In complete denture prosthesis we make a primary impression & final or secondary impression. To make an impression we should have a tray.

A tray: 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.

**Parts of the tray:** it consist of :-

1- Body: which consist of : a) floor. b) flanges.
2- Handel.
   • There are upper tray to make impression of upper arch & lower tray to make impression of lower arch.
   • The difference between them is that in the upper tray, there is the palatal portion we called (vault) & in the lower tray there is the lingual flanges.
   • The handle is an extension from the union of the floor & labial flange in the middle region (midline), it's (L) in shape so that it will not interfere with lip during impression procedure.

**Types of trays:** There are 2 main types

1- **Stock tray:** used for primary impression procedure.
2- **Special tray** or individual tray which is used for final impression procedure.

**Stock tray:** Impression trays 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.

**Types of stock trays:**

1- Stock tray for dentulous patient.
2- Stock tray for edentulous patient.

*We can distinguish between them by: stock trays for dentulous patient have long flanges, wide and flat floor, while the other have short flanges, oval and narrow floor.

*Tray with combination flat and oval floor are suitable for partial denture work.

**Stock trays can be classified according to impression material are of two types:**
a) Perforated stock tray used with alginate impression material.

b) Non-perforated stock tray, used with impression compound.

**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 (4-5 mm).

**Special tray (Individual or custom tray):** An individualized impression tray made from a cast recovered from primary impression. It is used in making a final impression.

On the primary cast, special tray is constructed as edentulous ridge show variations of shape & size, some have flattened ridges & other have bulky ridge. So stock tray can fit the ridge only in an arbitrary manner, so special tray is constructed.

**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:**

1- Cold cure acrylic

2- Shellac base plate.

3- Impression compound (some times).

4- Heat cure acrylic (rarely).

**Types of special tray:**

1- Spaced special tray (with stopper or without stopper).
2- Closed fitted special tray.

**Techniques or methods of construction of special trays:**
1. Finger adapted dough method.
2. Sprinkle-on method.

**Finger adapted dough method**

In close fit special tray we used only separating medium on study cast & a self curing acrylic resin tray material is mixed & uniformly adapted over the cast, so that the tray will be about 2-3 mm in thickness. In special tray with stoppers we should have 4 stoppers, 2 at ant. & 2 at post. Area in both sides. A baseplate wax sheet 1mm in thickness is placed on the cast & a window open on the wax sheet in area of stoppers by removing the wax to make the stoppers & then put a uniform layer of self cure acrylic resin upon it. When we remove the wax, there is a space with 4 stoppers which will stop the special tray in the mouth of the patient & stop the pressure on the material during make the impression. Acrylic resin handle is attached in the anterior region of the tray to facilitate removal of the final impression.

**Sprinkle- on acrylic technique:**

This technique used for construction of individualized impression tray. After painting of the study cast with separating medium, the powder of the acrylic resin (polymer) place in a container with a perforated top & place the monomer in a dappen dish. Shake the polymer on the border & other surface of the study cast, then add the monomer from the dappen to saturate the polymer & allow complete polymerization of the special 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.