REMOVABLE PARTIAL DENTURE INTRODUCTION

Prosthodontics is the branch of dentistry pertaining to the restoration and maintenance of oral function, comfort, appearance, and health of the patient by the restoration of the natural teeth and/or replacement of missing teeth and contiguous oral and maxillofacial tissues with artificial substitutes Prosthodontics has four major divisions:

1-Removable prosthodontics

2-Fixed prosthodontics

3-Maxillofacial prosthodontics

4-Implant prosthodontics

All divisions deal with the replacement of an absent part of the oral and/or perioral structure with an artificial prosthesis. A complete denture is prosthesis for replacing all missing natural teeth and associated structures of the mandible or maxilla. A fixed partial denture is a restoration replacing one or more teeth that is not readily removed by the dentist or patient. It is fixed to natural teeth, roots or implants that serve as the primary support apparatus. A removable partial denture is a dental prosthesis that replaces teeth and associated structures in a partially edentulous dental arch. The dentist and the patient can remove it from the mouth easily.

Natural teeth and/or mucosa can support it. Maxillofacial prosthetics is the art and science of anatomic, functional, or cosmetic reconstruction by means of non-living substitutes of those regions in the maxilla, mandible and face that are missing or defective because of surgery, trauma, and pathosis, developmental or congenital malformation. Implant prosthodontics is the phase of dentistry concerning the restoration phase following implant placement.

Removable partial denture prosthodontics includes:

1. Evaluation of the patient's medical and dental history.
2. A thorough clinical examination of the patient to accurately determine their dental needs.
3. Preparation of the oral soft and hard tissues and the patient for a removable partial denture (RPD)

4. Fabrication, fitting and adjusting the RPD to the patient's oral structures.
5. Education and training of the patient in proper home care of the RPD, and maintenance of the RPD to continue to provide the patient with optimal oral health.

The objectives of removable partial denture treatment are:

1. To preserve the hard and soft tissues of the dental arch those are remaining.
2. To provide the patient dental comfort.
3. To restore and preserve masticatory function.
4. To contribute to the restoration and maintenance of the physical and mental health of the patient.
5. To restore and preserve phonetic and esthetic functions for the patient.

INDICATIONS FOR FIXED PARTIAL DENTURES

1. Tooth bounded posterior edentulous regions. Usually unilateral posterior edentulous spaces bounded by abutments relatively parallel and of short to moderate span. The abutment teeth should also have good periodontal support.
2. Modification spaces. isolated or pier abutments are candidates for restoration with a fixed partial denture, eliminating part of the edentulous space. Isolated abutments are poor candidates to support an RPD due to the potential in increased torqueing action around the long axis of the tooth. This is more critical in the mandible than the maxilla due to the availability of the palate as a potential support area, which significantly decreases the anterior posterior movement of the RPD, compared to the mandible.
3. Anterior modification spaces. Frequently missing anterior teeth are best replaced by the use of a fixed restoration, provided periodontal support is adequate and the residual ridge is close to normal contour. The elimination of the anterior modification space helps simplify the RPD design.

INDICATIONS FOR REMOVABLE PARTIAL DENTURES

1. Replacement of teeth in distal extension situations.
2. Following recent extractions as an interim basis during healing.
3. On a long edentulous span where Ante's Rule cannot be satisfied.

4. Where cross-arch bilateral bracing is needed. This may be indicated in a dental arch weakened by periodontal disease.
5. Esthetics in the anterior region. Sometimes a better esthetic result can be obtained using an RPD over a fixed restoration, especially when there is loss of soft/hard tissues surrounding the abutment teeth.
6. Excessive loss of the residual ridge is more easily compensated for and more esthetic with replacement by an RPD with an acrylic resin base.
7. Economic considerations of the patient. Most often, it is least costly to the patient to restore a full arch with a removable partial denture than with fixed restorations. The patient's financial status and desires must be considered.

Problems in Failure to restore lost natural teeth: If missing teeth are not replaced, the following problems may occur:-
1- Over eruption (super- eruption) of the opposing teeth, this may cause trauma to the alveolus.
2- Drifting and tilting of the teeth may lead to malocclusion.
3- Decreased masticatory Functions: the tooth in the alveolar bone that has lost its antagonist will be out of service! So, by the replacement of only a missing tooth, functionally we replace two teeth.
4- Cranio-mandibular disorders (i.e. problems related to the T.M joint) such as imbalanced movement due to overloading of the remaining teeth and mucosa.
5- Poor oral hygiene.
6- Speech Problems leading to psychological problems.
7- Esthetic problems.

Types of R.P.D.:-
1- Metallic P.D.: The major connector is metal such as cr/co.
2- Acrylic P.D.: less scientific and less cost (Temporary P.D.) Partial denture according to supporting should be either:-
a- Tooth born P.D. (in bounded saddle) its support from the remaining teeth.
b- Tooth tissue born P.D. (in free end saddle) its support from teeth and mucosa.
c- Tissue born P.D. (its support from mucosa as in acrylic partial denture.

The Tooth Supported RPD

Tooth supported RPDs receive all their support from the abutment teeth. Retention is derived from direct retainers on the abutment teeth and bracing is provided by contact of rigid components of the framework with natural teeth. Tooth supported RPDs do not move appreciably in function. Most tooth supported RPDs have a cast metal major connector, although sometimes it is possible to construct a tooth-supported interim RPD with a plastic major connector and wrought wire rests and/or transocclusal clasps. The principles of design of tooth supported RPDs is relatively noncontroversial and similar in many respects to the principles of design of FPDs. In laypersons vocabulary the tooth supported RPD is referred to as a "REMOVABLE BRIDGE". This is a nonprofessional term that should be avoided.

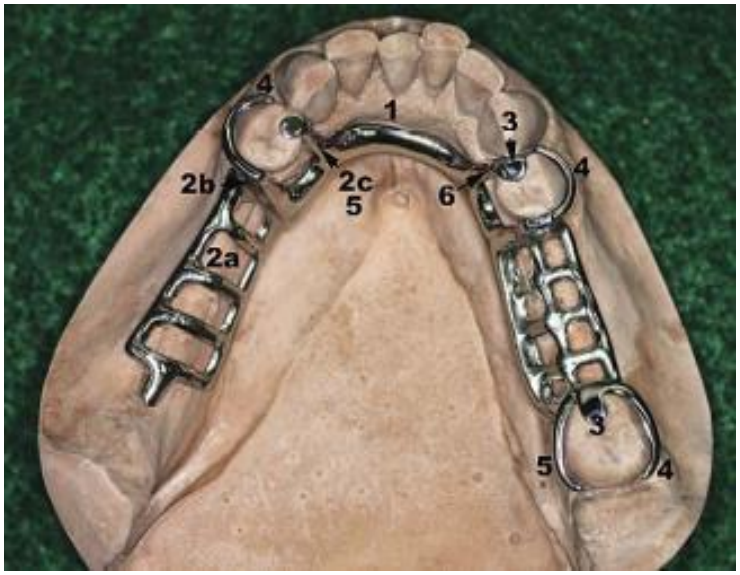
The Tissue Supported RPD

Tissue supported RPDs are primarily supported by the tissues (mucosa overlying bone) of the denture foundation area. They may obtain some tooth support by contact of the denture above the height of contour of the natural teeth. Tissue supported RPDs usually have plastic major connectors and are, therefore, usually interim RPDs. Tissue supported RPDs will move in function because of the resiliency of the mucosa. Retention for tissue supported RPDs is customarily provided by wrought wire retentive clasp arms on selected natural teeth, contact of the plastic denture below the height of contour of the natural teeth, and by those factors which provide retention of complete dentures, i.e gravity (for mandibular RPDs), interfacial surface tension, neuromuscular control, etc. Bracing is provided by contact of the denture with the denture bearing tissues and the natural teeth, supplemented by contact of the tongue, checks and lips with the polished surface of the denture. The tissue supported RPD is essentially a complete denture with some remaining natural teeth. Tissue supported RPDs have the potential to cause soft tissue damage and periodontal attachment loss and accordingly

should be used for only a short period of time (one year or less) while a FPD, definitive RPD or implant prosthesis is constructed.

The Tooth-Tissue Supported RPD

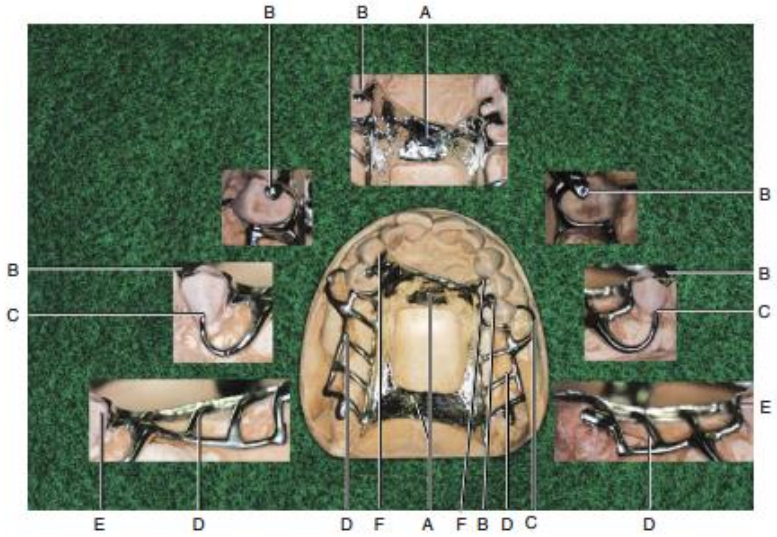
The tooth-tissue supported RPD is supported at one end by natural teeth, which essentially do not move, and at the other end by the denture bearing tissues (mucosa overlying bone) which moves because of the resiliency of the mucosa. The design of the tooth-tissue supported RPD is one of the most controversial topics in prosthodontics. Several philosophies with specific RPD designs or construction technics have been suggested to compensate for the difference in support provided by the natural teeth and denture foundation tissues.



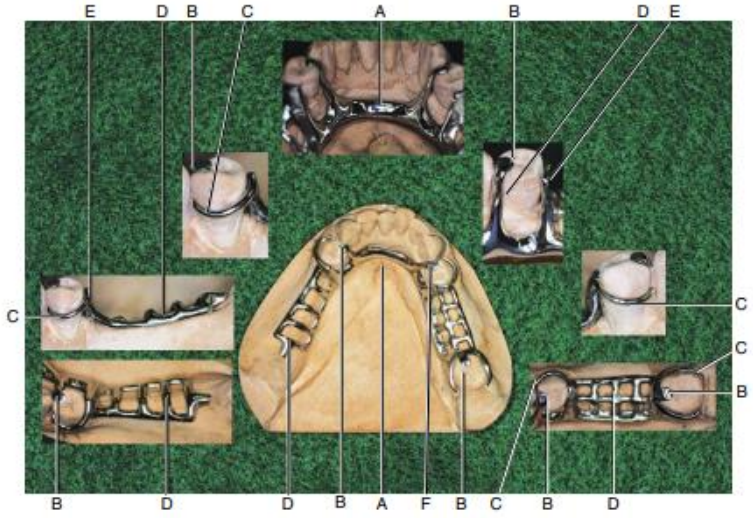
Component parts of the removable partial denture:

1-Major connector
2-Minor connector
3-Rests
4-Direct retainers
5-Indirect retainers
6-Reciprocations

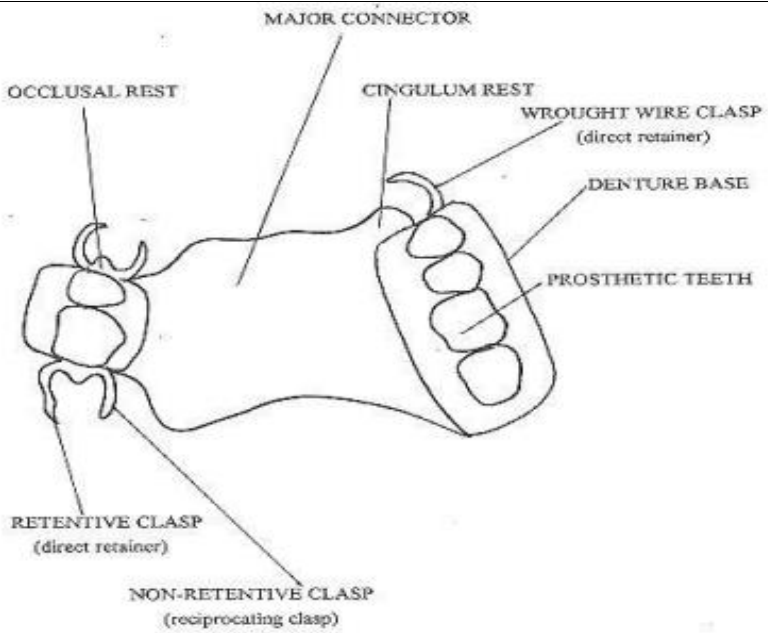
7-Denture base



Maxillary framework designed for a partially edentulous arch with a Kennedy Classification I (see Chapter 3). As in Figure 1-2, component parts are labeled for identification. **A,** Major connector. **B,** Rests. **C,** Direct retainer. **D,** Minor connector. **E,** Guide plane. **F,** Indirect retainer.



Mandibular framework designed for a partially edentulous arch with a Kennedy Classification II, modification 1 [illegible]. Various component parts of the framework are labeled for identification. Subsequent chapters will describe their function, fabrication, and use. **A,** Major connector. **B,** Rests. **C,** Direct retainer. **D,** Minor connector. **E,** Guide plane. **F,** Indirect retainer.



Retentive arm engage the desirable undercut area and the reciprocal arm above the surveying line.