



Partial Denture

Denture base

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Lecture 8

Denture base

Materials used for denture base

Requirements of denture base material:

- ☐ strength and chemical stability
- ☐ satisfactory thermal properties
- ☐ processing accuracy and dimensional stability
- ☐ insolubility in and low sorption of oral fluids
- ☐ natural appearance and absence of taste and odor
- ☐ biocompatible
- ☐ color stability and moderate cost
- ☐ easy of fabrication and repair.

Types of denture base material:

1-Acrylic denture base; supplied as:

a-powder-liquid type.

- ☐ Contents of powder:

Contentes	function
1-acrylic polymer	Polymethyle methacrylate
2-initiator	To initiate the polymerization of the monomer (benzoyl peroxide).
3-pigments	Used to obtain tissue like Shade
4-plasticizer	To increase plasticity of the acrylic.
5-inorganic fiber	(Glass fiber) to increase the stiffness; decrease the thermal coefficient of expansion

☐ **Contents of liquid**

1-monomer	Is methylmethacrylate
2-inhibitor	Used to prevent premature polymerization (hydroquinone)
3-accelerator	Tertiary amine for accelerate polymerization.
4-plasticizer	To produce softer, more resilient polymer.
5-cross linking agent	To provides greater resistance to minute surface cracking.

B-Gel type:

These gels have in general the same component as the powder –liquid type, except the liquid and powder have been mixed to form a gel and shape into a thick sheet.

***Types of acrylic denture base:**

- ☐ Light activated denture base
- ☐ Chemically accelerated acrylic denture base
- ☐ Heat activated denture base include:
 - 1-Microwave activated denture base
 - 2-Water bath activated system



Advantages of acrylic denture base

- 1-easy of fabrication and easy of attachment to metal frame work.
- 2-futural relining or rebasing therefore its of main choice in:
 - a-distal extension ridge (CL I,CL II)
 - b –long span ridge
 - c-immediate partial denture

Disadvantages of acrylic denture base

- 1-in adequate mechanical properties
- 2- can only be used as temporary replacement
- 2-Metal denture base

***Types of metal denture base:**

- ☐ Cobalt –chromium
- ☐ Gold alloy
- ☐ Ni-Cr
- ☐ Titanium (pure and alloy)



Indication

- 1- all clinical situations where aesthetic permits
- 2-in patients with reduced intermaxillary space
- 3-deep bite cases
- 4- Patients with acrylic allergy

***Advantages of metal denture base:**

- ☐ Better thermal conductivity as compared to resin.
- ☐ permits the sensation of heat and cold.
- ☐ More biocompatible.
- ☐ Increased accuracy of fit of the denture base on the mucosa of the basal seat.
- ☐ Sense of taste and heat is well transmitted to the tissues giving a natural feel
- ☐ Good mechanical properties.

***Disadvantages of metal denture base:**

- ☐ Greater initial and greater restorative costs
- ☐ Difficulty and expense of rebasing and grinding.
- ☐ Less margin of error permissible in the posterior palatal seal.
- ☐ Elaborate procedure
- ☐ Can not be used in patient who are allergic to metal.

3-Metal-Acrylic resin base

Indication

- 1- where both aesthetic and strength are important
- 2- in most cases except in cases where relining may be necessary.

Advantages

- 1- lighter than all metal denture base, hence better patient comfort
- 2- the base has the strength of the metal and aesthetic of acrylic

Disadvantages

Can not be relined

Types of artificial teeth

- 1-acrylic teeth attached to denture base chemically.

Disadvantages:

- 1-susceptible to wear
- 2-discoloration

2-porcelain teeth attached mechanically by pin

Advantages:

superior esthetic and color but highly brittle and susceptible to fracture

**Types of teeth according to the cusp inclination:**

Occlusal surface of the teeth is vary from flat or non-anatomic teeth(monoplane) to cusp form or anatomic teeth these have different angulation(33-20)

Advantages of cusp teeth

- 1-more efficient in cutting food
- 2-can be arranged in balanced occlusion and eccentric position.
- 3-the cusp-fossae relation ship between upper and lower posterior teeth.
- 4-easthetically acceptable.
- 5-more compatable with the surrounding oral invironement.

Advantages of monoplane teeth

- 1-Used in case of severe resorption of alveolar ridge because it reduces pressure on the alveolar ridge.
- 2-more comfortable
- 3-Used in case of small inter arch space
- 4-Can be used in patient with an coordinated neuromuscular control that jaw relation record not repeatable.
- 5-Less damage to the supporting tissue and offer less resistance to non masticatory movement like bruxisum.

Disadvantages of monoplane teeth

- 1-poor aesthetic
- 2-poor function(there is no tearing of food only milling)
- 3- there is no balance occlusion which effect the function and stability of the denture.

