



Second Stage

1. lecture

Introduction to Prosthodontics

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History of false teeth

- Replacements of lost teeth have been produced for thousands of years
- 1st dentures were 700 BC from ivory & bone
- Silver, gold, mother of pearl
- In 1774, dentures made from porcelain
- The real breakthrough came when vulcanized rubber was discovered
- The discovery of acrylic resin is the next major revolution in prosthodontics.
- Another important milestone in tooth replacement was the introduction of implants.

Definitions

- **Prosthetics:** The art and science of supplying artificial replacements for missing parts of the human body.
- **Prosthodontics (prosthetic dentistry):** Is the dental specialty pertaining to the diagnosis, treatment, planning, rehabilitation and maintenance of the oral function, comfort, appearance and health of patients with clinical conditions associated with missing or deficient teeth and /or maxillofacial tissues using biocompatible substitutes.
- **Prosthesis:** An artificial replacement of an absent part of the human body or a therapeutic device to improve or alter function.
- **Dentulous:** An individual who has his/her natural teeth present.
- **Edentulous:** The individual who has lost his/her natural teeth.

Depending on the number of teeth missing they may be partially or completely edentulous.

- **Dental prosthesis:** An artificial replacement of one or more teeth (up to the entire dentition in either arch) and associated dental / alveolar structures.

- **Fixed dental prosthesis:** Any dental prosthesis that is luted, screwed, or mechanically attached or otherwise securely retained to natural teeth, tooth roots, and /or dental implant abutments that furnish the primary support for the dental prosthesis. This may include replacement of one to sixteen teeth in each dental arch.
- **Removable dental prosthesis:** Any dental prosthesis that replaces some or all teeth in a partially dentate arch (Partial removable dental prosthesis) or edentate arch (Complete removable dental prosthesis). It can be removed from the mouth and replaced at will.
- **Removable partial denture prosthesis:** Any prosthesis that replaces some teeth in a partially dentate arch. It can be removed from the mouth and replaced at will. Also called partial removable dental prosthesis.
- **Complete denture:** A removable dental prosthesis that replaces the entire dentition and associated structures of the maxillae or mandible, called a complete removable dental prosthesis.
- **Objective of complete denture**
 - 1- Restoration of the function of mastication.
 - 2- Restoration of the disturbed facial dimension and contours (esthetics).
 - 3- Preservation of the remaining tissues in health.
 - 4- General physical and psychological well being of the patient, Satisfaction, pleasing and comfort of the patient.
 - 5- Correction of speech due to the loss of the natural teeth.
 - 6- Maintenance of the health of the TMJ



General consideration in complete denture construction

1. From the operator:

- a) Certain degree of diagnostic skills.
- b) Sound knowledge of biological and mechanical principles to provide a patient with complete denture.
- c) Certain degree of artistic ability to achieve good esthetic requirements.
- d) Careful manipulation of dental materials and devices.

2. From the patient:

- a) Co-operation with the dentist.
- b) Some understanding of the limitation of prosthetic restoration.
- c) Patience during the construction, learning and adjustment of the new prosthesis.

3. From the technician: There should be co-operation between clinical and technical procedures.

Complete dentures are composed of the following:

1- Basal or impression surface:

The part of a denture that rests on the foundation tissue (the oral structures available to support a denture) and to which teeth are attached.

2- Denture occlusal surface:

The portion of the surface of a denture that makes contact with its antagonist.

3- Denture polished surface:

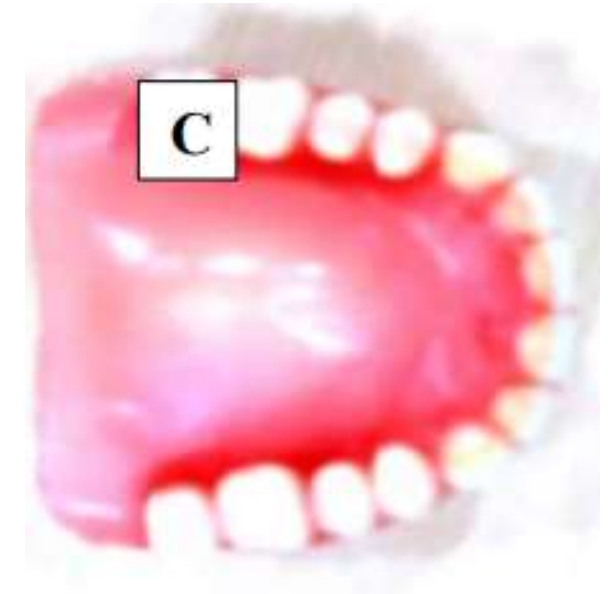
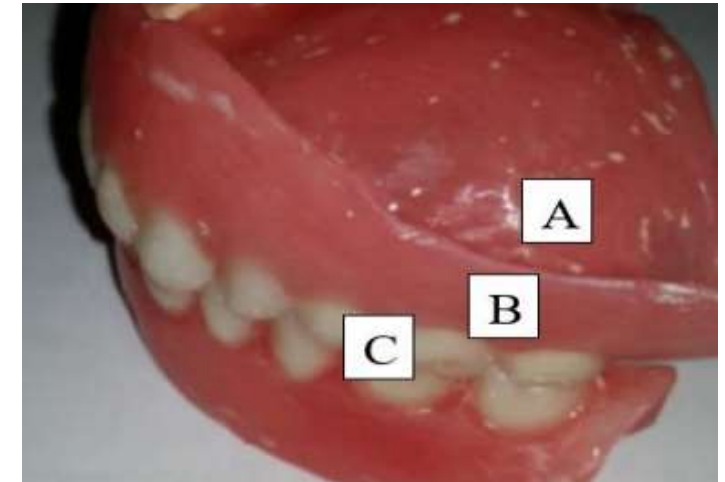
The portion of the surface of a denture that extends in an occlusal direction from the border of the denture and includes the palatal surface. It is the part of the denture base that is usually polished, and it includes those buccal and lingual surfaces of the teeth.

4- Denture border:

The margin of the denture base at the junction of the polished surface and the impression surface.

5- Denture flange:

The part of the denture base that extends from the cervical ends of the denture border.



A- Impression of basal surface.

B- Polishing surface.

C- Occlusal surface.

The residual alveolar ridges

Following loss or extraction of teeth:

- The empty socket fills with clot and gradually replaced with new bone
- The bone around the socket reorganizes
- The mucoperiosteum gradually heals & covers the healing socket
- The remodeling process results in a rounded ridge like structure known as the residual alveolar ridge (RAR)
- The RAR plays a very important role in the construction of the CD



Six orders of residual ridge form

Order I: Pre-extraction

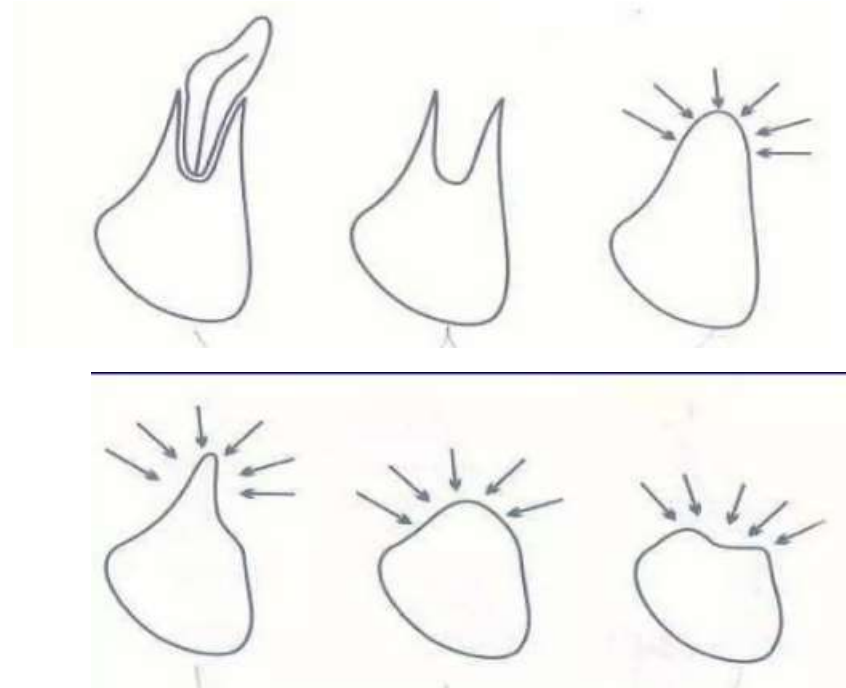
Order II: Post-extraction

Order III: High, well rounded

Order IV: Knife edge

Order V: Low, well rounded

Order VI: Depressed



Rate of resorption

- Most rapid in the first 1 year after extraction and can be as high as 4.5 mm / year.
- After healing of residual ridge, annual rate of reduction in height is about 0.1-0.2 mm in mandible
- Annual rate of reduction in height is about 4 time greater in mandible than in maxilla.

Pattern of resorption

- Maxilla
The resorption is upwards and inwards (smaller)
- Mandible
The resorption is downward and outward (wider)

Masticatory loads

- Significantly lower than that produced by natural teeth
- Natural teeth can produce forces up to 175 pounds but usually 40 to 50 pounds
- Denture wearers: the average force was in the region of 22-24 pounds in the molar-bicuspid region
- CD wearers are able to generate forces that are only 10-15% of those with natural teeth