Lec.14  **Denture Processing Dr.Makarem Almomen**

 **(flasking)**

The festooned wax denture base must be converted to resin to construct a denture. This is done by using the wax denture as a pattern. We make mold to which the denture base is inserted and cured.

**Flasking the denture**:

Is the process that carried out to make a gypsum mold of the try-in denture to replace the wax pattern by acrylic resin to produce finish denture by lost wax technique.

**The flask**: is a metal case or tube used in investing procedures.

**The flask is consisting of:**

1-lower half which contains the cast.

2-upper half.

3-2 covers or lids. the upper lid is larger than the lower lid.

Upper flask: corresponds to the upper trial denture & the upper cast, the line separates the upper &the lower halves is a straight line because the end of the upper cast has the same height as the reminder of the cast.

Lower flask: corresponds to the lower trial denture & the lower cast, the line separate the upper &the lower halves are an inclined line because the lower cast has a high heel area posterior to retromolar pad area, the inclined floor will provide support to the posterior area prevents its fracture during packing & pressure applied.

**Denture processing use two techniques:**

* Compression moulding
* Injection moulding

**Preparation the cast &trail denture for flasking in compression technique(2-layer):**

1-Sealing of the upper & the lower trial denture all over the border of the cast while the casts on the articulator by adding wax to the periphery of the baseplate & the master cast to ensure the gypsum material not enter between the trail denture& the master cast that lead to disturb the records taken from the patient.

2-Soak the cast & the mounting plaster in water a few minute to separate the cast from the mounting plaster, save the plaster mounting as it will be used to reposition the cast on the articulator after the dentures are processed.

3- select a flask that fit accurately with the size of the cast without rocking, then make sure that there is enough space between the incisal & occlusal surface of the teeth & the top of the upper ring about 3-6mm, if there is no space then the cast mast be reduced in thickness.

**Invest the lower half of the flask first:**

a-The inner wall of the flask painted with Vaseline. While the base of the cast is painted with separating medium, to prevent the investment material (plaster) from attaching to the cast.

b- mix plaster to smooth consistency then invest the lower half of the flask and center the cast in the lower half making sure that the base of the cast is parallel to the base of the flask. center the cast in the lower half of the flask.

c-the cast is pushed to place until the bottom of the cast touches the base of the flask. Note that the posterior portion of the cast touches the base of the flask. Note that the posterior portion of the cast is level with the edge of the flask.

d-remove any undercuts in the plaster. Undercuts will prevent the separation of the upper ring from the lower portions of the flask.

e-Any gross excess should be wiped away before the plaster sets and after setting the plaster must be smoothed so that no undercuts will cause breakage during subsequent separation of the other section.

f-All plaster must be removed from the metal edges of the flask, after that a separating medium must be painted over the plaster before adding the upper half of the flask.

**Investing the upper half of the flask:**

a-position the ring (upper portion) of the flask on the lower half of the flask. Make sure that the two sections meet accurately and there is intimate contact between the upper and lower edges of the flask.

b-mix stone or plaster & fill the upper member using a vibrator to get rid of air babbles the plaster or stone must reach the incisal edge& occlusal surface of teeth.

Note in 3- layer flasking:

The upper half of the flask is placed on the lower one correctly, the plaster is poured at the level of occlusal surfaces of posterior teeth and incisal edges of the anterior teeth to prevent movement during processing. then allow the plaster to set and apply a mixture of plaster to fill the upper half of the flask, this procedure is called (capping).

c-the flask is covered with its cover the excess investment material gets out through vents in the cover & around the edges &secure the cast in flask press

d-the plaster is left to set completely for about 45minutes.

**Wax elimination:**

After the complete set of the gypsum the flask in ready for the next step which is "wax elimination":

1-place the flask on a ladle(المغرفة)& lower it into boiling water for 5 minutes. This will soften the waxed denture base, which can be easily removed from the mold when the flask is opened.

2-after 5min, remove the flask from the boiling water & gently open it, insert a wax knife between the lower & upper half & gently separate them.

3-remove the semisolid pieces of the waxed denture base. All the teeth should remain in the top half of the flask. Using more hot(boiling) water to flush out all the remaining wax.

4-Wax solvent can be used with stiff brush to remove any remaining wax on teeth.

5-as soon as possible flush the mold with clean hot water to which a detergent has been added. The detergent will be flush out the wax residue from area that cannot be reached with the wax solvent. Immediately flush the mold with hot water to remove all traces of the detergent solution.

6-it is essential to remove all wax residue. Acrylic resin will not adhere to a surface coated with wax.

7-stand the flask on its side & allow it to dry & cool.

**Packing & curing**

1-separating medium is used on plaster or stone, care should be taken not to paint the teeth with separating medium.

Roles of separating medium:

To prevent the passage of water from gypsum to resin

To minimize the passage of monomer to the plaster

To facilitate separation of the flasks

2-the flask is left to dry & another coat is painted on the flask & also left to dry.

3-heat cure acrylic is used polymer/monomer is mixed according to manufacture instruction. after mixing of the material on clean jar & reach dough stage, its ready for packing.

4-pack the material in the upper half of the flask, being sure to press it well into the area around the teeth. Use enough material to insure over packing on the first closure using nylon sheet. At least two trial closures are done & before the final closure a thin layer separating medium is applied on the cast & the nylon sheet is removed & then the two halves of the flask are closed under pressure by bench press of about 100kg/cm². then the flask is put in spring clamp & the clamp is closed tightly.

5-curing: Polymerization of acrylic resin by heat, the amount of heat must be controlled while processing acrylic resin, type of curing cycle

a-long curing cycle: the flask is heated to 74˚C for 9hours and 100 C for 30min.

b-short curing cycle: the flask is heated to 74˚C for one and half hour, & then boiled (100˚C) for half hour.

**Deflasking:** Is the removal of the mold from the flask, then separate the denture& the cast from the mold. The mold is removed from the flask using a flask ejector after removal of the cover. The cured dentures & their casts have been removed from the mold by using a saw, longitudinal & horizontal cuts are carefully made through the plaster or stone & the pieces are gently removed.