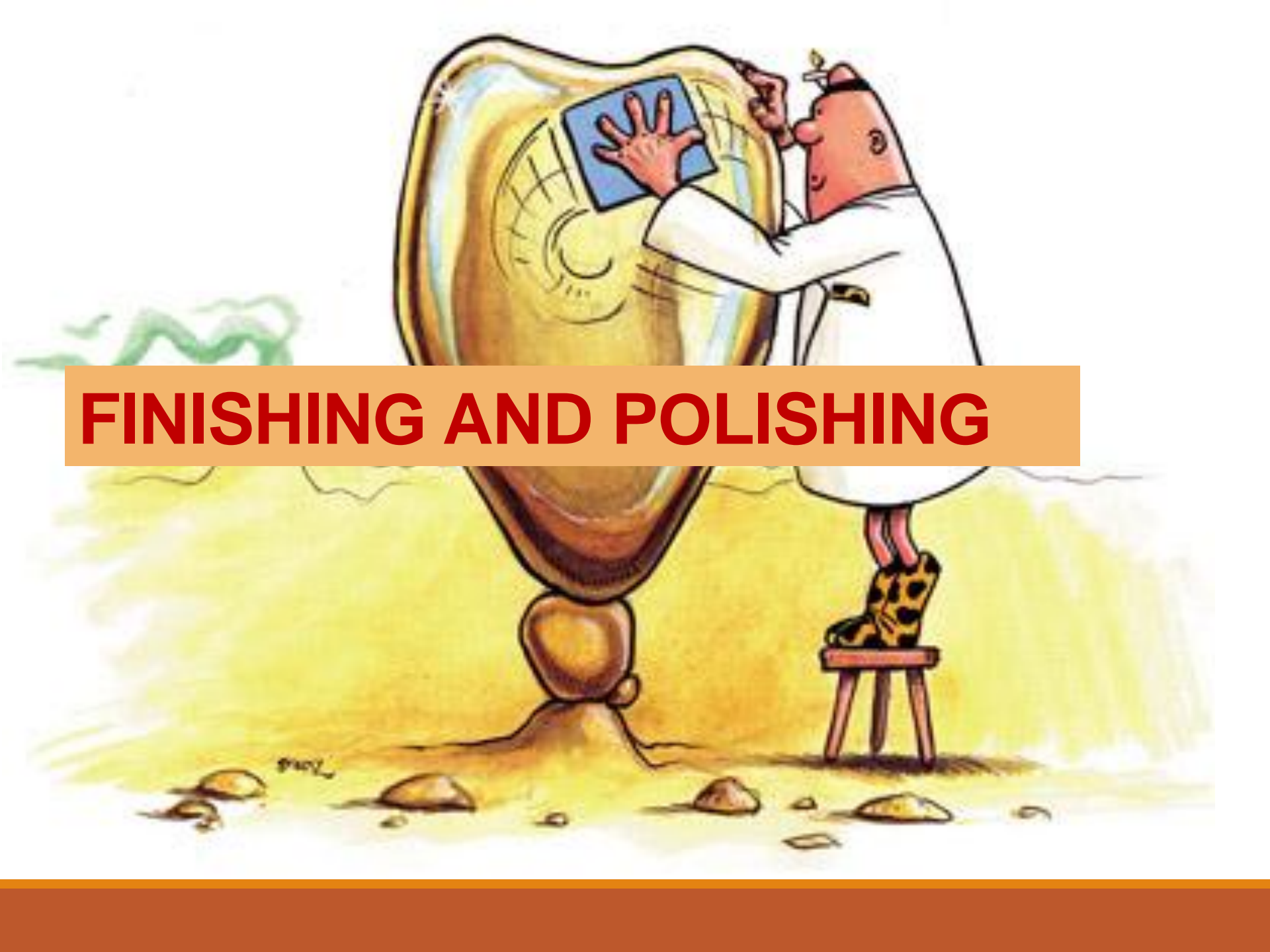


FINISHING AND POLISHING



Finishing and polishing are 2 abrasive procedures commonly used in dentistry

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

Polishing – Process of providing luster or gloss on a material surface.





Purpose of finishing and polishing

Dental restorations are finished and polished before placement in the oral cavity to provide:

Oral health

Oral function

Esthetics

Oral function

Oral function is enhanced with a well polished restoration because food glides more freely over occlusal and embrasure surfaces during mastication and minimizes the wear rates

Aesthetics

Finishing and polishing gives lusture to visible surface of restoration thus increases the optical property of materials.

A high mirror like polish is preferred in highly visible areas such as the labial surfaces of the maxillary anterior teeth



Abrasive Materials

It is a material which is harder than the material which needs to be abraded (restoration or appliance). The abrasive particles should possess sharp edges that cut rough surface of the abraded material.

The abrasive particles could be bonded together to form grinding wheel or may be carried across the surface of bristles of a revolving brush or buff or bonded to a piece of cloth or paper and rubbed across the surface

The smoothness of the surface depends on

1- Hardness and shape of the abrasive particles. The abrasive particles should be harder than the material which is abraded and should be strong and its elastic limit should equal to its maximum strength so that it will fracture cleanly to form new cutting edges without permanent deformation.

2- Size of the particles. Large particles have wide cutting edge and cut more than smaller size, start with large size then fine size.

3- Speed of movement. The slower speed of movement, the deeper the scratches which are produces but in slow speed and in high speed, the total amount of material removed will be approximately the same (1450-3000 rpm).

To increase the speed of the abrasion, it is suggested to use compressed air to blast an abrasive powder on to the surface (sandblasting), it is useful for cobalt/chromium alloy; or to use ultrasonic frequency vibration.

4- Pressure. Always, only slight guiding pressure should be applied, high pressure will lead to increase the rate of wear of the abrasive, also the heat produced.

Pumice: It is fine abrasive, the powder is obtained by crushing pumice stone; porous volcanic rock. It is excellent for denture polymer; it is suitable for gold alloy, tooth surface and amalgam. Pumice powder is mixed with water and sometimes with glycerin with low speed.

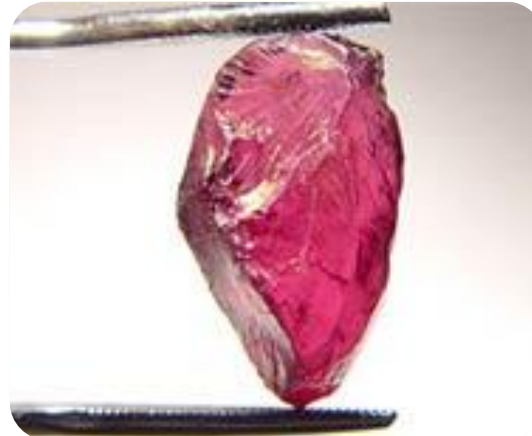


Quartz particles: It is obtained by crushing sand stone and bonded to paper. Grinding tooth enamel and finishing metal alloys.



Sand: It is an intermediate abrasive can be used with high pressure in sandblast machine or in form of sand paper to remove coarse scratches..

Garnet: combination of silicate with (aluminum or magnesium or cobalt).
Used as abrasive in dental polishing disc.



Carbide: It is extremely hard and brittle, used for cutting tooth surface and for metal, ceramic and plastic.



It is natural oxide of aluminum (carborundum).



Diamond dust: most effective abrasive for dental use, diamond chips can embed in a porcelain binder to form diamond disc.



Polishing Materials

polishing materials: It is the material which causes the fine scratches to be filled and to produce smooth surface probably due to that; the rapid movement of the polishing agent across the surface heats the top layer of the material and cause it to flow and fill in the scratches.

Rouge (iron oxide): It is red powder or cake, it is rather dirty to handle, but it produces excellent shine on gold alloy, it is not used with stainless steel, instead we should use chromic oxide.



Whiting (precipitated chalk): It is mild abrasive used for softer materials and polymers, it is mixed with water.



Tripoli: It is obtained from porous rocks.



Tin oxide: It is extremely fine used for polishing teeth and restoration inside the mouth.



Tooth paste (Dentifrices)

Dentifrice pastes are used for removing debris and minor stains from teeth and for polishing tooth surfaces.



The most commonly used **abrasives** are dibasic calcium phosphate dihydrate, anhydrous dibasic calcium phosphate, tricalcium phosphate, calcium pyrophosphate, and hydrated alumina.

Many dentifrices contain **therapeutic agents**, such as sodium fluoride, stannous fluoride, or sodium monofluorophosphate, to decrease the acid solubility of tooth enamel, decrease hypersensitivity, and interrupt the mechanisms of plaque attachment and calculus formation on tooth structure.

Dentifrice pastes additionally may contain **humectants** to reduce evaporation of water, a surface-active detergent, binders, **flavoring and sweetening agents**, and a **preservative**.

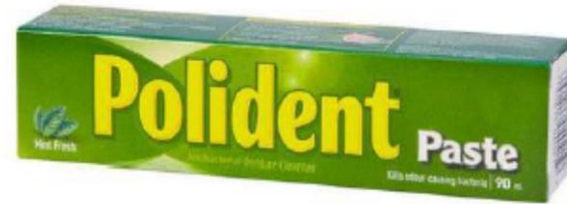
Denture cleaners

Food debris, plaque, calculus, and stains may accumulate on denture base materials in the same way as natural teeth. Soaking in a denture cleanser solution or brushing with or without a paste or powder (with soft brush, soap & water) is usually effective method to keep the denture clean.



Denture cleaner materials

- **Powder and paste**, which consist mainly of finely divided chalk, zirconium or pumice and flavoring agent; it is quite abrasive and should not be used vigorously over a period of time.



- **Peroxide cleaner**, powder or tablets composed of sodium perborate which releases peroxide mixed with alkaline material as trisodium phosphate also detergent and flavoring. When mixed with water it gives an (effervescence) which is responsible for the cleaning action.



- **Dilute hydrochloric acid**, dissolves calcified deposits, it's applied locally to heavily contaminated areas of denture.



- **Dilute hypochlorite solution (chlorine)** should not be used with metals, if high concentration is used it may bleach the polymer if immersed regularly in it.

