosthesis. This impression is made with individual tray. Final impression must be poured with stone material to produce.

Impression Material for Complete Denture

Secondary Impression

- a) Rubber base
- b) Zinc oxide Eugenol
- c) Plaster of Paris



6-Master cast

• Master cast – Obtained from final impression. Fabricating complete dentures requires master casts with extreme accuracy of the vestibules and therefore requires the use of accurate custom impression trays.



7- Record Bases

An interim denture base (temporary form) used to support the record rim material for recording maxilla-mandible record.

The Important Reason to Use the Record Base

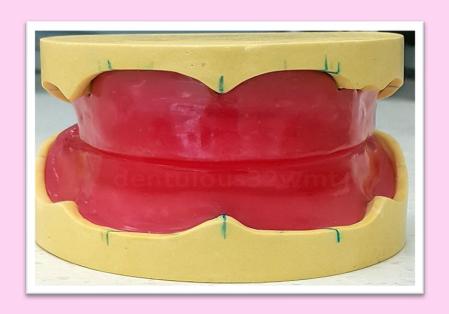
To retain the recording device used for recording maxilla mandibular relation To aid in transfer accurate jaw relationships to an articulator To enable the setting of artificial teeth for the trail.





8- occlusion rim

Definition: occlusion rims are occluding surfaces constructed on record bases or temporary denture bases to be use recording jaw relation for arranging teeth.



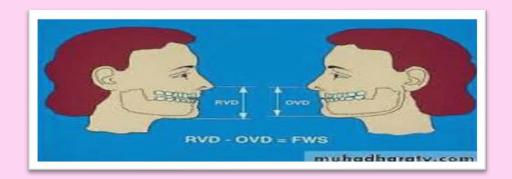
9. Jaw Relation

It is defined as "Any relation of the mandible to the maxilla.

We Record the Centric Relation

Centric relation: It is the relation between the mandible and maxilla when the condyle is in the uppermost midmost unstrained position in the glenoid fossa.

We measure the distance between two point on nose and chin in rest vertical dimension and occlusal vertical dimension.



10. Mounting

procedure of attaching the maxillary and mandibular cast to the articulator in their recorded jaw relation. It is also called articulation.



11. Arrangement of Teeth

It is important that the artificial anterior teeth are placed in the same anterior posterior position and at the same length as the original natural esthetics and phonetic.

The four principal factors that govern the positions of the teeth for complete dentures are

- (1) the horizontal relations to the residual ridges,
- (2) the vertical positions of the occlusal surfaces and incisal edges between the residual ridges,
- (3) the esthetic requirements
- (4) the inclinations for occlusion



And there are three ty

1. Class I



2. Class II



3. Class III



12. Festooning

Festooning is a process of the natural tissues which are being replaced by the denture. In general, we have two methods for festooning.

Method of Festooning

- Press on Method
- Drop On Method



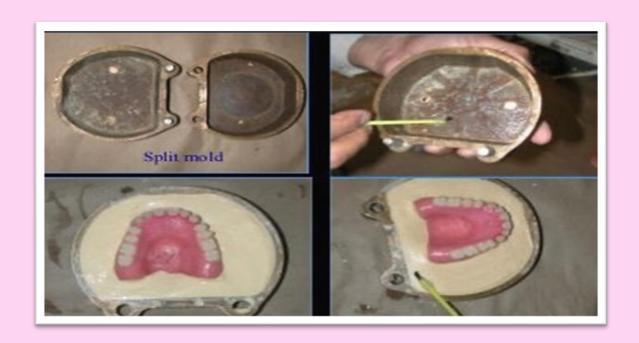
13. The Wax Tray in

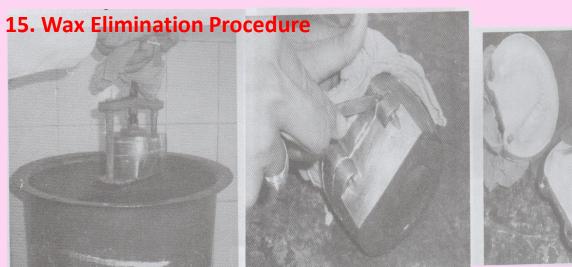
Preliminary insertion of complete denture wax up (trial denture) to determine the fit, esthetics, maxilla mandibular relation.



14. Flasking

The process of investing the cast and wax denture in flask to make sectional used to form the acrylic resin denture base.







16.Packing of Acrylic

It is the procedure of application of acrylic resin in to the mold and pressing the flask by using sufficient pressure to compensate for the contraction of the acrylic after polymerization to prevent shrinkage

and porosity.



17. Curing of Acrylic

It is the polymerization of the hot cure acrylic to produce the final denture.

Two water bath heating techniques maybe used:

- 1. Heating the flask in a special bath of water, beginning from the room temperature until reaching 72°C for 16 hours.
- 2. Heating the flask in an ordinary water bath beginning from the room temperature, until reaching 72°C, lasting for 2 hours, then the temperature is raised to boiling for another 1 hour



18.Finishing means the Process of removing surface defects or scratches created during the contouring process through the use of cutting or grinding instruments or both.





19.Polishing: it is a procedure by which we can obtain a shiny, glossy surface of the denture





After completing the dentures and wearing in the patient's mouth



Anatomical landmarks of the maxilla & maxillary arch

Dr.Hala Khuder

Objectives:

▶ To give knowledge about the introral anatomical landmarks(denture bearing areas and denture boundaries) of prothodontic importance to fabricate a complete denture that has maximum retention, support, stability with preservation of these underlying and surrounding structure

Maxillary anatomical land marks

- Supporting structures
- 1. Mucous membrane
- 2. Hard palate
- 3. Rugae area
- 4. Mid palatine raphae
- 5. Residual ridge
- 6. Incisive papillae
- 7. Maxillary tuberosity
- 8. Torus palatinus

- Limiting and peripheral structures
- 1. Labial frenum
- 2. Labial vestibule
- 3. Buccal frenum
- 4. Buccal vestibule
- 5. Hamular notch
- 6. Vibrating line
- 7. Fovea palatine

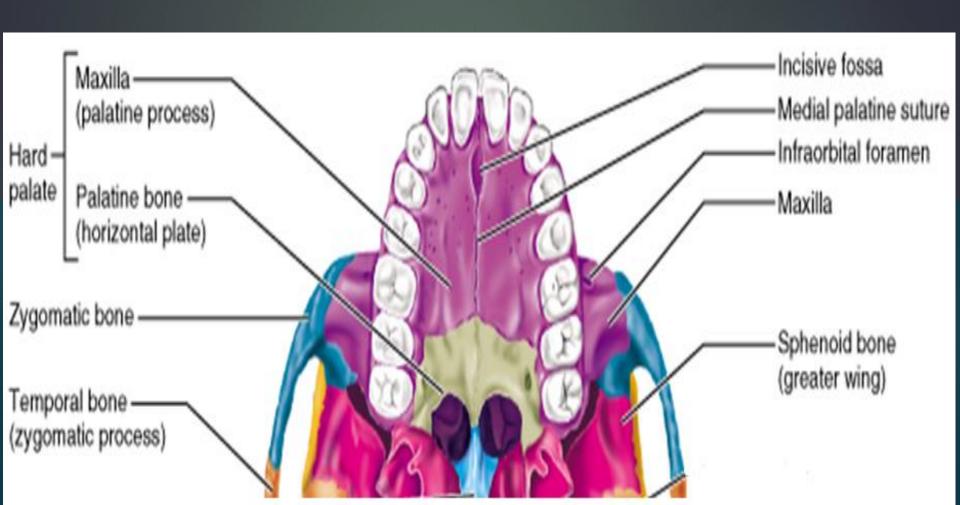
Mucous membrane

- A thin layer of tissue that lines a cavity, envelopes a vessel or part or separates a space or organ.
- It consists of:
- 1. Mucosa
- 2. Submucosa
- It divided into:
- 1. Masticatory mucosa
- Lining mucosa
- 3. Specialized mucosa

Palate

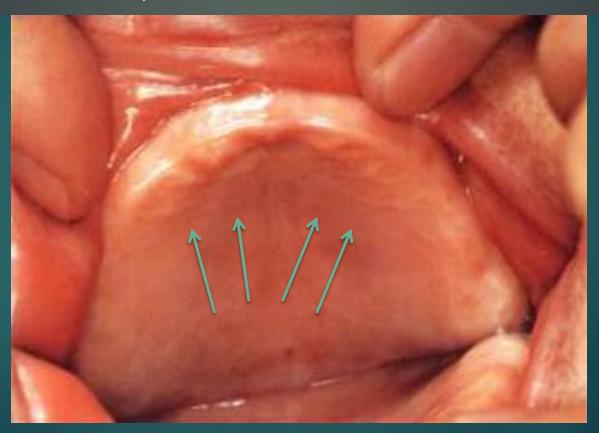
- The palate extends from the roof of the mouth all the way back to the uvula: divided into
- Hard Palate. The hard palate is made up of the anterior two-thirds of the palatal vault <u>supported by bone</u> (palatine processes of the maxillae and the horizontal plates of the palatine bones)
- the horizontal plates of the palatine bones considered to be the primary stress bearing area.

▶ <u>Soft Palate</u>. The soft palate is made up of the posterior one-third of the palatal vault that is <u>not supported by bone</u>. The soft palate is a muscular extension from the posterior edge of the hard palate, and it is very movable, especially during speaking and swallowing.



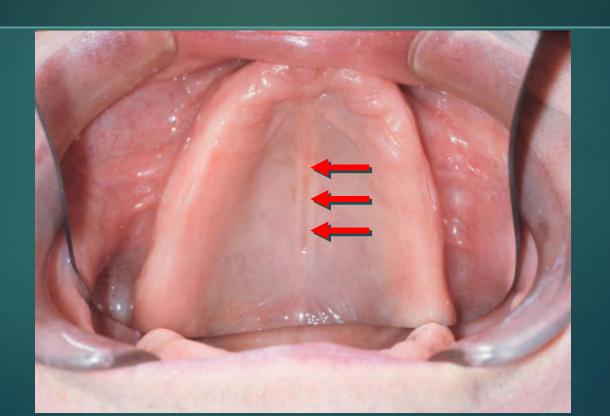
Rugae

- Rugae are irregular ridges of fibrous tissue found in the anterior one-third of the hard palate.
- It plays important role in speech.
- ▶ It is considered secondary stress bearing area.
- Aids in stability and retention of denture.
- If it is sensitive or prominent it should be relived



Median Palatine Raphe

- The medial palatine raphe is a slight tissue elevation which occurs in the midline of the hard palate, immediately over the median palatine suture.
- May require relief when covered by a denture.
- Submucosa is extremely thin.



Torus palatinus

- anatomical protuberance.
- It is a hard bony enlargement that occurs in the midline of hard palate and is found in 20% of the population.
- Require relief (less large, irregular shape and undercut area).



Should be surgically removed if

- Extensive large
- Extended posteriorly and interfere with posterior palatal seal
- Imped with normal movement of the tongue
- Act as fulcrum cause of rocking of the denture
- Psychological disturbance to patient
- Ulcerative, lobulated, and under cut

- **Alveolar Process:** is a process of the maxilla that surrounds the roots of natural teeth. The right and left alveolar processes combine to the maxillary arch.
- Alveolar Ridge (Residual Ridge): the portion of the residual bone and its soft tissue covering that remains after the removal of teeth.
- The residual ridge is the reminant of the alveolar process which originally contained sockets for natural teeth. After natural teeth are extracted, the alveolar ridge can be expected to get smaller (resorb). The rate of resorption varies considerably from person to person.
- ▶ It is considered primary support bearing area.

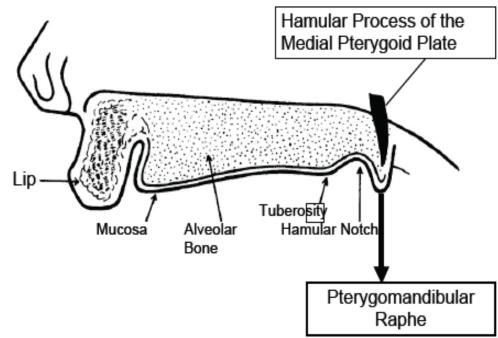


Maxillary Tuberosity: is bony prominence located posterior to the third molar area most distal portion of the maxillary alveolar ridge.

Hamular Notch: is a deep <u>depression</u> located posterior to the maxillary tuberosity (between the tuberosity and hamulus of medial pterygoid bone). The depths of this depression is part of a series of guides used to determine the posterior border of a maxillary denture. The

overextension of the denture base beyond the ptervao-

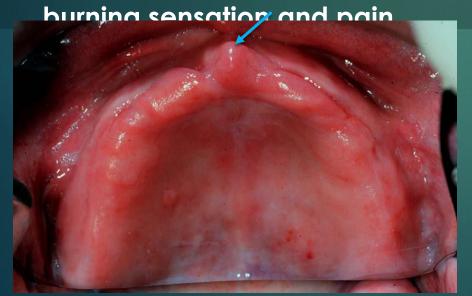


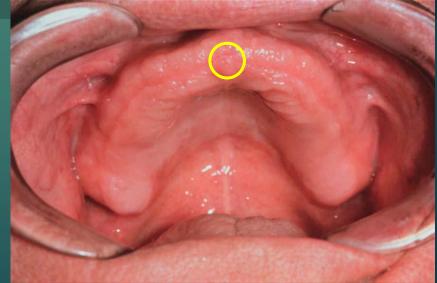


Incisive Papilla

- The soft tissue elevation immediately over the incisive foramen.
- ► The incisive foramen is located in the midline of the hard palate, immediately behind the central incisor teeth. The foramen is an exit hole for blood vessels and nerves.
- Since the incisive papilla is visible in the exact midline of the hard palate, just behind the natural central incisors, the papilla is a reliable guide for determining the midline relationships of upper anterior denture teeth.

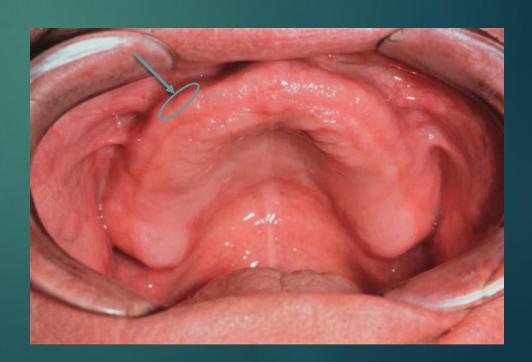
Relief over the incisive papilla should be provided in denture to avoid any interference with blood supply and nerve pathway which causes





Canine eminence (Cuspid eminence)

It is a round bony elevation in the corner of the mouth it represents the location of the root of the canine, which is helpful to be used as a guide for selection and arrangement of maxillary anterior teeth.



Labial Frenum: The labial frenum is a narrow fold of oral mucosa, which is found in the approximate midline, may be single or multiple; narrow or broad. It extends from the inner surface of the lip to the labial surface of the alveolar ridge. The labial frenum is <u>not</u> a reliable guide for determining the midline of the face when natural teeth are absent.

Need notch.

Buccal Frenum: There are two buccal frena. These frena are located on each side of the arch, usually in the first bicuspid region. Each frenum extends from the mucosa of the cheek to the buccal aspect of the alveolar ridge.

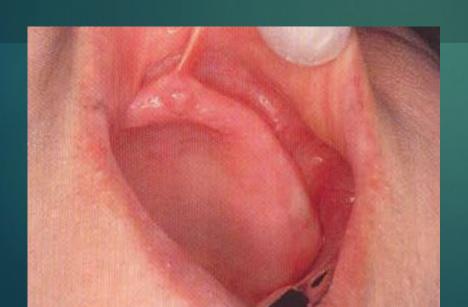
▶ Need notch.





Sulci (VESTIBULES)

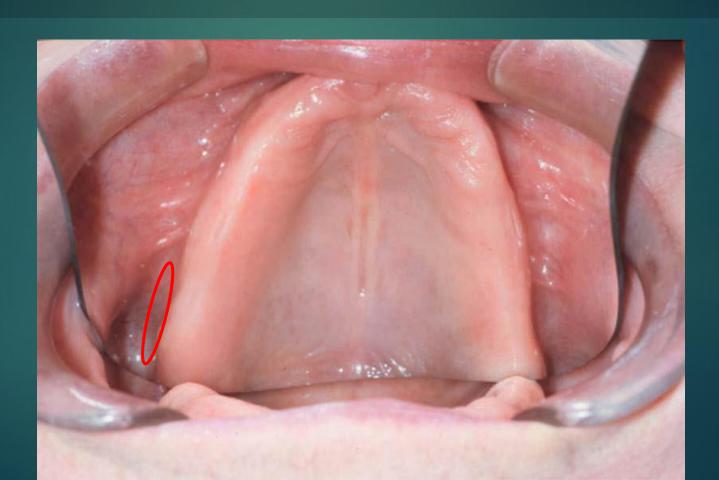
- The maxillary sulcus (vestibule) is a groove formed by the mucosa of the cheek or lip and the mucosa at the base of the alveolar ridge (reflection of mucous membrane).
- ▶ The portion of the sulcus which lies between the labial and buccal frena is called the **labial sulcus (vestibule)**.
- ▶ The part of the sulcus between the buccal frenum and the hamular notch is the **buccal sulcus (vestibule)**. The muscles shaping the sulcus cause its depth to change with every facial expression a person makes.





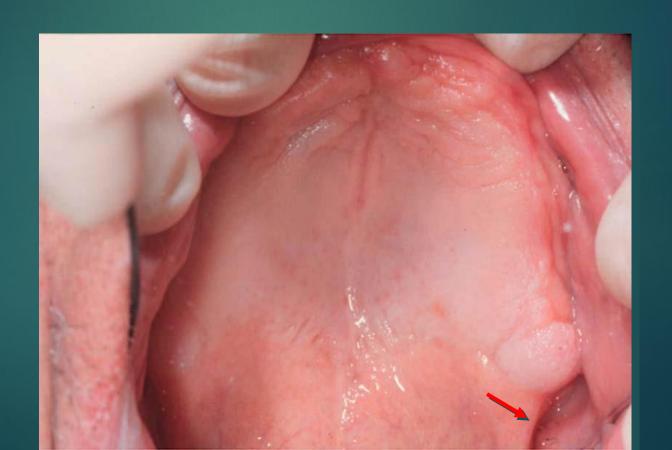
Retrozygomal Fossae (Space)

- Palpate zygomatic process in buccal vestibule just buccal to first maxillary molar
- Vestibular space posterior to zygoma, have good bony support and thin mucosa(primary stress bearing area)



Pterygo-Mandibular Raphe

- Connects from the hamulus to the mylohyoid ridge,
- When prominent, can cause pain, or loosening,
- Requires "groove" if prominent.



Vibrating Line

- ▶ The vibrating line is an imaginary line drawn across the palate that marks the beginning of motion in the soft palate when an individual says "ah", located at area of start movement of muscle (speech, deglatation, respiration).
- ▶ It extends from one hamular notch to the other.
- ► At the mid line it usually passes about 2 mm in front of the foveae palatine.





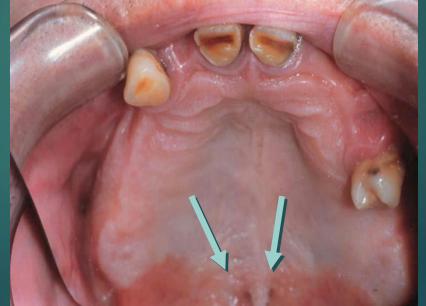
- Vibrating Line representing the posterior extension of the complete denture
- If the posterior extension of the complete denture located anterior to the vibrating line resorbed of the palatal bone and lost of palatal seal
- the posterior extension of the complete denture located posterior to the vibrating line denture located at movable tissue and lost of denture retention

Fovea Palatine

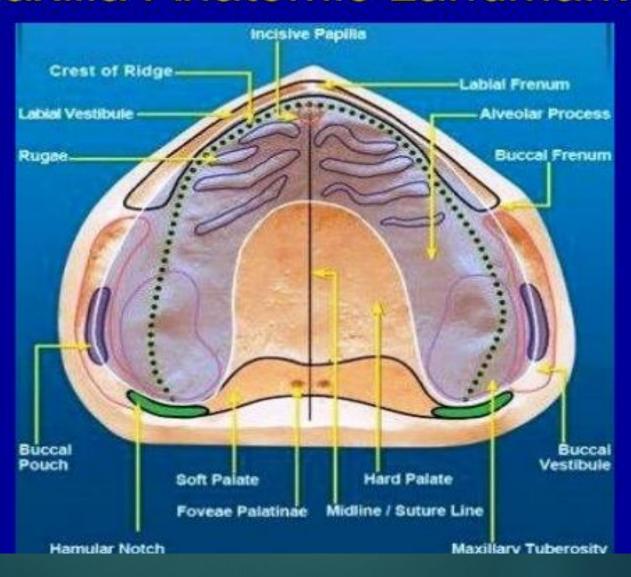
The fovea palatine are indentations located on each side of the midline of the palate and slightly posterior to the junction of hard and soft palates formed by coalescence of several mucous gland ducts (two in number).

They are always in the soft tissue which makes them an ideal guide for the location of the posterior border of

the denture.



Maxilla-Anatomic Landmarks

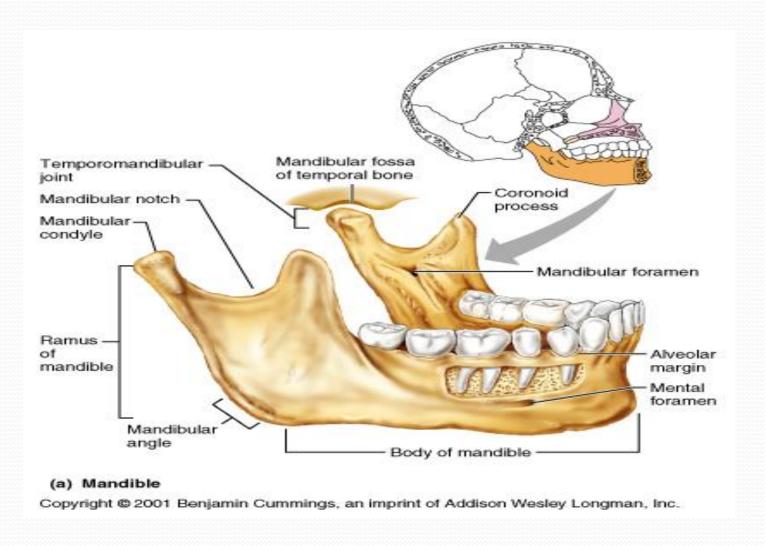


Thank you

Anatomical landmarks of the Mandible and mandibular arch

Dr.Hala Khuder

Anatomical landmarks of the Mandible and mandibular arch



Mandibular anatomical land marks

- Supporting structures
- Residual alveolar ridge
- Buccal shelf area
- 3. Mental foramen
- Mylohyoid ridge
- Genial tubercles
- 6. Torus mandibularis

- Limiting or peripheral structures
- Labial frenum
- 2. Labial vestibule
- Buccal frenum
- 4. Buccal vestibule
- 5. Lingual frenum
- 6. Retromolar pad area

"Alveolar Process

• The alveolar process is the process of the mandible that surrounds the roots of the natural teeth.

The right and left alveolar processes combine to form the mandibular arch.

After natural teeth are extracted, the remnant of the alveolar process is called the alveolar or residual ridge.

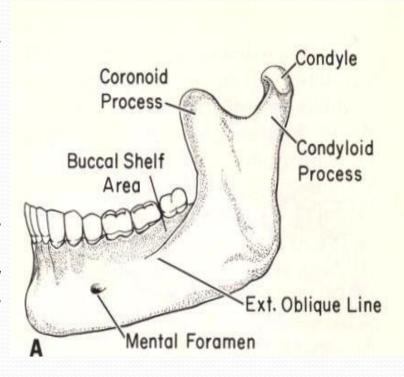
As time goes on, a residual ridge usually resorbs (gets smaller)

Represent the secondary stress bearing area



The important external surface landmarks of the mandible are:

• External Oblique Ridge (Line). The external oblique ridge extends at an oblique angle across the external surface of the body of the mandible. This ridge begins at the lower anterior edge of the ramus, continues onto the body, and progressively thins out to end near the mental foramen. The external oblique ridge is most prominent in the molar area and forms a distinct ledge with relation to the base of the alveolar process. This ledge is called the buccal shelf.

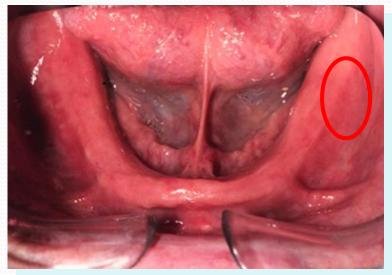


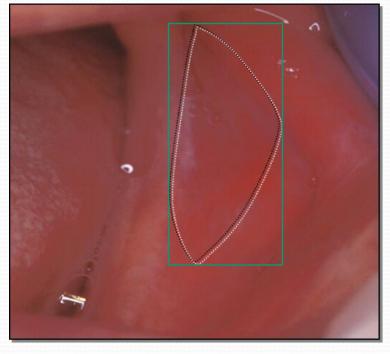
"Buccal Shelf

The buccal shelf is a ledge located buccal to the base of the alveolar ridge in the bicuspid and molar regions.

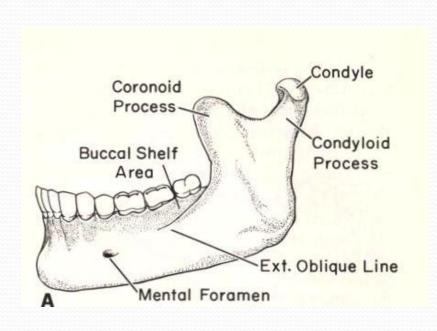
Laterally, the shelf extends from the crest alveolar ridge to the external oblique line.

The buccal shelf is a support area for a mandibular denture, especially when the remaining alveolar ridge is relatively small. represent the primary stress bearing area due to it area of compact bone (dense closely placed trabecullae are arranged parallel) therefor is best to receive masticatory stress in vertical direction.





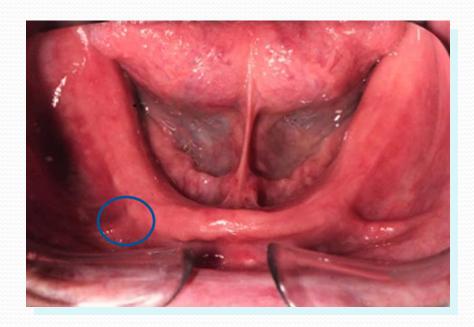
The important external surface landmarks of the mandible are:



 Mental Foramen. The anterior opening of the mandibular canal. The foramen is usually found between and slightly below the first and second bicuspid root tips. The inferior alveolar nerve passes within the mandibular canal and exits onto the exterior surface of the mandible through the mental foramen to become the mental nerve. Compression of the mental nerve by artificial dental replacements must be avoided. It causes a feeling of pain or numbness.

"Mental Foramen

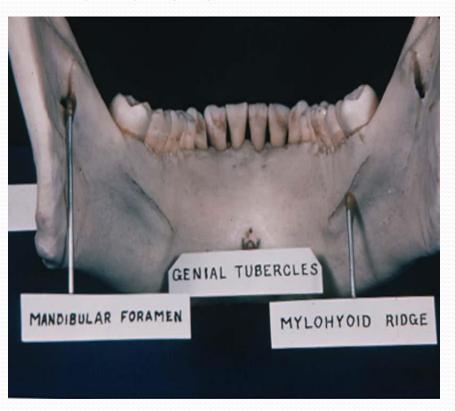
• As described previously, the mental foramen is a hole in bone ordinarily found on the buccal surface of the alveolar ridge. It is located between and slightly below the root tips of the first and second bicuspid teeth. There is no tissue bump over the hole as in the case of the incisive foramen.



When resorption of the alveolar ridge is drastic, the mental foramen is found below the oral mucosa on the crest of the alveolar process. In these cases, relief of the denture is necessary to avoid excessive pressure on the nerve fibers which exit from this foramen, compression results in loss of feeling in the lower lip.

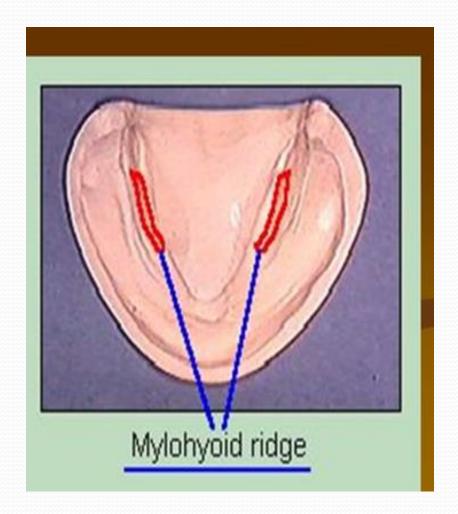
Relief in this case is defined as space provided between the under surface of the denture and the soft tissue to reduce or eliminate pressure on certain anatomical structures.

The significant internal landmarks of the mandible • Mylohyoid Ridge. Locate



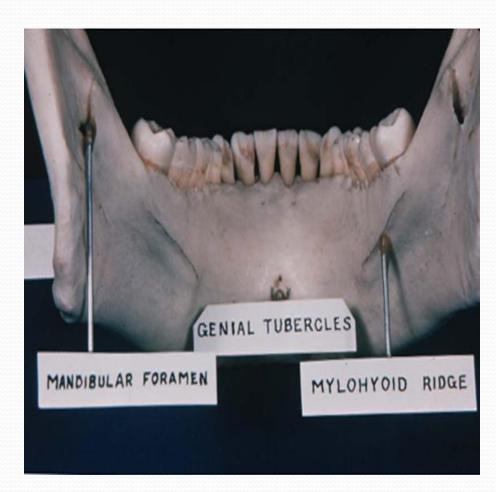
• **Mylohyoid Ridge**. Located on the internal surface of the mandible, the mylohyoid ridge occupies a position similar to the external oblique ridge on the external surface. The mylohyoid ridge passes forward and downward from the internal aspects of the ramus onto the body of the mandible and fades out near the midline. This ridge serves as the lateral line of origin for the mylohyoid muscle (the mylohyoid muscle forms the major portion of the floor of the mouth).

- Following the extraction of the teeth and subsequent resorption, the mylohyoid ridge become more prominent, this can result in mucosal soreness beanth the denture bearing area, the relief is necessary.
- Retro mylohyoid space: located posterior to the mylohyoid ridge, should be recorded very critical for security of mandibular denture



• Genial Tubercles.

Slightly above the lower border of the mandible in the midline, the bone is elevated to a more or less sharply defined prominence forming the genial tubercles.



- Sublingual Fossa. A shallow concavity which houses a portion of the sublingual gland, this depression occurs just above the anterior part of the mylohyoid ridge.
- Mandibular Foramen. The foramen is located in almost the exact center of the inner surface of the mandibular ramus. It opens into the mandibular canal.
- Lingula. A bony prominence on the anterior border of the mandibular foramen.
- **Digastric Fovea**. A depression found on both sides of the midline near the inferior lingual border of the mandible.

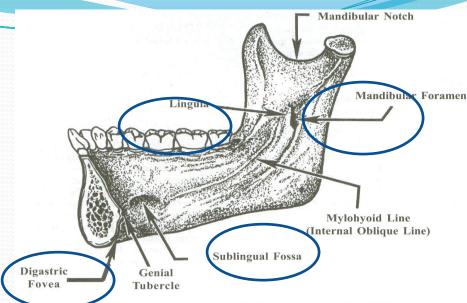
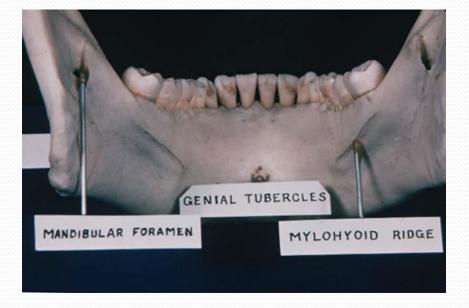
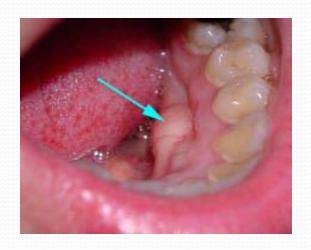


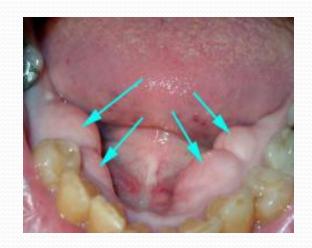
Figure 1-9. Lateral and Medial View of the Mandible

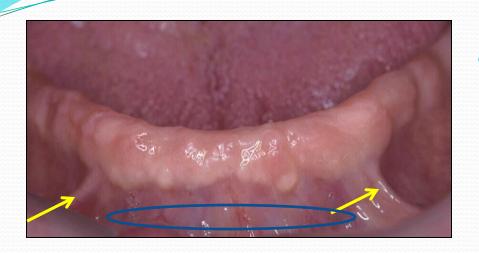


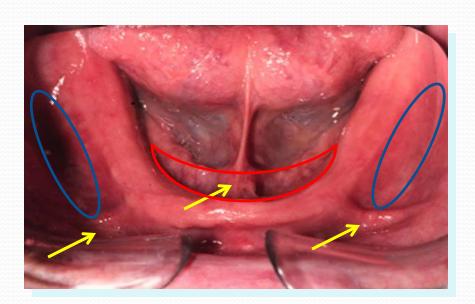
Torus mandibularis

• is a bony growth in the mandible along the surface nearest to the tongue. Mandibular tori are usually present near the premolars and above the location of the mylohyoid muscle's attachment to the mandible.









"Frena

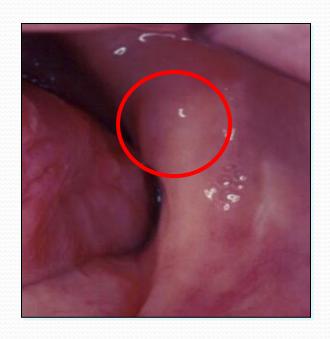
The labial and buccal frena of the mandible are in corresponding positions to their counterparts in the upper jaw. Also, a lingual frenum can be seen in the floor of the mouth when the tongue is raised. The lingual frenum is present in the approximate midline and extends from the floor of the mouth to the lingual surface of the alveolar ridge.

"Sulci

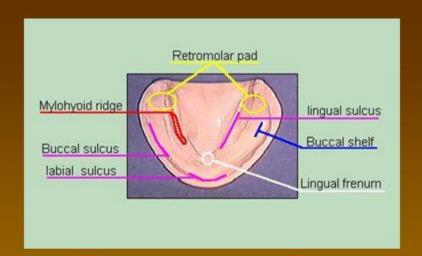
- Labial Sulcus. The labial sulcus of the lower jaw lies at the base of the alveolar ridge between labial and buccal frena.
- Buccal Sulcus. The buccal sulcus extends posteriorly from the buccal frenum to the buccal aspect of the retromolar pad.
- Lingual Sulcus. The lingual sulcus is the groove formed by the floor of the mouth as it turns up onto the lingual aspect of the alveolar ridge.
- Sulci rise and fall with facial expressions and tongue movements.

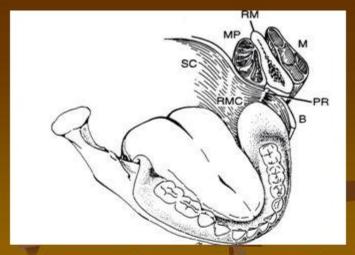
"Retromolar Pad (triangle)

• A pear-shaped mass of soft tissue located at the posterior end of the mandibular alveolar ridge.





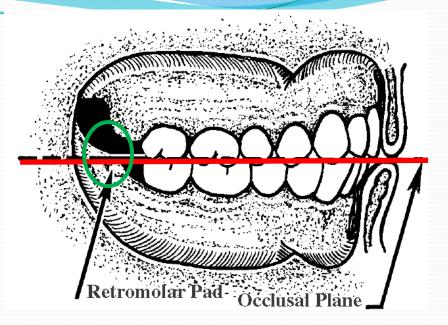




- The retro molar pad is a triangular soft pad of tissue. Its mucosa is composed of thin non keratinized epithelium. It submucosa contains
 - Glandular tissues
 - Fibers of the buccinator and superior constrictor
 - Pterygo mandibular raph
 - Fibers of the temporalis
- Because of theses structures, the denture base should only extend to one half to two third the retro molar pad.

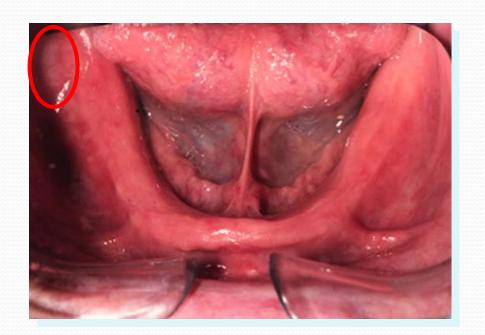
The retromolar pads are important for these reasons:

- When maxillary and mandibular natural teeth are brought together, a plane of contact automatically forms between the occlusal surfaces of the upper and lower teeth (occlusal plane).
- When this plane of contact is projected posteriorly, it intersects with the mandible at two points; one point is on each side of the arch. These points are about two-thirds of the way up the height of the retromolar pads. The position of the pads remain constnt even after the natural teeth are extracted.

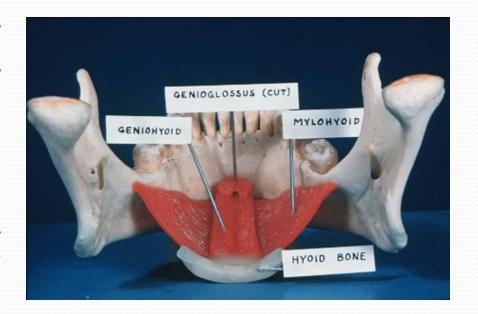


- These facts ensure that the pads are an excellent guide for determining and setting the plane of occlusion between upper and lower denture teeth.
- •The pads serve as bilateral, distal support for a mandibular denture. Covering the pads with the denture base helps reduce the rate of alveolar ridge resorption.

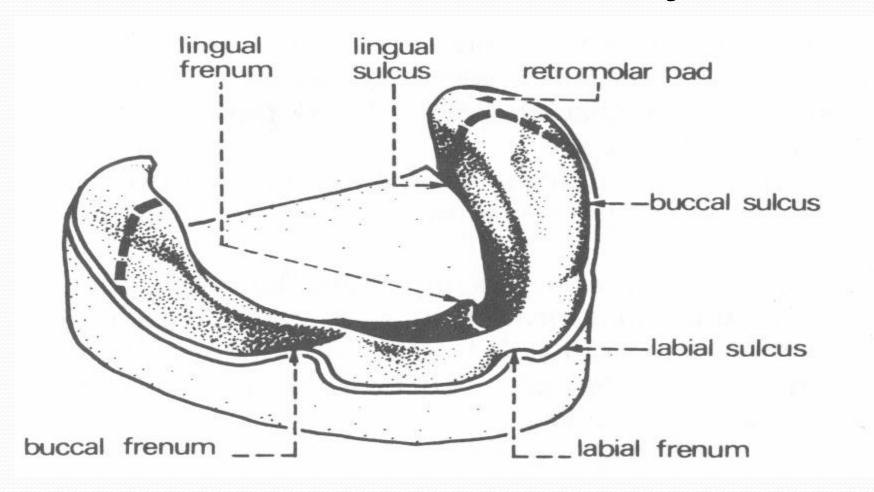
massetric notch area: lateral to the retromolar pad area and continuous anteriorly to the buccal sulcus, overextension of the denture cause the dislogement of denture and laceration



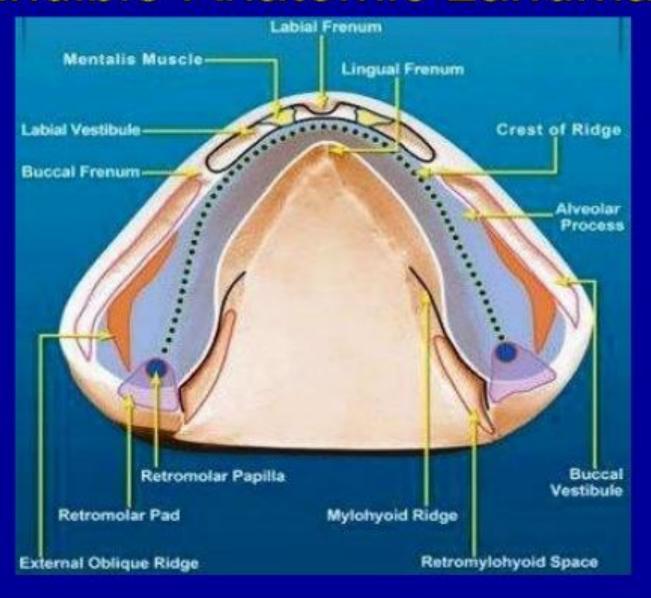
- "Floor of the Mouth
- The anterior two-thirds of the floor of the mouth is formed by the union of the right and left mylohyoid muscles in the midline. The depth of the floor of the mouth in relation to the mandibular alveolar ridge constantly changes due to factors such as mylohyoid muscle contractions, tongue movements, and swallowing activities. The posterior onethird of the lingual sulcus is called the area retromylohyoid space; distally, the area is shaped by the palatoglossus muscle.



Landmarks of the lower jaw



Mandible-Anatomic Landmarks



Relief areas

 Portion of the denture that reduced to eliminate excessive pressure on specific part on the supporting tussue.

In the maxillary arch and palate:-

- Incisive papilla.
- Median raphe.
- Torus palatinus.
- Sharp bony prominance.

In mandibular arch:-

- Genial tubercle
- Sharp mylohyoid ridge
- Crest of a knife edge ridge
- Mental foramen
- Sharp bony prominance

Stress bearing areas

Primary stress bearing areas :-

Able to resist the vertical forces of occlusion, formed of cortical bone.

In maxillary arch:-

- The crest of the ridge.
- The flat areas of the palate.

In the mandibular arch:-

- The buccal shelf area.
- The crest of the ridge if well formed.

secondary stress bearing areas:-

areas that their histological nature and their inclined plane can resist the lateral force of occlusion and aid in resistance to the vertical forces.

In maxillary arch:-

- Rugae area.
- Lateral slopes of the palate.
- Labial and buccal surface of the ridge.

In mandibular arch:-

all ridge slopes.

Thank you

Thank you

Impression Trays

By:

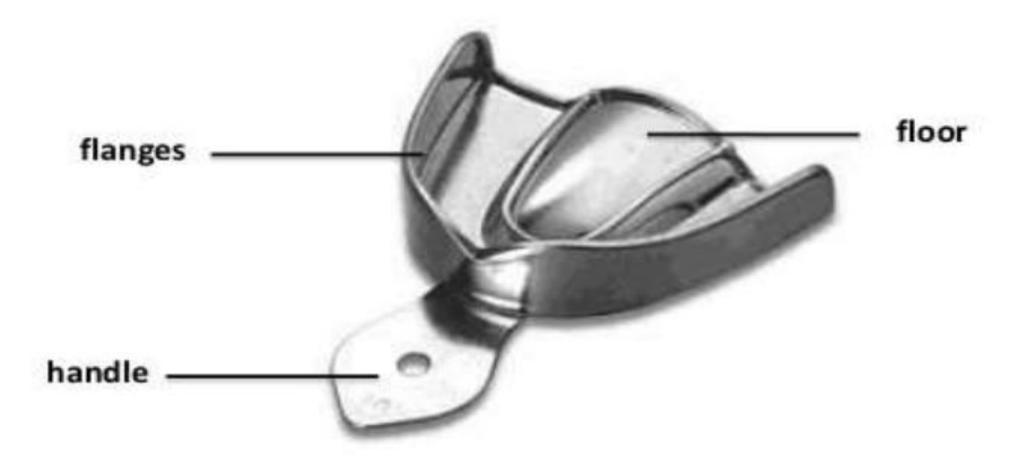
Dr.hala khuder

Impression Trays

<u>Definition</u>: A device that is used to carry, confine and control impression material while making an impression.



Parts of the tray



Requirements Of Impression Trays

- 1- The tray should be rigid and strong but not too thick.
- 2. The tray should simulate the finished denture in size and shape.
- 3. The border extension of the tray should be 2mm short of the vestibular depth with no interference with muscle or frenal attachment.
- 4. The entire borders of the tray should be smooth and rounded.
- 5. The tray should retain its shape throughout the impression procedure and pouring of impression.
- 6. The handle of the tray should be angulated.



Types of Impression Trays

Impression trays can be of various types:

- 1. According to the material used to fabricate the trays:
 - a. Metallic trays (stainless steel, Aluminum)
 - b. Non-metallic trays (plastic trays, acrylic resin trays)





2. According to the method of fabrication of trays:

- A. Stock trays:
 - Full arch trays
 - Sectional trays
 - Quadrant trays

B. Custom trays or Special trays



3. According to the teeth present /absent in mouth:

a. Edentulous trays

b. Dentulous trays





Dentulous Trays – Square Cross-Section For patients with teeth!



Edentulous Trays – Rounded Cross-Section For patients without teeth!



- a. Perforated trays
- b. Non-perforated trays



5-According to whether it can be reused again or not

- a) Disposable trays.
- b) Non disposable trays.





According to the method of fabrication of trays:

■ A. Stock trays

■B. Custom trays or Special trays

Stock trays

Stock trays: Impression tray that serve to carry the impression material to the mouth & support it in the correct position while it is hardening.

This type of the trays can be used for several patients & used for making primary impression.

- I- Materials used for fabrication of stock trays:
- 1- Metal
- * Tin-lead alloy.
- * Stainless steel.
- 2- Plastic

Factors effect in selection of stock tray:

- 1- The type of material used in the primary impression procedure. e.g. impression compound we used non-perforated tray, because it will be stick on the tray. And if we use alginate material we should use perforated stock tray.
- 2- Size of the arch.
- 3- Form of the arch. (round, square, taper).
- 4- The stock tray must covered all the anatomical landmarks needed in complete denture & this is a most important point.
- 5- Stock tray should give a sufficient space to impression material in all direction.

Metal Trays

- Provide maximum support for impression materials
- Rigid
- Durable and long lasting
- Can be perforated or solid
- •Can be used with all elastometric materials

Plastic Trays

- Disposable
- Eliminate cross-contamination
- Can be modified
- Rigid, thick walls to provide lateral support for the tray impression material to prevent distortion when pouring the model

Advantages of Stock trays:

- 1-Rigid and support the set impression material.
- 2- Dimensionally stable.
- 3- Tray is smooth. So, <u>no</u> injury to the tissue.
- 4- Multiple set in several patients.

Disadvantages of Stock trays:

- 1-Dimensionally accurate impression is difficult to make with stock trays.
- 2- No available space for impression material.
- 3- Flanges of these trays may be over or under extended.

THANK YOU

Special tray





By: **Dr.hala khuder**

Special tray

Definition:

Is defined as, "A custom made device prepared for a particular patient which is used to carry, confine and control an impression material while making a final impression"



Advantages of special trays:

- 1. more accurate impression: it shows a fine details of the oral cavity structure.
- 2. more accurate in adaptation to the oral vestibules and this will help to give us more retention for denture.
- 3. it is less bulky than the stock tray and more comfortable to the patient.
- 4. special tray provides even thickness of the impression material . this minimize the tissue displacement & dimensional changes of the impression material .
- 5. less impression material used (less cost)

special tray requirement:

- 1. it should be well adapted
- 2. it should be dimensionally stable
- 3. it should be free from voids and projections. The surfaces should be smooth & have no sharp edges which is caused injury to the patient.
- 4. Should be (2-3) mm in thickness
- 5. it should contain handle (the handle should directed anteriorly)
- 6. Rigid even in thin section (areas) to prevent from fracture.

The material used in constriction:

The material used in constriction:

1. shellac base plate

2. acrylic: - cold cure

- hot cure

- Light cure acrylic resin

3. impression compound (very rare)
Types

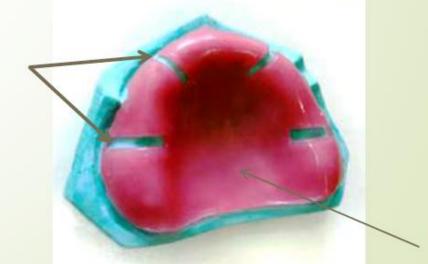
Types of Custom Tray

Close-fit Tray

Tray with spacer and stop



(Openings in the wax where acrylic will flow in *to form stops*)



What is the difference between a close-fit tray and a spaced tray?

<u>CLOSE –FIT TRAY</u>: As the name suggests, it is adapted directly on to the cast without any wax spacer.

Usually used with impression materials that have a light viscosity to obtain a *wash impression*, e.g. light bodied elastomers, ZOE impression paste.

TRAY WITH SPACER AND STOPS: these trays use a wax spacer to provide space for the impression material. This is because impression materials used here need extra space as they have higher viscosity e.g. Alginate, medium and heavy bodied elastomers.

fabrication of custom tray

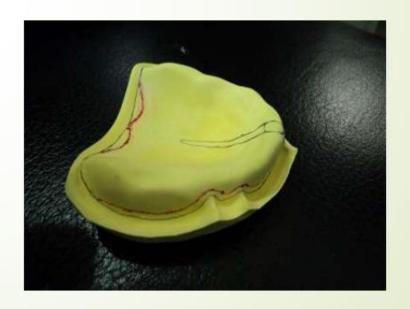
Procedural Steps for custom tray with spacer and stop

- A. Preparation of the primary cast:
 - Undercuts should be find out with the help of surveyor and should be blocked out.



- 2. Outline of the border of the tray should be marked with pencil which is 2/3 mm short of the reflection.
- 3. The relief areas should also be marked in the cast.
- 4. The border of the tray marked on the cast may be grooved deeper using a carver.





B. Adapting the relief wax:

Relief wax should be adapted over the relief areas marked on the cast.



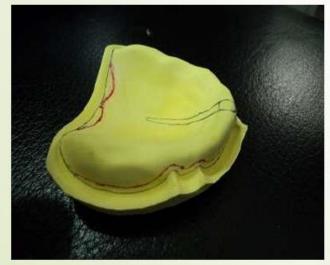


Relief areas are:

In Maxilla	In mandible
Incisive papilla Canine eminence Mid palatine raphe Fovea palatinae Sharp spiny ridges Torus palatinus Bony prominences Undercut ridge	Crest of the residual ridge Mental foramen Genial tubercles Torus mandibularis Mylohyoid ridge

C. Adapting the spacer:

A spacer should be adapted throughout the extent of special tray(coincide with the second line), except posterior palatal seal area in maxilla and buccal shelf area in mandible.







Function of spacer:

- a. The spacer allows the tray to be properly positioned in the mouth during border molding procedure.
- b. To allow the impression to have an even thickness of impression material.
- c. Prevent distortion of the material at final stage.

Materials used in spacer:

- a. Baseplate wax
- b. Non asbestos casting liner

D. The use of stops:

The spacer should be cut out in 2-4 places so that the special tray touches the ridge in these areas.

Location: Usually 4 stoppers are placed,

Size and shape: Stopper can be 2mm square

or

2 by 4 mm rectangle

or

2 mm mesiodistally, palatally over the crest of the ridge and buccally half way into the sulcus



E. Application of separating medium

Apply separating media on the cast so that acrylic resin does not stick to the cast. Applying separating media



F. Acrylization:



then put a uniform layer of acrylic upon it. when remove the wax there is space with 4 stoppers which will stop the special tray in the patient mouth & stop the pressure on material during taking impression procedure.

G. Fabrication of handle:

Criteria of handle:

- 1. The handle should be parallel to the long axis of the teeth that are to be replaced.
- 2. The handle should not arise horizontally from the tray because it may interfere with lip movements.
- 3. It should be 3-4 mm thick, 8 mm long, and 8 mm high.
- 4. The vertical distance from the sulcus to the handle is 2 cm
- 5. The handle upstand must be made long enough for the handle to exit through the oral commissure.
- 6. For mandibular tray two posterior handle should be given as

finger rests.

Functions of handle

- 1. Supports the lip while making impression.
- 2. Tray handles are particularly helpful when loading, placing and orientating custom trays in the mouth.

Functions of finger rest

- Stabilize tray in mouth
- Equal distribution of pressure
- Reduces pressure applied to tissues

The next phase is preparing the tray for border molding procedure:







Tray periphery should be 2 -3 mm thick. The edges should be rounded. The rest of the tray should be about 2 mm in thickness.

Completed Trays





Close-fit Tray

Procedures

Follow all the steps mentioned previously except we skip spacer and stop making.



THANK YOU