



Impression Trays



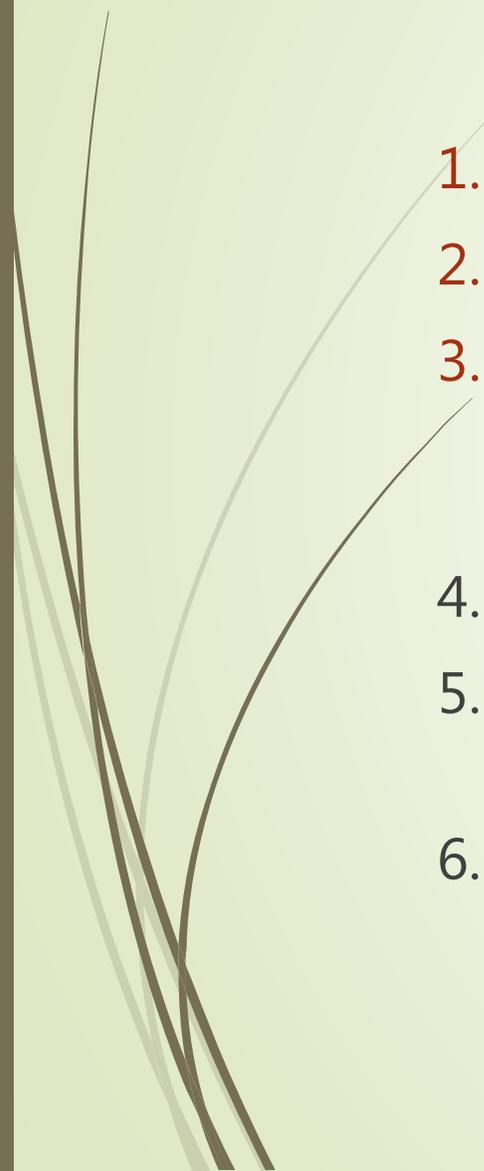
Definition

is a device used to carry, confine & control the impression material from the patient's mouth.

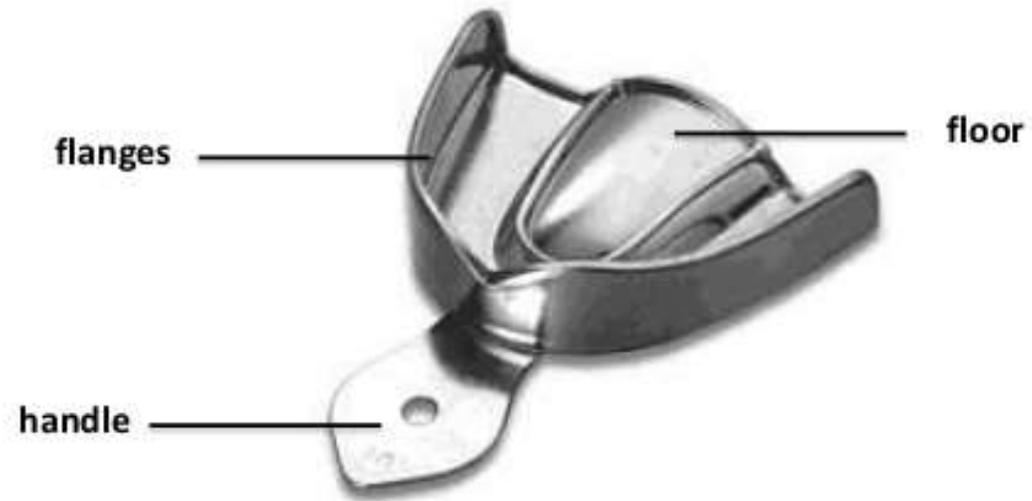
During impression making the tray facilitate insertion & removal of impression material from the patient's mouth.



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.
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Parts of the tray





Classification

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



How can I identify between Dentulous and Edentulous trays?



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



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

4. According to the method of interlocking of material:

- a. Perforated trays
- b. Non-perforated trays
- c. Rim-lock trays
 - i. Water-cooled
 - ii. Non water-cooled





What is the difference between Stock trays and Custom trays?

➤ STOCK TRAYS-

Stock trays are *ready-made* and comes in *specific sizes*. *So stock trays must be selected for best fit.*

They are re-useable after sterilization.

➤ CUSTOM TRAYS

Custom trays are fabricated on the particular patient's cast thereby making it unique to the patient. This is why custom trays always are a better fit than stock trays.

They are useful only for the particular patient- then discarded.



Stock Trays



Definition

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.

They are made of different materials such as Al, Tin, Brass or Plastic, in variety of shapes, size to fit different mouth.



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

Properties

- 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

Properties

- 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





What type of stock tray should I use?

Stock Trays are always selected to the best fit.

This selection is based on -

- ▶ The type of mouth you want to make an impression of-
 - ▶ Dentulous Mouth – *use Dentulous Trays.*
 - ▶ Edentulous – *use Edentulous Trays.*
 - ▶ Partially Edentulous – *use Combination Trays.*
- ▶ Type of impression material you want to use.
 - ▶ Elastic Impression Materials – generally use *Perforated trays.*
 - ▶ Inelastic materials – generally use *Non-Perforated trays.*

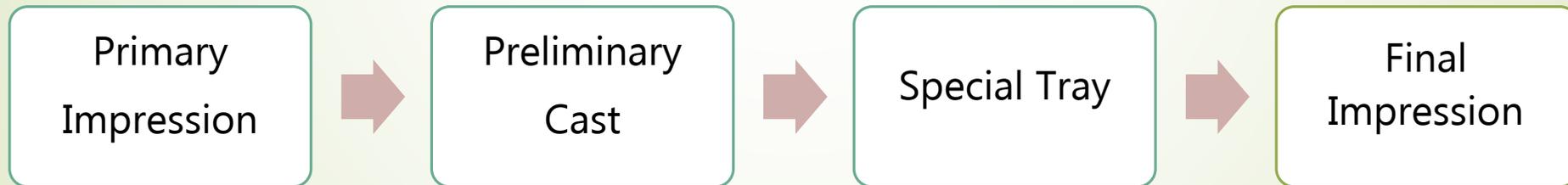


Custom Trays

Definition

An individualized impression tray made from a cast recovered from primary impression.

It is used in making a final impression.



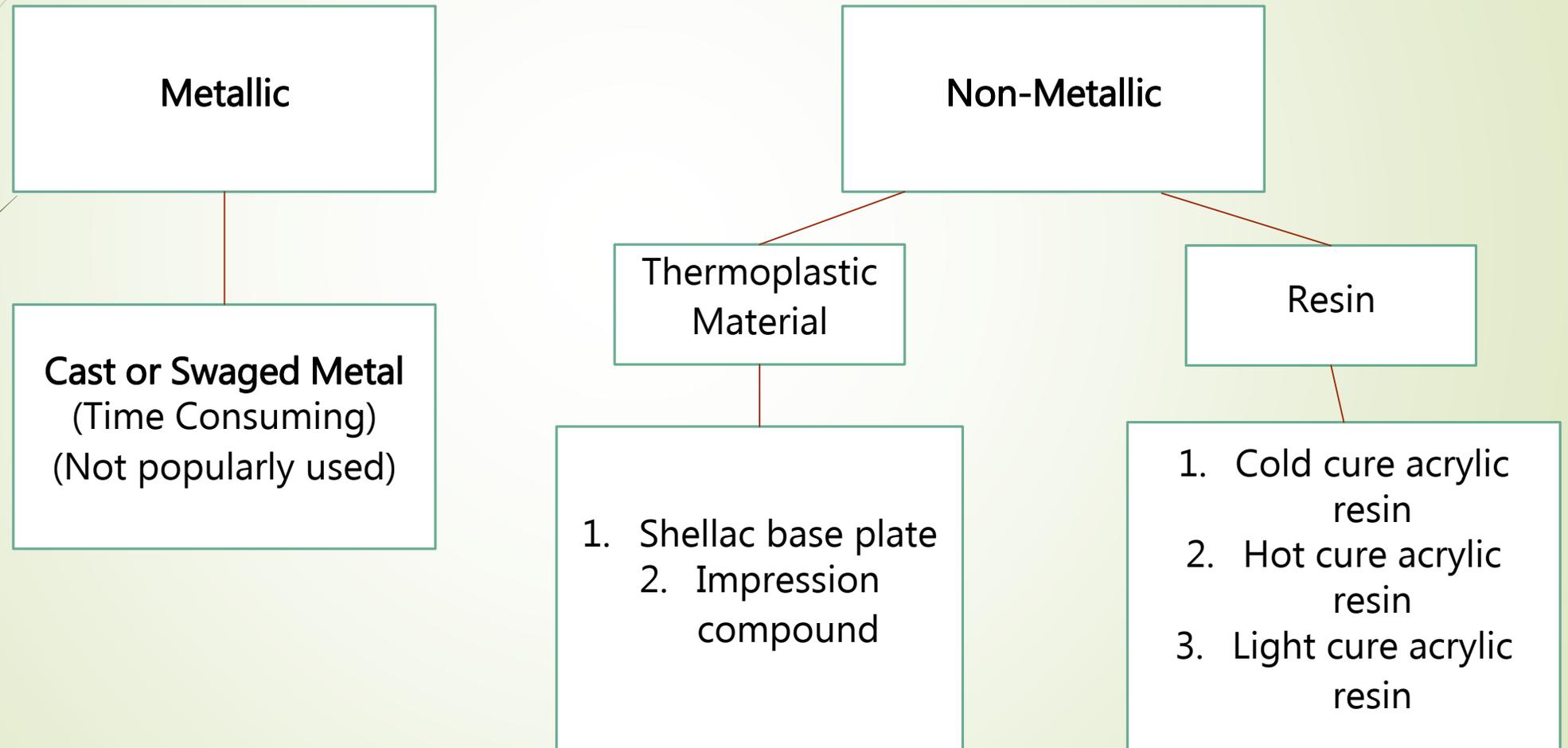




Advantages of special trays:

- 1- Economy in impression material (used less impression material required in special tray).
- 2- More accurate impression.
- 3- Special tray provides even thickness of impression material. This minimize tissue displacement & dimensional changes of impression material.
- 4- The work with special tray is more easier & quicker than modifying stock tray to provide accurate impression.
- 5- Special tray is more accurately adapted to the oral vestibules, this helps in better retention of denture.
- 6- Special tray are less bulky than stock tray which is more comfortable for the patient.

Materials used for construction of special tray:



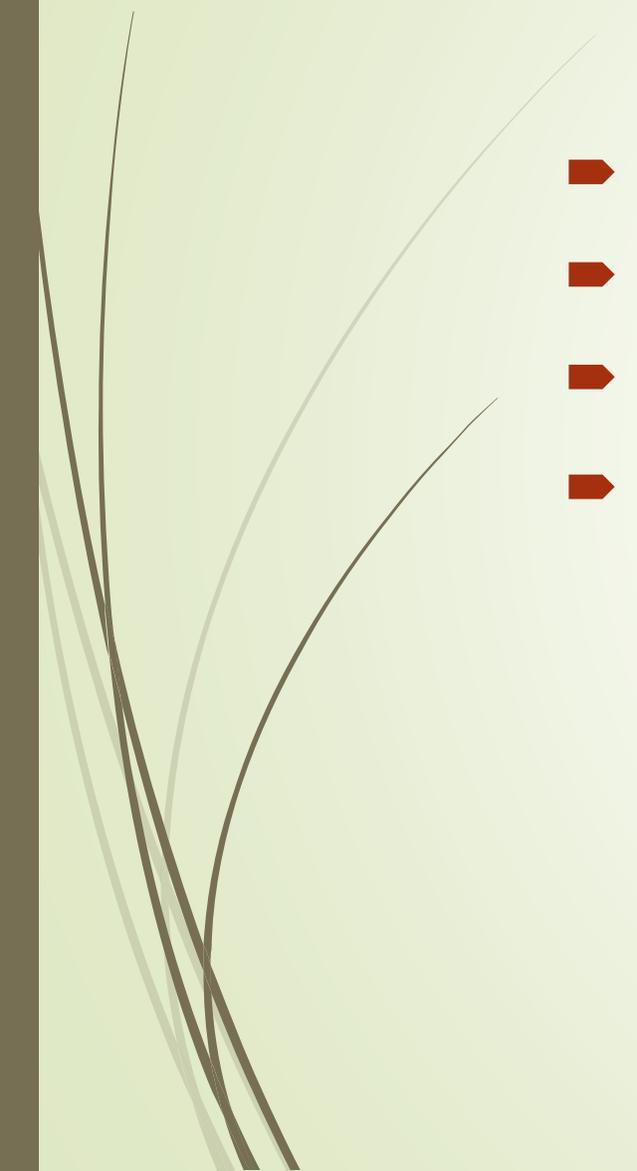


Cold cure acrylic custom tray materials have some disadvantages:

- Polymerization shrinkage
- A time interval must be allowed between the fabrication and the use of these custom trays
- The hazardous effects caused by the monomer (methyl methacrylate) include dermatologic reactions



While Light cure acrylic resin is:

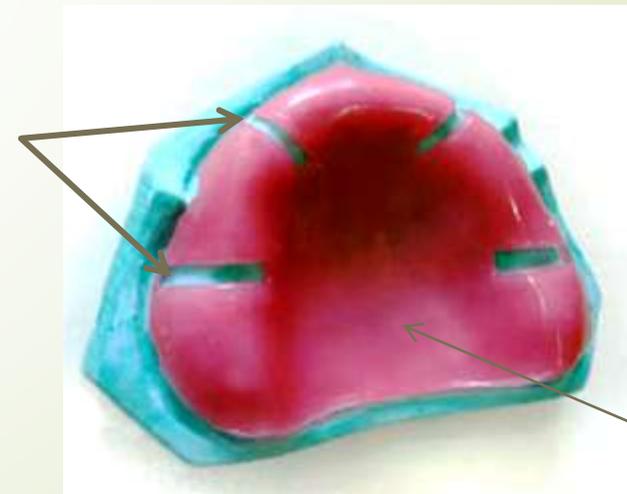
- ▶ less hazardous,
 - ▶ reduces preparation time,
 - ▶ easy to use and
 - ▶ has good handling properties.
- 

Types of Custom Tray

- Close-fit Tray
- Tray with spacer and stop



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



SPACER
(WAX)



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

- ▶ CLOSE –FIT TRAY : 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



Criteria for Special tray construction :

- 1- The impression tray must not impinge upon movable structures.
- 2- The borders must be under extended (2mm) .
- 3- The posterior limits of the impression tray should be slightly over-extended to ensure inclusion of the posterior detail for development of the post-dam area in upper tray.
- 4- The tray should be rigid & of sufficient thickness that it will not fracture during its use.
- 5- The tray must have a handle for manipulation & the handle must not interfere with functional movement of the oral structures.
- 6- The tray must be smooth on its exposed surfaces, and should have no sharp corner or edges which would injury the patient.



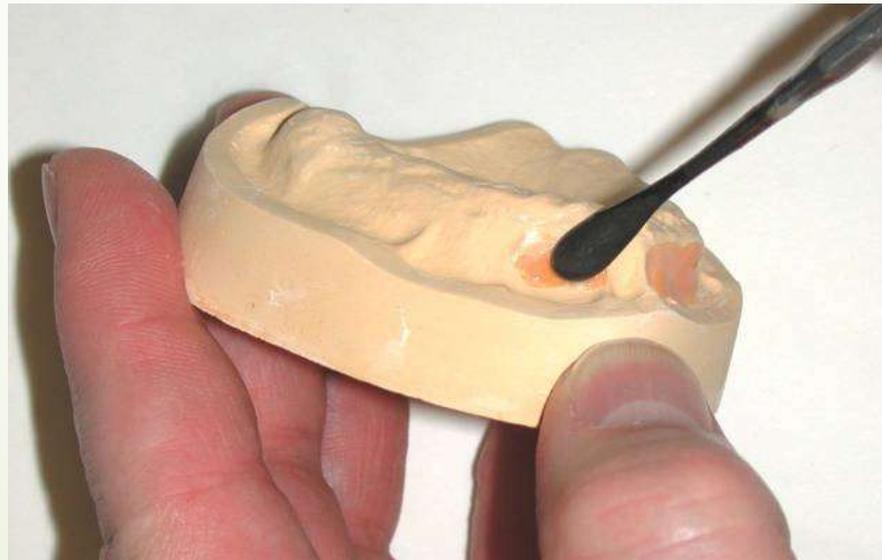
Equipment and Materials needed

Vaseline
Bunsen burner
Straight handpiece
Wax spatula, wax knife
Base plate wax, pink
Pencil,

Procedural Steps for custom tray with spacer and stop

A. Preparation of the primary cast :

1. 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

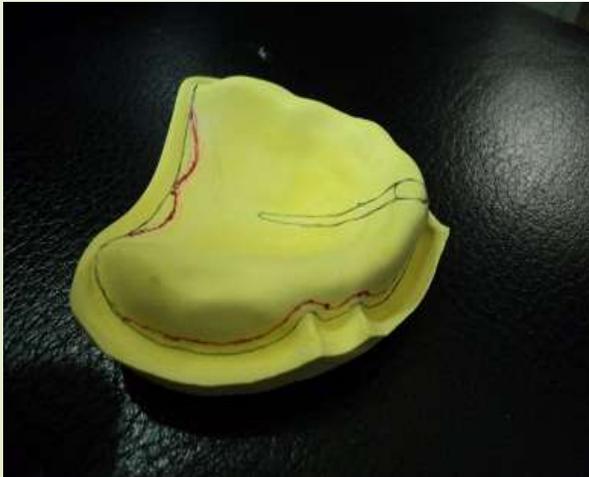
Materials for giving relief:

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



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



Function of Tissue Stops:

1. To orient the tray
2. For uniform thickness of the impression material



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:

Mixing acrylic

- The accepted polymer-to-monomer ratio is 3:1 by volume.





When monomer and polymer are mixed in the proper proportions, a workable mass is produced. Upon standing, the resultant mass passes through five distinct stages.

- (1) Sandy
- (2) stringy
- (3) dough,
- (4) rubbery, or elastic, and
- (5) stiff

Manipulation and Stages



Mixing



Check Consistency



Sandy Stage



Stringy Stage



Dough Stage



Completed Tray



G. Fabrication of handle:

Criteria of handle :

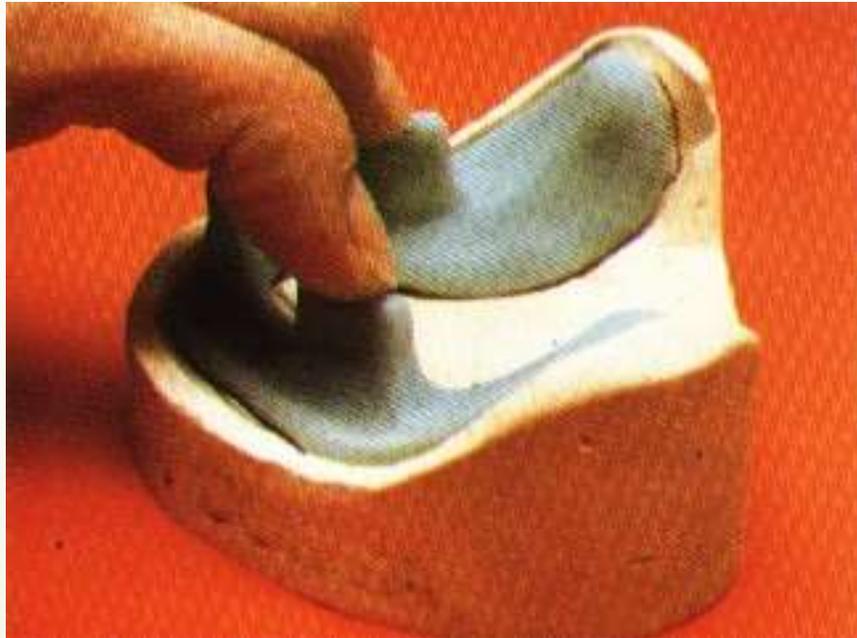
1. The handle should be parallel to the long axis of the teeth that are to be replaced.
2. The handle should not arise horizontally from the tray because it may interfere with lip movements.
3. It should be 3-4 mm thick , 8 mm long , and 8 mm high.

4. The vertical distance from the sulcus to the handle is 2 cm

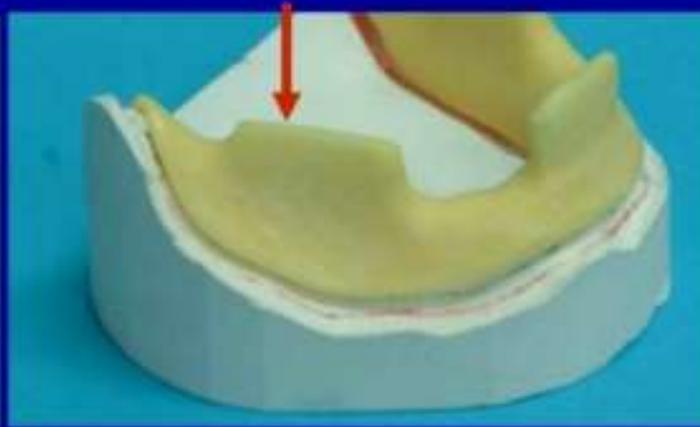
5. The handle upstand must be made long enough for the handle to exit through the oral commissure.



6. For mandibular tray two posterior handle should be given as finger rests.



- The finger rests (arrow) should not impinge upon the tongue space and not extend above the occlusal plane and are placed near the 2nd premolar/1st molar teeth.





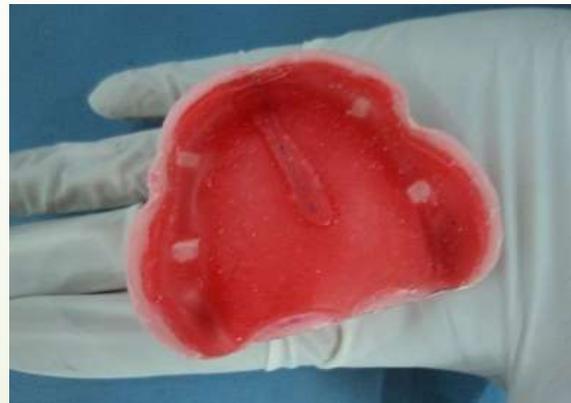
Functions of handle

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

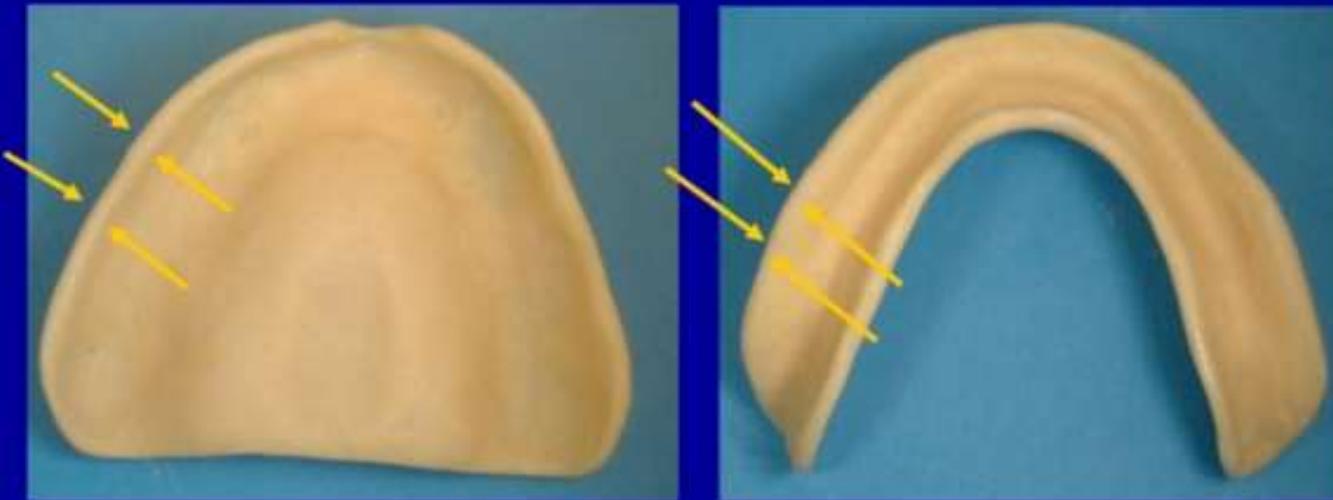
Functions of finger rest

- 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.





Sterilizing trays

- ▶ Trays should be cleaned properly and sterilized before use
- ▶ Disposable trays are recommended
- ▶ Sterilization can be achieved by autoclaving, dry heat or chemical vapors

Thank You

