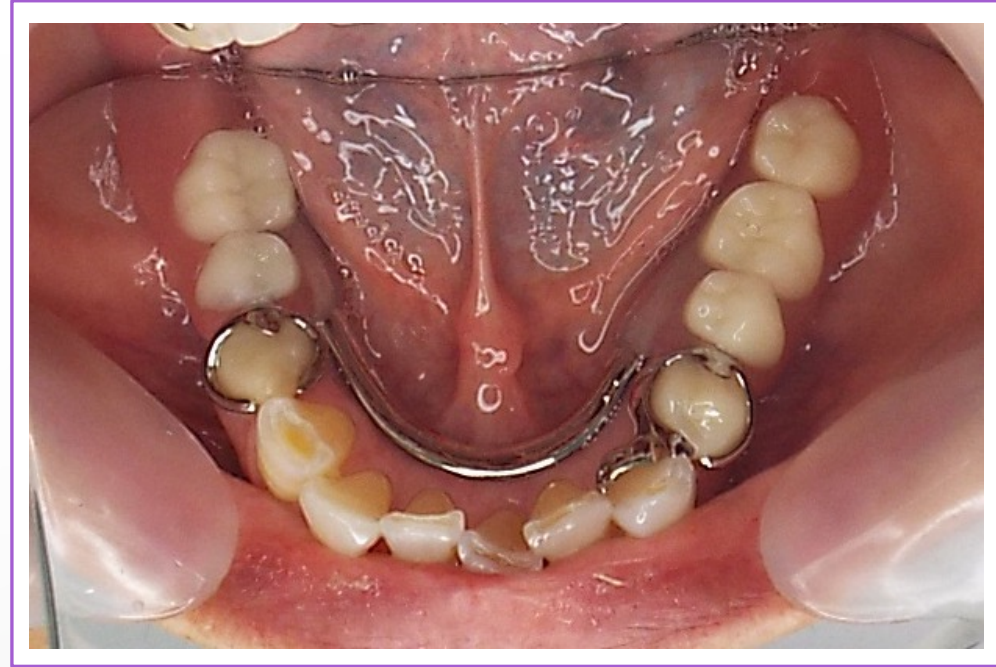


Topics of Denture

- A. How to use the Perfect-STOX
- B. Maxillary impression procedures
- C. Mandibular impression procedures
- D. Difficult case of complete denture
- E. Placement of direct retainers and indirect retainer
- F. Design of direct retainers
- G. Design of indirect retainer
- H. Preparation of abutment tooth
- I. Design of major connector



Placement of direct retainers and indirect retainer

Contents

1. Principle
 2. Kennedy Class I
 3. Kennedy Class I Modification 1A
 4. Kennedy Class II
 5. Kennedy Class II Modification 1P
 6. Kennedy Class II Modification 1A
 7. Kennedy Class III
 8. Kennedy Class III Modification 1P
 9. Kennedy Class IV Minority teeth
 10. Kennedy Class IV Many teeth
- References



Placement of direct retainers and indirect retainer

1. Principle

In several removable partial denture technical books, the placement of direct and indirect retainer is based on the following principles.

- (a) Direct retainers should be set on teeth adjacent to the residual ridge.
- (b) There should normally be two direct retainers.
- (c) The indirect retainer should be as far away from the fulcrum line as possible.

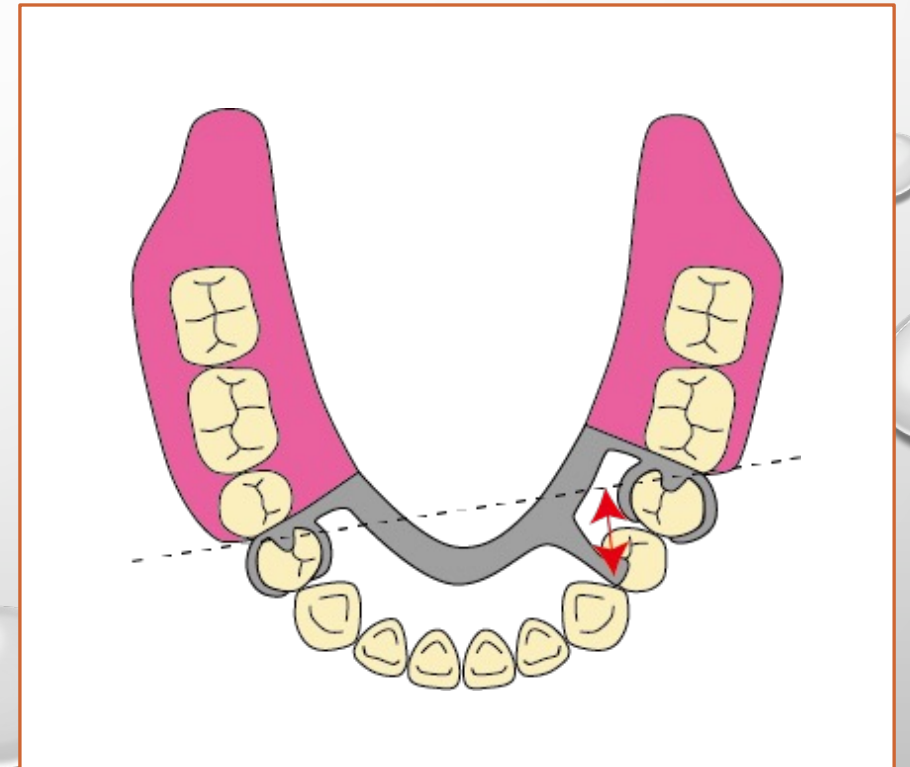
Based on these principles and Kennedy's classification, the placement of direct retainers and indirect retainer in removable partial dentures is described.



Placement of direct retainers and indirect retainer

2. Kennedy Class I

As the figure on the right shows, the direct retainers are positioned on the teeth adjacent to the distal extension denture bases. The dotted line represents the fulcrum line connecting the occlusal surface rests of the abutment teeth. The solid arrow indicates the distance between the fulcrum line and the indirect retainer. The indirect retainer is placed at the point where this distance is greatest. Typically, the indirect retainer is positioned at the mesial marginal ridge of the first premolar.

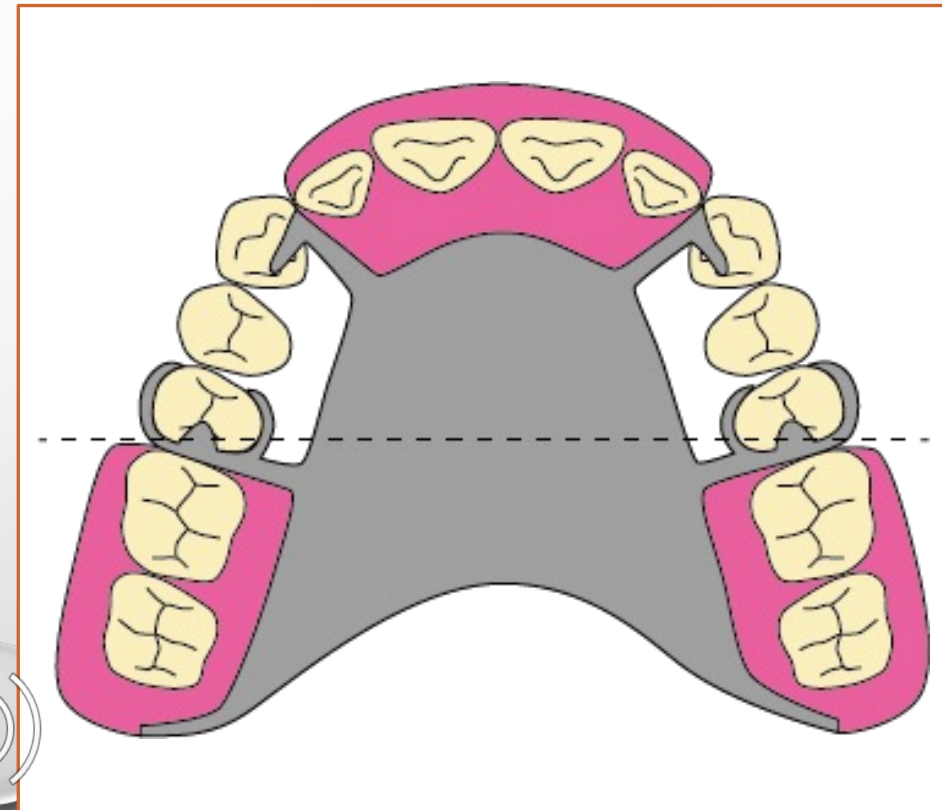


Placement of direct retainers and indirect retainer

3. Kennedy Class I Modification 1A

As shown in the figure on the right, the direct retainers are placed on the teeth adjacent to the bilateral free end defects. The rests and guiding planes are placed on the teeth adjacent to the anterior tooth defects, while the labial arms are not utilized. With the guiding planes in place, the denture provides adequate support and stability. However, when occlusal pressure is applied to the molar prosthesis, the denture may rotate about the fulcrum line.

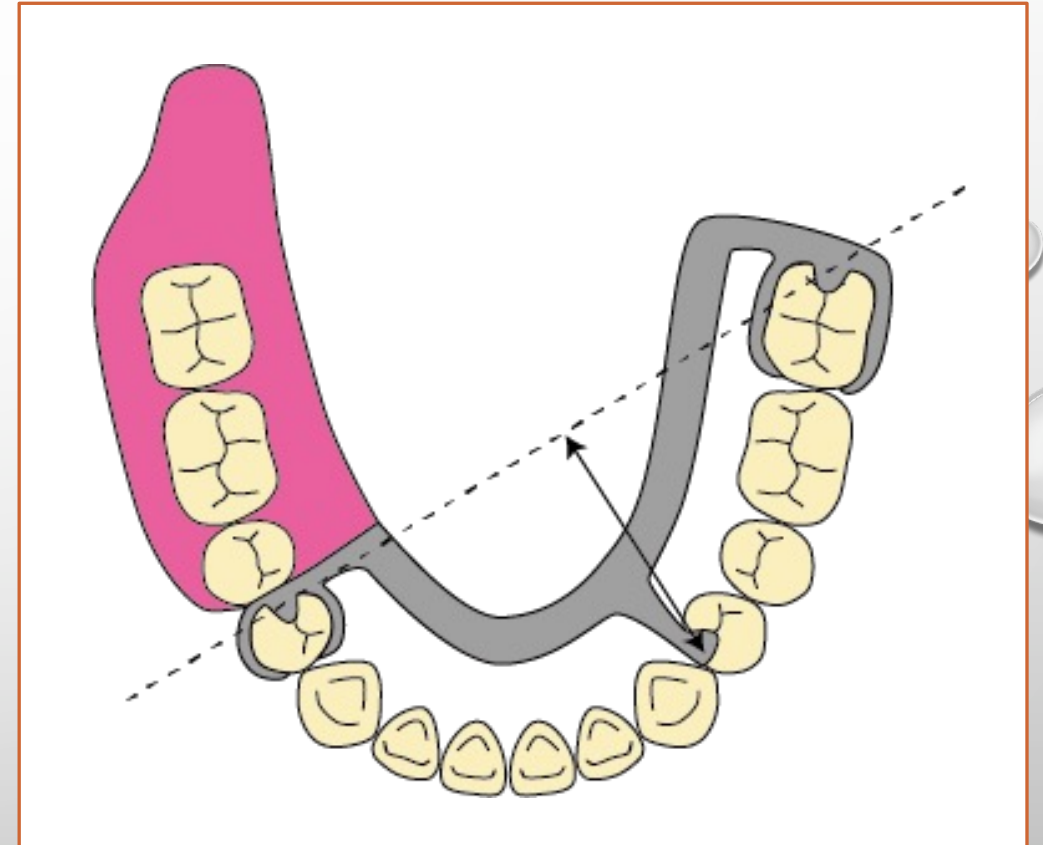
In such cases, the rests placed on the anterior teeth might move away from their original positions. Consequently, the anterior teeth are not subjected to upward pulling forces, thereby allowing for long-term preservation.



Placement of direct retainers and indirect retainer

4. Kennedy Class II

As shown in the figure on the right, direct retainers are placed on teeth adjacent to the defect and as far away from the defect as possible. Indirect retainers are placed on teeth as far away from the fulcrum line as possible, typically on the proximal marginal ridge of the first premolar.



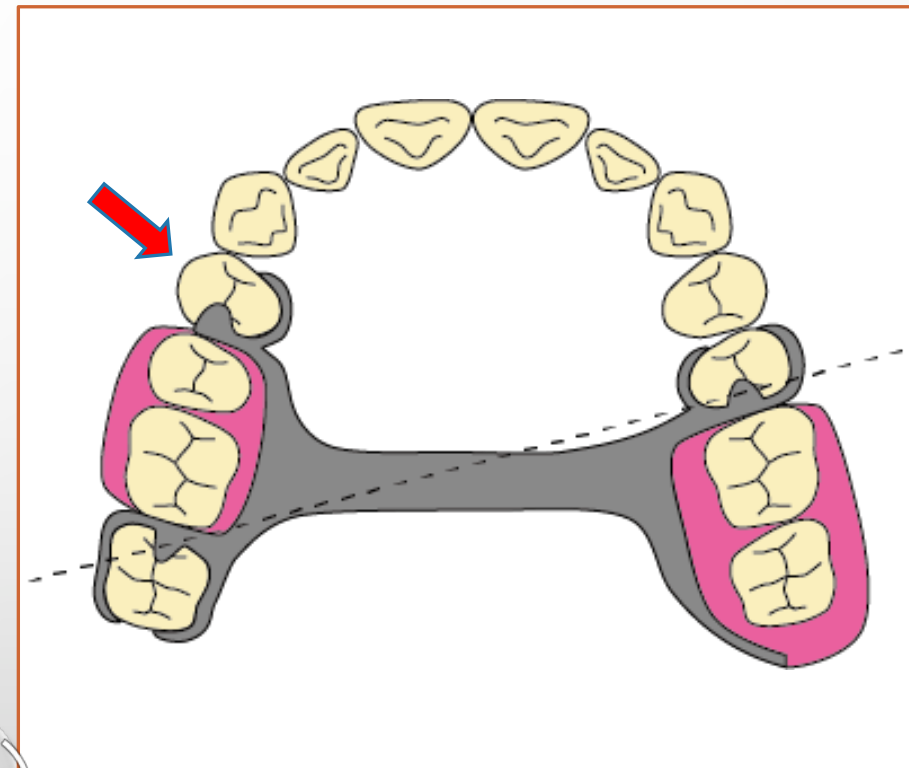
Placement of direct retainers and indirect retainer

5. Kennedy Class II Modification 1P

As shown in the figure on the right, the direct retainers are placed on teeth adjacent to the extension base and on teeth adjacent to the center of the intermediate defect. A direct retainer without a labial retention arm is placed on the teeth adjacent to the proximal portion of the intermediate defect. The reasons for this are as follows.

When occlusal pressure is applied to the artificial teeth, the free end-base may sink, causing the denture to rotate about the fulcrum line. If a maintenance arm is placed on the clasp of a tooth proximally adjacent to the intermediate defect (red arrow), the remaining tooth is subjected to repeated upward pulling forces, which compromises its integrity.

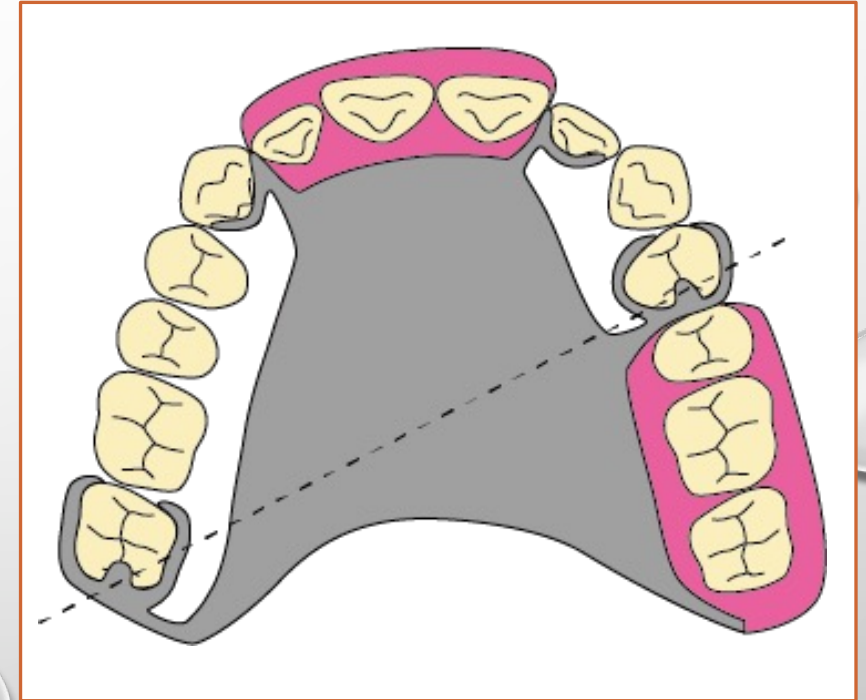
Therefore, by removing the maintenance arm (red arrow), the design allows the clasp to lift off the hooked tooth when the denture is rotated. As a result, the remaining teeth can be preserved over time.



Placement of direct retainers and indirect retainer

6. Kennedy Class II Modification 1A

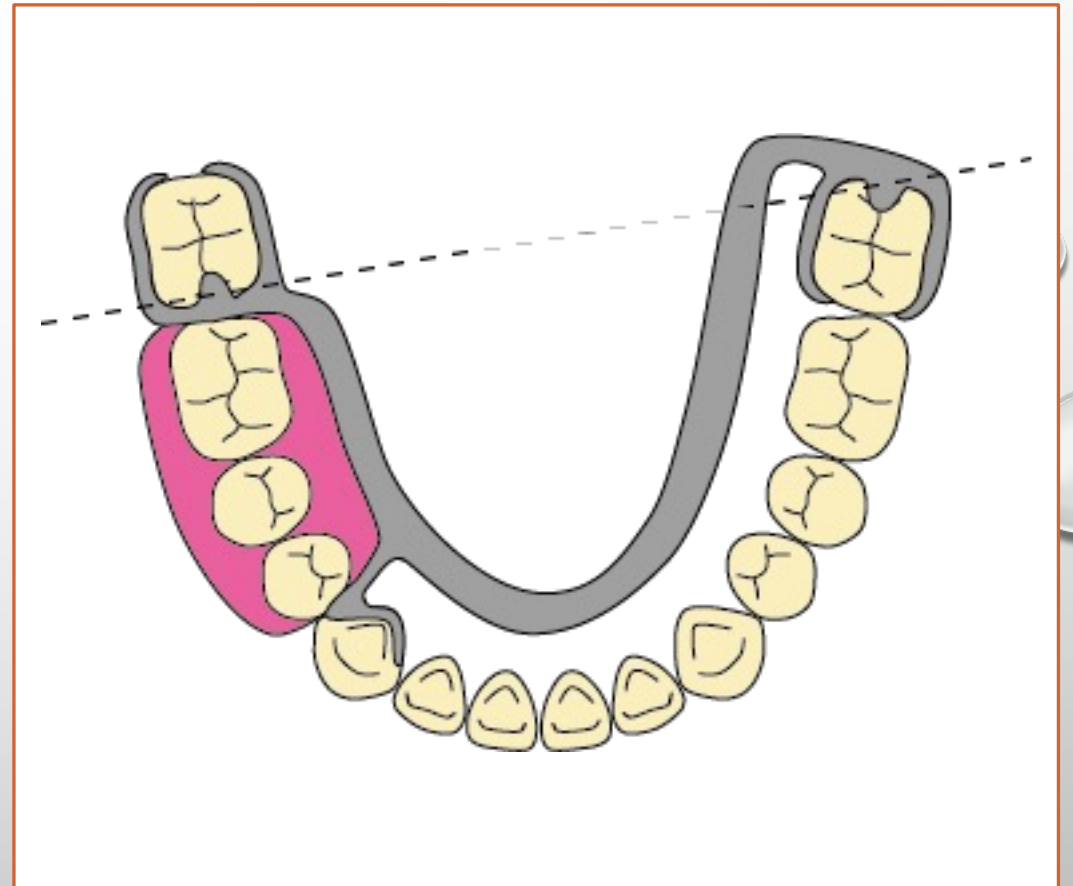
As the figure on the right shows, the direct retainer is placed on the most posterior tooth opposite the tooth adjacent to the distal extension. A rest and guiding plane or ledge are placed on the tooth adjacent to the anterior defect. No retention arms are placed on the teeth adjacent to the anterior mesial defects. Therefore, when occlusal pressure is applied to the posterior denture base, the denture rotates about the fulcrum line, and the rests of the anterior denture base are lifted off the abutment teeth. As a result, the remaining teeth are not subjected to any pulling forces and can be preserved for a long period of time.



Placement of direct retainers and indirect retainer

7. Kennedy Class III

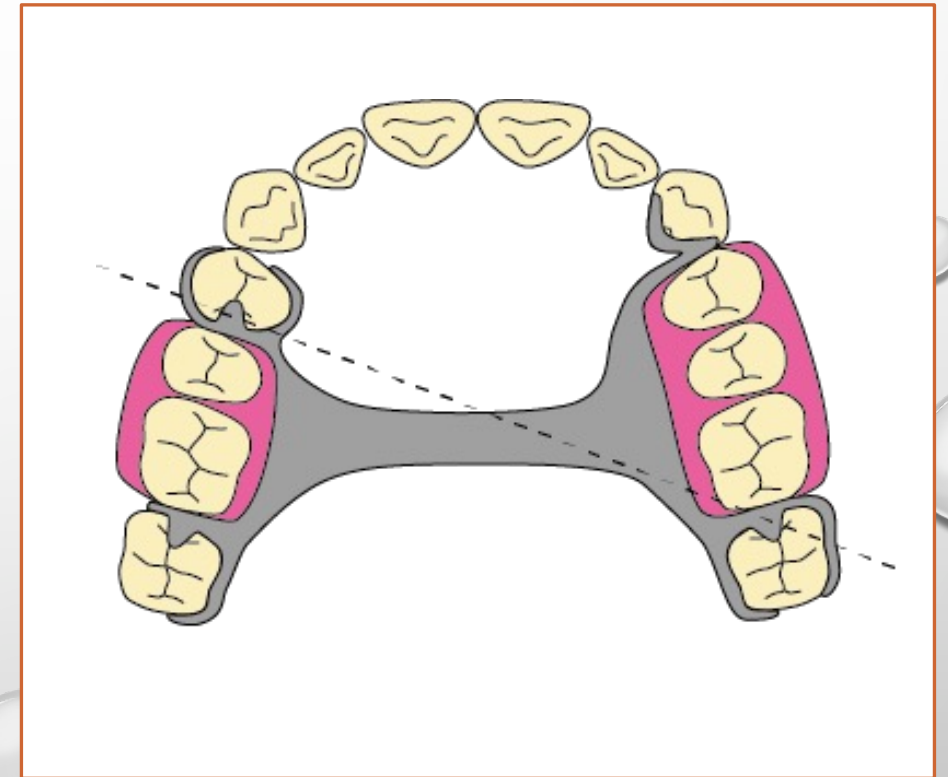
As the figure on the right illustrates, the direct retainer is placed on the most posterior tooth contralateral to the tooth adjacent to the center of the defect. A rest and guiding plane or ledge should be placed on the tooth proximal to the defect. No labial arms are placed on anterior teeth adjacent to the proximal portion of the defect.



Placement of direct retainers and indirect retainer

8. Kennedy Class III Modification 1P

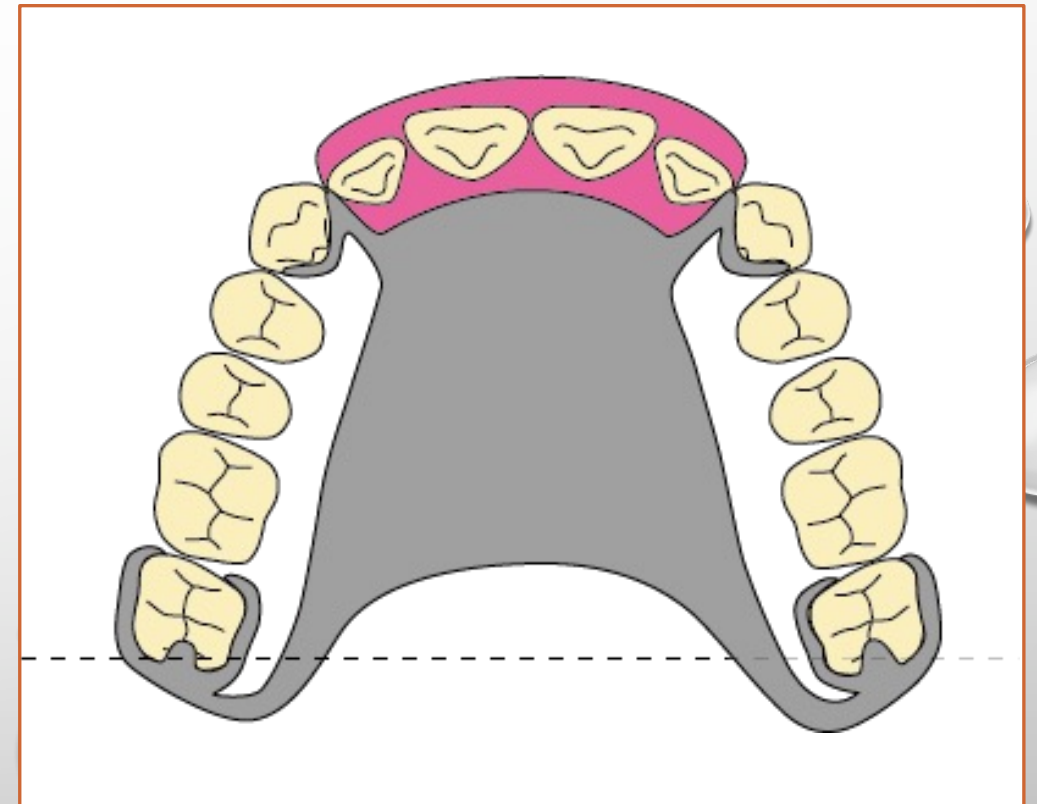
As shown in the figure on the right, the direct retainers are placed on the tooth with the longest fulcrum line among the four teeth adjacent to the defect. However, for aesthetic reasons, the labial arms of the anterior teeth should be avoided as much as possible. The rests, guiding planes, and ledges are placed on the teeth away from the fulcrum line.



Placement of direct retainers and indirect retainer

9. Kennedy Class IV Minority teeth

As shown in the figure on the right, maintenance direct retainers are placed on the bilateral most posterior teeth. Rests and guiding planes or ledges are placed on the teeth adjacent to the defect. All occlusal pressure on the prosthesis is borne by the remaining teeth. By placing the guiding planes on the abutment teeth, the partial denture will provide retentive function.

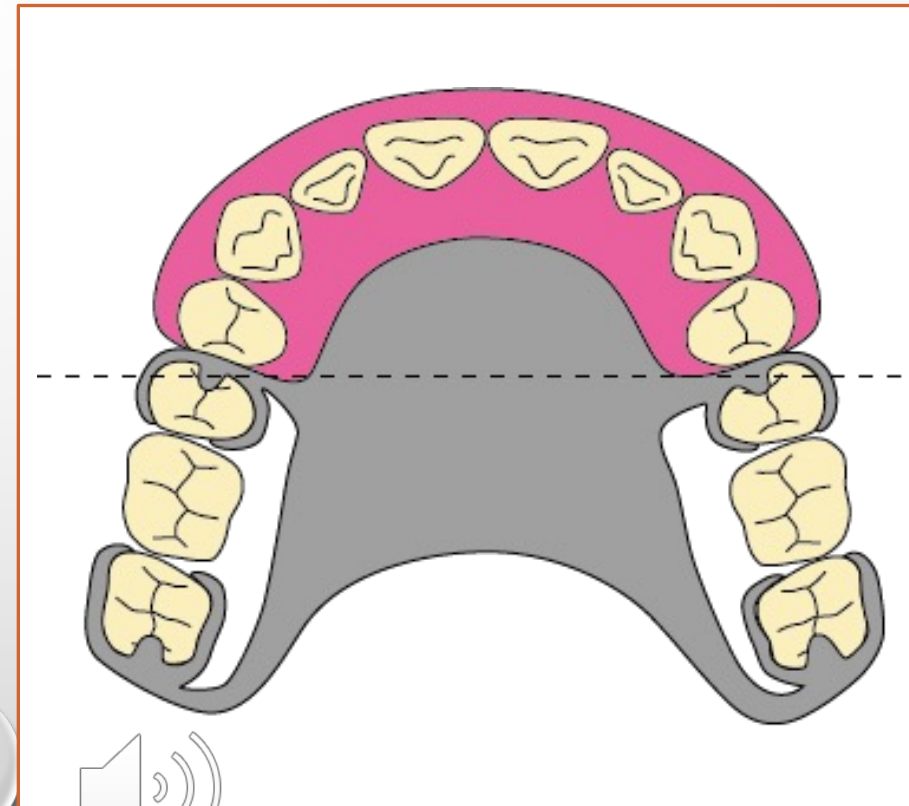


Placement of direct retainers and indirect retainer

10. Kennedy Class IV Many teeth

As shown in the figure on the right, direct retainers are placed on the teeth adjacent to the defect and on the bilaterally most posterior teeth. When the partial denture is about to be dislodged from the alveolar ridge, it rotates about the fulcrum line. To prevent this rotation, the clasp rests on the most posterior teeth, and the maintenance arm of the clasp adjacent to the base provides retention.

If some of the occlusal pressure on the partial denture is meant to be borne by the alveolar ridge, the clasp arm of the most posterior tooth is not placed in the undercut. As a result, when occlusal pressure is applied to the denture, the clasps on the most posterior tooth separate from the abutment teeth, and the occlusal pressure is transferred to both the abutment teeth and the alveolar ridge.



Placement of direct retainers and indirect retainer

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If you have any questions or doubts, please leave them in the public comment section below.

The next topic will be the sixth, " Design of direct retainers ".