



**partial denture**

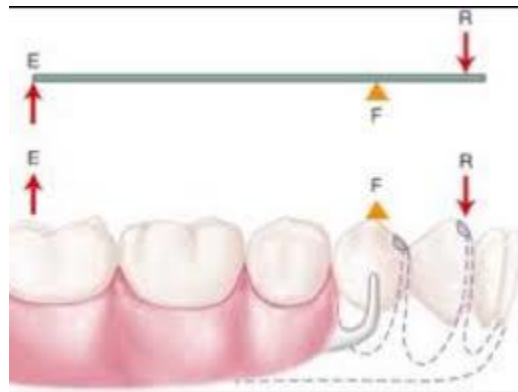
# **Indirect retainer**

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**Lecture 6**

## Indirect retainer

**indirect retainer:** part of removable partial denture assist the direct retainer in preventing movement of an extension denture base by functioning through lever action on the opposite side of the fulcrum line.



### Function of indirect retainer

it shifts the fulcrum line away from the point of application of the force, thereby counteracting the lifting force and stabilizing the denture.

### Other function of indirect retainer:

- 1- Reduce anteroposterior tilting on abutment.
- 2- Aids in stabilization against horizontal movement.
- 3- May act as auxiliary rest to support the major connector.
- 4- Anterior teeth supporting indirect retainer are splinted against lingual movement.
- 5- It may provide the first sign for the need of relining an extension base partial denture as deficiencies in basal seat support are manifested by the dislodgement of indirect retainers from their prepared rest seat when the denture base is depressed

**Fulcrum line:** imaginary line passing through the teeth and component part of partial denture around which the denture rotates slightly when subjected to various force directed toward or away from the residual ridge.



### **Types of Fulcrum lines**

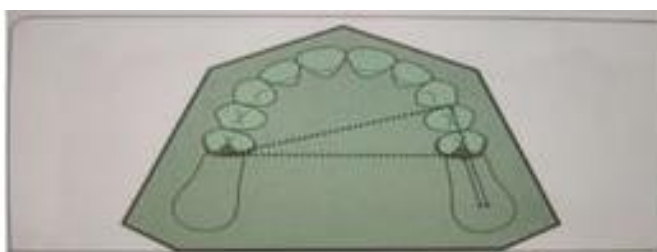
#### **a) Retentive fulcrum line**

An imaginary line connecting retentive points of clasp arms, around which denture tends to rotate when subjected to force such as the pull of sticky foods

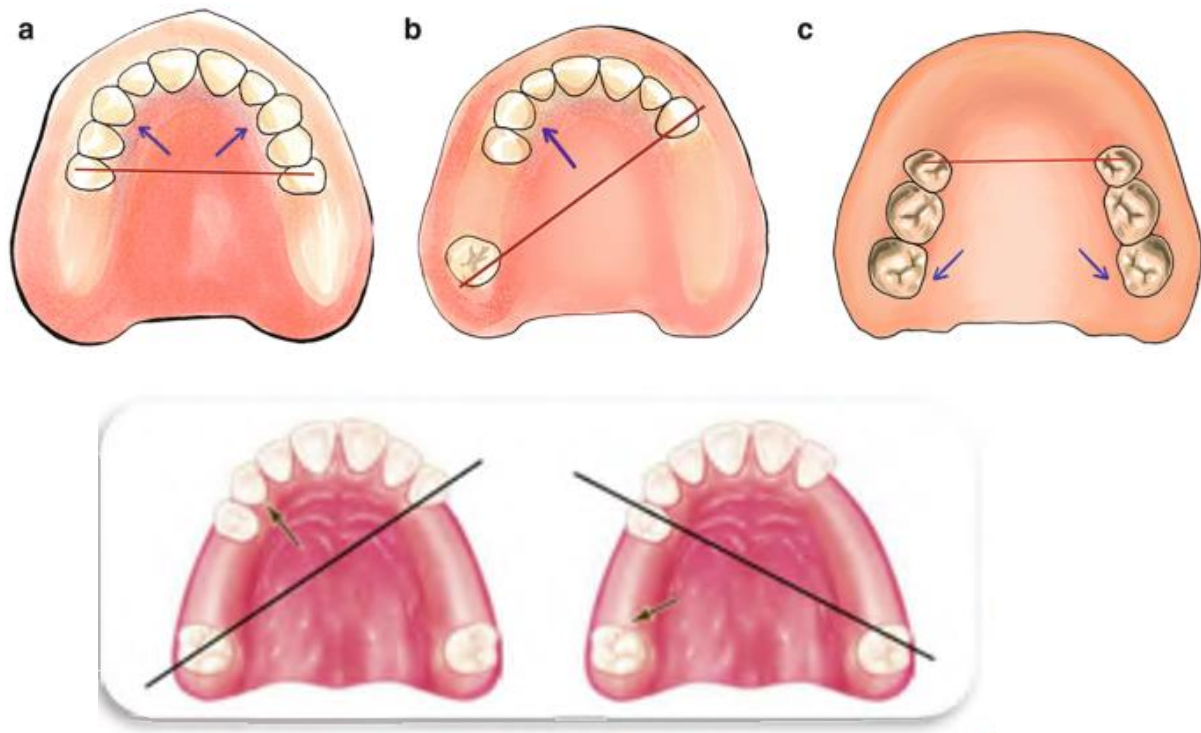


#### **b) Stabilizing fulcrum line**

An imaginary line connecting occlusal rest, around which denture tends to rotate when subjected to masticatory forces



**Note :** Indirect retainer are used in CI I and CII partial dentures, also any CI III and CIV partial dentures that dose not have adequate abutment support may need indirect retainer



### **Factors influencing effectiveness of Indirect Retainer:**

- 1- Effectiveness of direct retainer with main occlusal rests on the primary abutment teeth.
- 2-Distance from the Fulcrum line; three areas must be considered:
  - a-Length of the distal extension base.
  - b-Location of the Fulcrum line.
  - c-How far beyond the Fulcrum line the indirect retainer is placed.
- 3- Rigidity of the connector supporting the indirect retainer.
- 4- Effectiveness of the supporting tooth surface (tooth incline and weak teeth should never be used for indirect retainer)

### **Forms of the Indirect Retainer:**

- 1-Auxiliary occlusal rest: the most frequently used indirect retainer is an auxiliary occlusal rest located on an occlusal surface and as far away from the Fulcrum line as possible.

**1- AUXILIARY OCCLUSAL REST**


- Most frequently used.
- Located on the occlusal surface **far away** from distal extension denture base.
- It is placed **perpendicular** to the midpoint of the fulcrum line.
- Ideal location is **central incisor**, which is **weak**, therefore bilateral rests on **first premolars** are effective.
- Rests on premolars **do not interfere with tongue movements**.

**In Kennedy's class1**

- Bilateral rests on mesial fossa of first premolars.

**In Kennedy's class2**

- Mesial fossa of first premolar on opposite side.



## 2- Canine extension from the occlusal rest:

A finger extension from a premolar is placed on the prepared lingual slope of the adjacent canine tooth. (This is used when first premolar must serve as a primary abutment).

**Canine Extensions From Occlusal Rests**

Occasionally a finger extension from a premolar rest is placed on the prepared lingual slope of the adjacent canine tooth\*



**3-Canine rests:** when the mesial marginal ridge of the first premolar is too close to the Fulcrum line, a rest on the canine tooth may be used.



#### **4- Continuous bar (cingulum bar) and linguoplates major connector:**

In Class I and Class II partial dentures, cingulum bar or linguoplates may extend the effectiveness of the indirect retainer if it is used with a terminal rest at each end.

**5-Rugae support:** some authorities consider coverage of the rugae area of the maxillary arch as a means of indirect retainer because the rugae area is firm and usually well situated to provide indirect retainer.



**6-Modification area:** the occlusal rest on a secondary abutment in a Class II partial denture may serve as an indirect retainer, and this depend on how far from the Fulcrum line the secondary abutment tooth is located.



### **7-Direct –indirect retainer:**

Sometime, the reciprocal arm of a direct retainer located anterior to the Fulcrum line may also act as an indirect retainer

