Removable Partial Dentures (RPD): *Overview*

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1. Introduction to Removable Partial Dentures

What is a Removable partial denture (RPD)?

- Removable partial denture (RPD): a removable prosthesis replacing one or more missing teeth and associated tissues.
- Partially edentulous arch: an arch with remaining natural teeth and one or more edentulous areas.
- Abutment tooth: a tooth that provides support/retention/stability for an RPD.

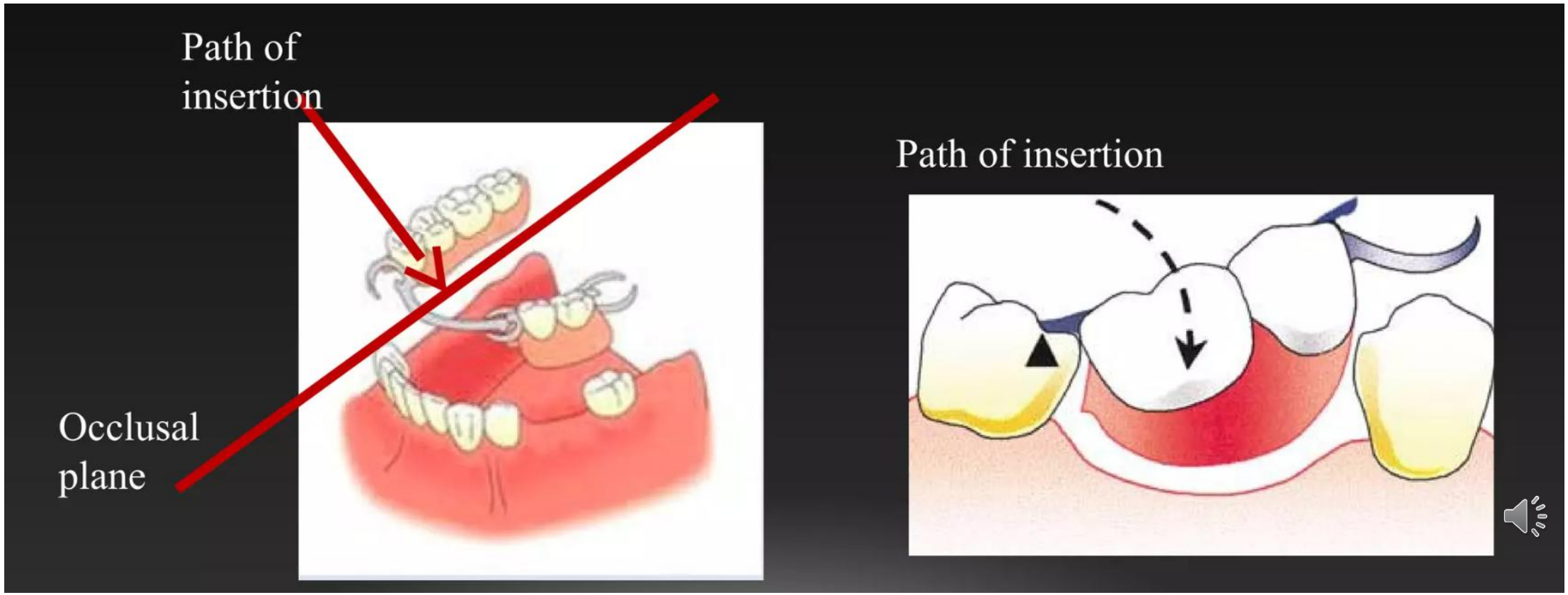
What is a Removable partial denture (RPD)?

- Support vs stability vs retention: different functions that guide design decisions.

- RPD framework: the metal or polymer “skeleton” supporting the denture base and clasp assemblies.

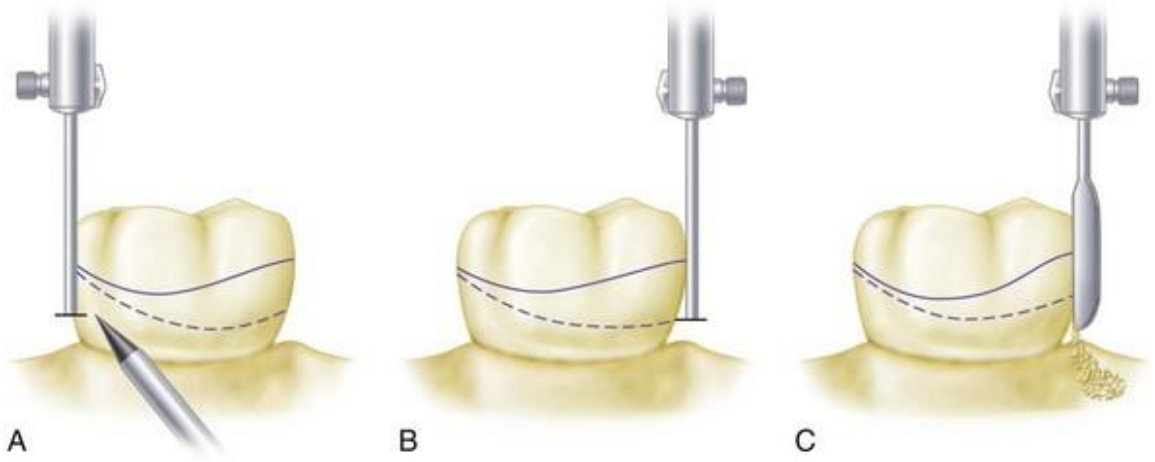
key design and biomechanics terms

- Path of insertion: the direction an RPD is placed/removed.
- Guide plane: a prepared axial surface that helps guide placement and improve stability.



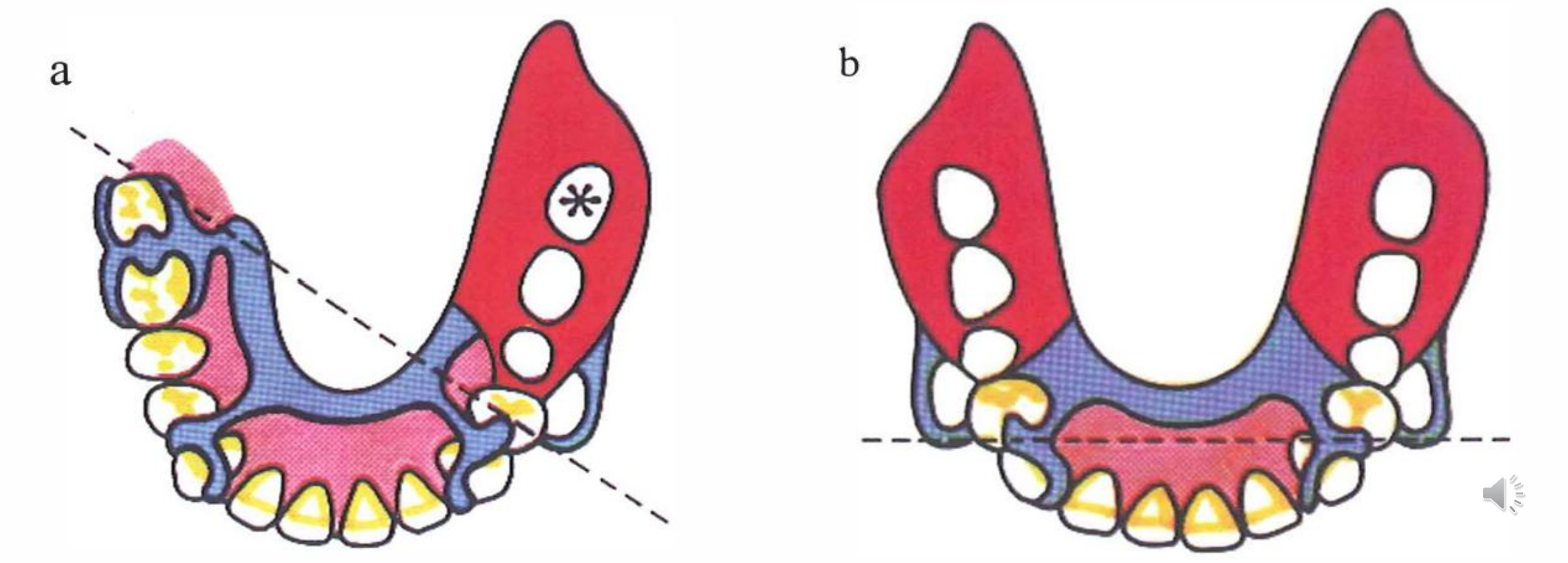
key design and biomechanics terms

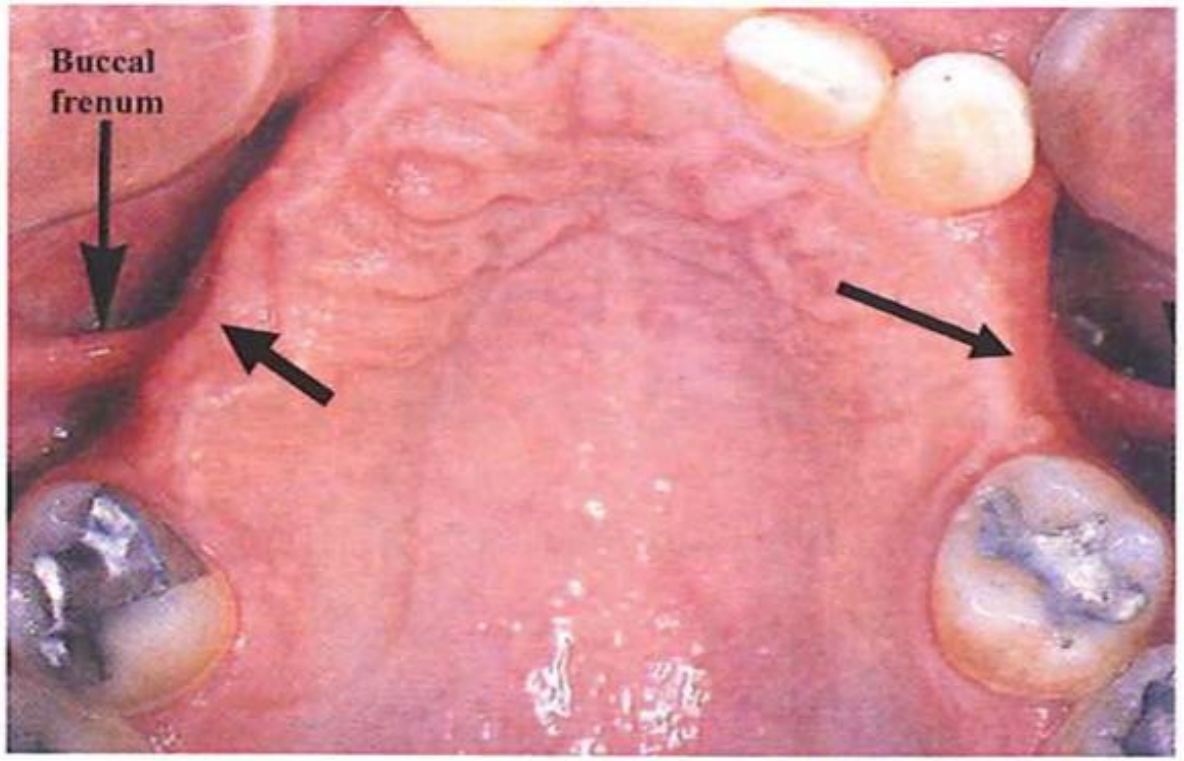
- Survey line (height of contour): the greatest bulge on a tooth relative to the chosen path of insertion.
- Retentive undercut: the area below the height of contour engaged by a retentive clasp tip.



key design and biomechanics terms

- Fulcrum line: an axis around which a distal-extension RPD may rotate under function.





Indications of removable partial dentures

- Multiple missing teeth with remaining teeth suitable as abutments.
- Distal extension edentulism where fixed options are limited or not preferred.

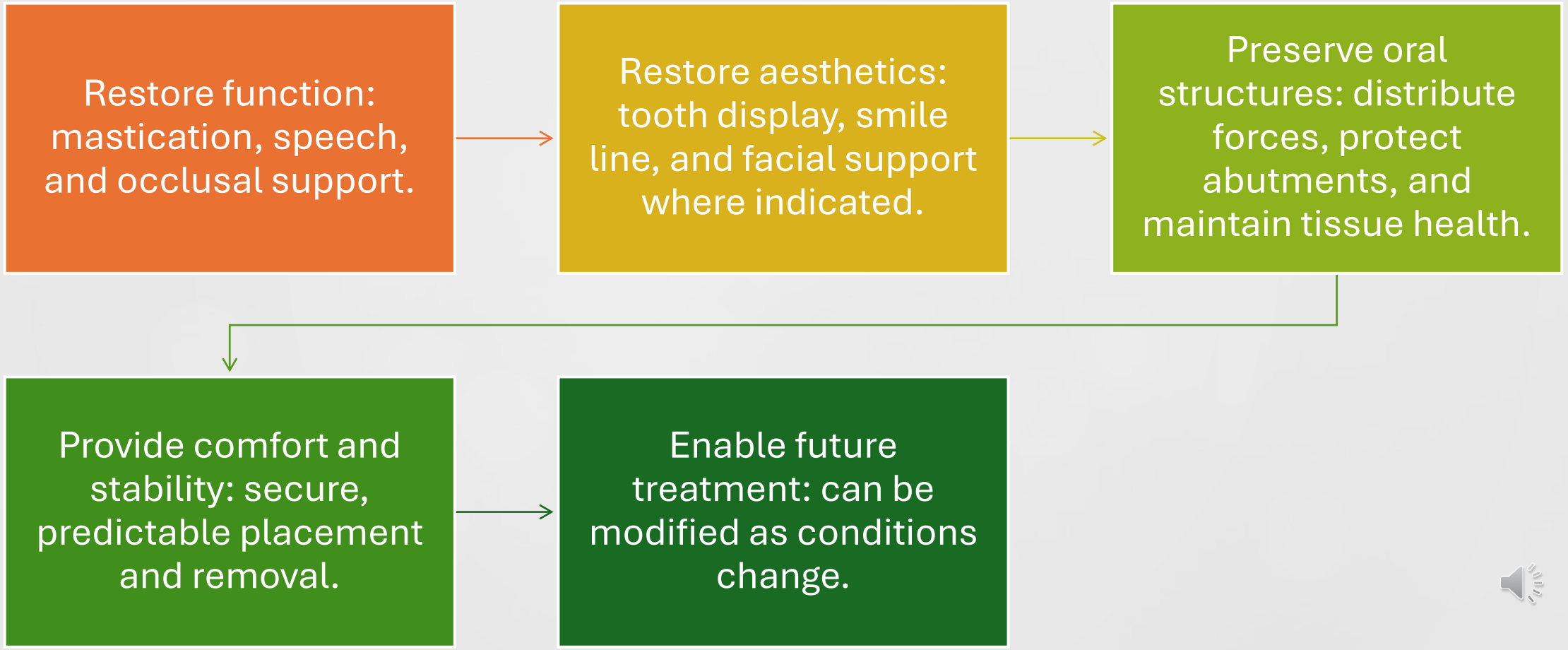
Indications of removable partial dentures

- Interim/provisional prosthesis during treatment sequencing.
- Economic, anatomical, or medical factors limiting fixed or implant therapy.
- Need for cross-arch stabilization and occlusal support.

Indications of RPDs: practical considerations & limitations

- Patient factors: motivation, hygiene ability, expectations, and tolerance of removable prosthesis.
- Oral environment: caries risk, periodontal condition, mucosal health, saliva, and occlusion.
- Anatomy/space: available inter-arch space, ridge form, frenal attachments, tori.
- Note: RPD success depends on design quality + mouth preparation + patient maintenance.

Objectives of removable partial dentures



Key message: why RPD principles matter

RPDs are biomechanically demanding—design must control forces on teeth and tissues.

Good RPDs are planned (not guessed): classify → survey → design → mouth prep → impressions → framework → delivery.

Your design choices determine patient comfort, tissue response, and abutment longevity.

HAZARDS OF IMPROPERLY DESIGNED PARTIAL DENTURES

An improperly designed and constructed partial denture may adversely affect the tissues in the following manner :

1- Stagnation of food around component parts of partial denture in contact with tooth surfaces that are not readily cleaned causes tooth decay.

2- Induce stresses on abutment teeth and tissues. If these stresses exceed the physiologic limits of tissue tolerance, pathologic and destructive changes may occur:

- Excessive stresses on abutment teeth cause periodontal membrane destruction, pocket formation, mobility, and even loss of these teeth.
- inflammation, ulceration and gingival recession may occur due to excessive stresses and undue coverage of tissues with the restoration. Inadequate denture support due to inadequate stoppers; this causes displacement of the restoration towards the tissues causing gum stripping.
- Stresses may also cause bone resorption and loss of the bony foundation necessary to support the prosthesis.

3- Improper occlusion of teeth or the presence of premature contact may cause T.M.J. disorders.

2. Classification of Partially Edentulous Arches

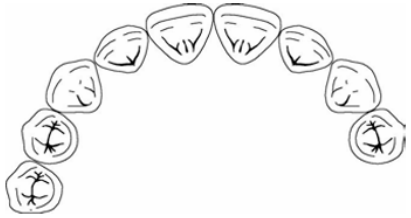
Why classify partially edentulous arches?

- Classification provides a common language for communication and design planning.
- It predicts biomechanics: tooth-supported vs tooth–tissue supported patterns.
- It guides design features: denture base extension, indirect retention, and clasp selection.
- Most commonly used: Kennedy classification.

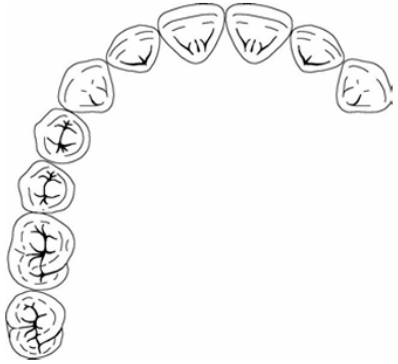
Kennedy classification: overview

- Class I: bilateral posterior edentulous areas (distal extensions).
- Class II: unilateral posterior edentulous area (distal extension).
- Class III: unilateral edentulous area with teeth remaining both anterior and posterior.
- Class IV: single anterior edentulous area crossing the midline.
- Modification spaces: additional edentulous areas beyond the primary class (except Class IV).

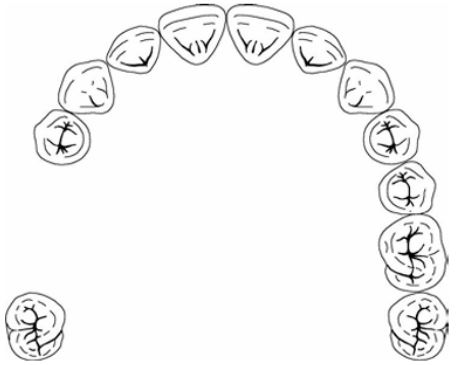
Class I - bilateral edentulous areas located posterior to all remaining teeth.



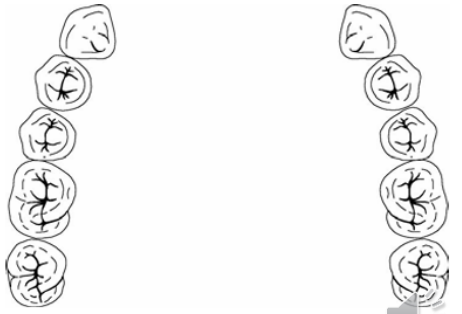
Class II - unilateral edentulous area located posterior to all remaining teeth.



Class III - unilateral edentulous area **bounded** by anterior and posterior natural teeth.



Class IV - a single, but bilateral (crossing the midline) edentulous area located **anterior** to remaining teeth.



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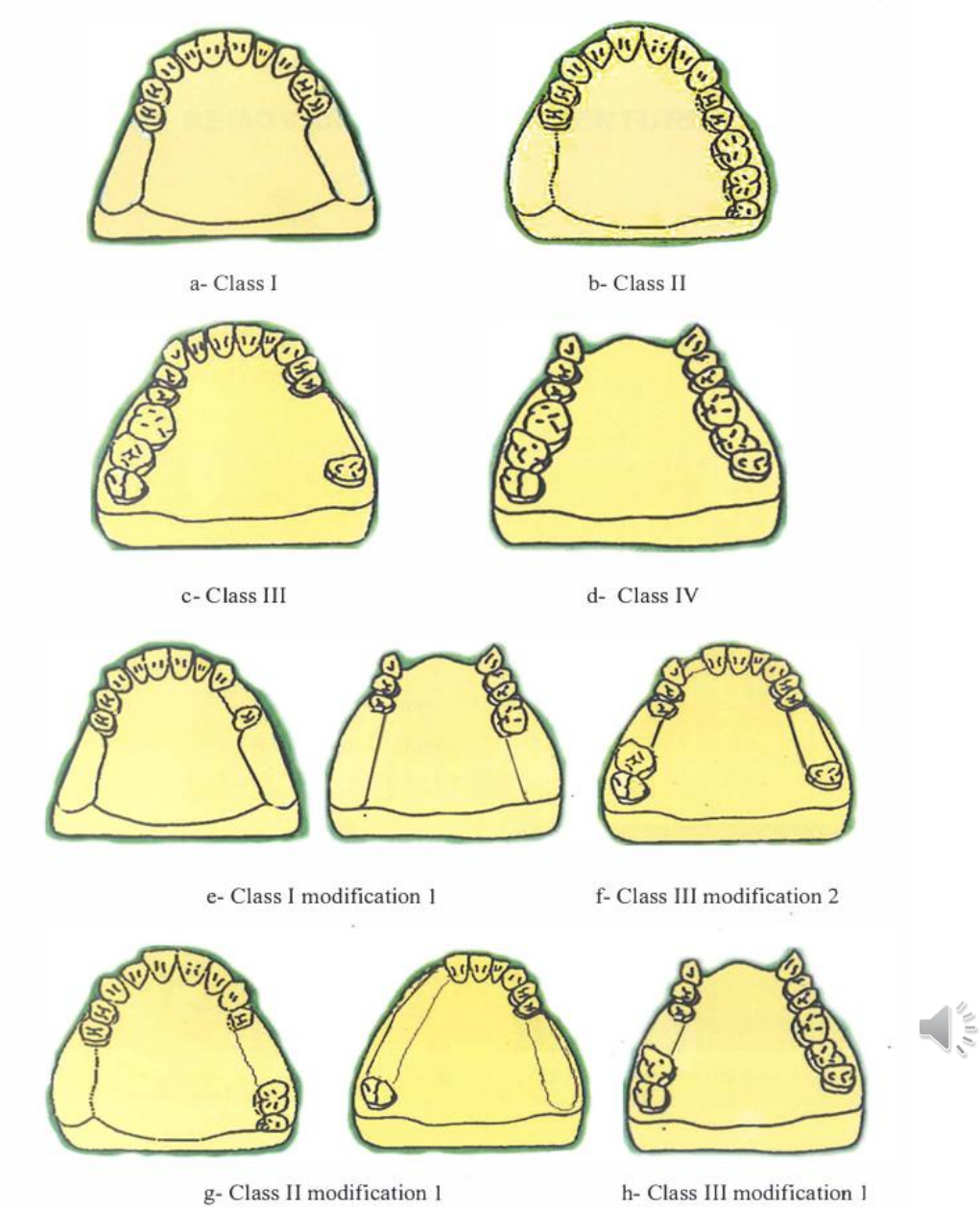
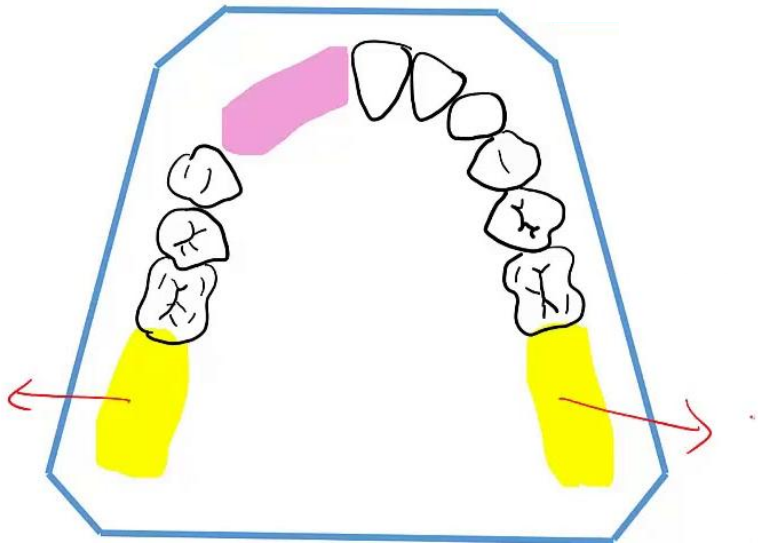


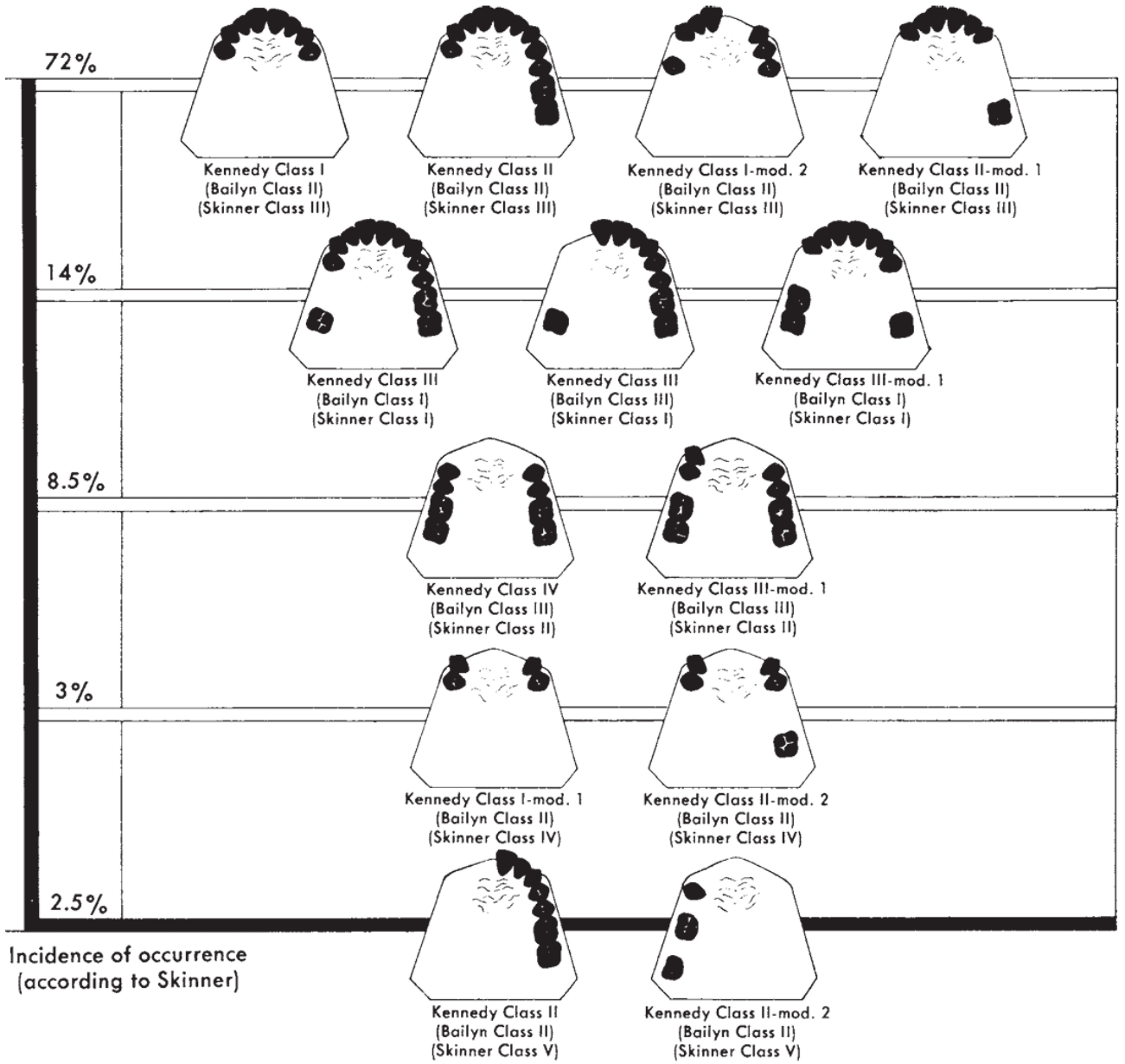
Applegate rules & modification spaces (summary)

- Classify after extractions are completed (final arch form).
- Most posterior edentulous area determines the class.
- Additional edentulous areas are modification spaces (number only, The extent of the modification is not considered).
- No modifications for Class IV.
- If the 3rd molar is missing and not to be replaced, it is not considered in the classification.
- If a second molar is missing and not to be replaced, it may not influence classification (clinical judgment).

Applegate's Rules for Kennedy classification



Quick classification practice (mini cases)



Representative examples of partially edentulous arches classified by the Kennedy method.

3. Components of a Partial Dentures

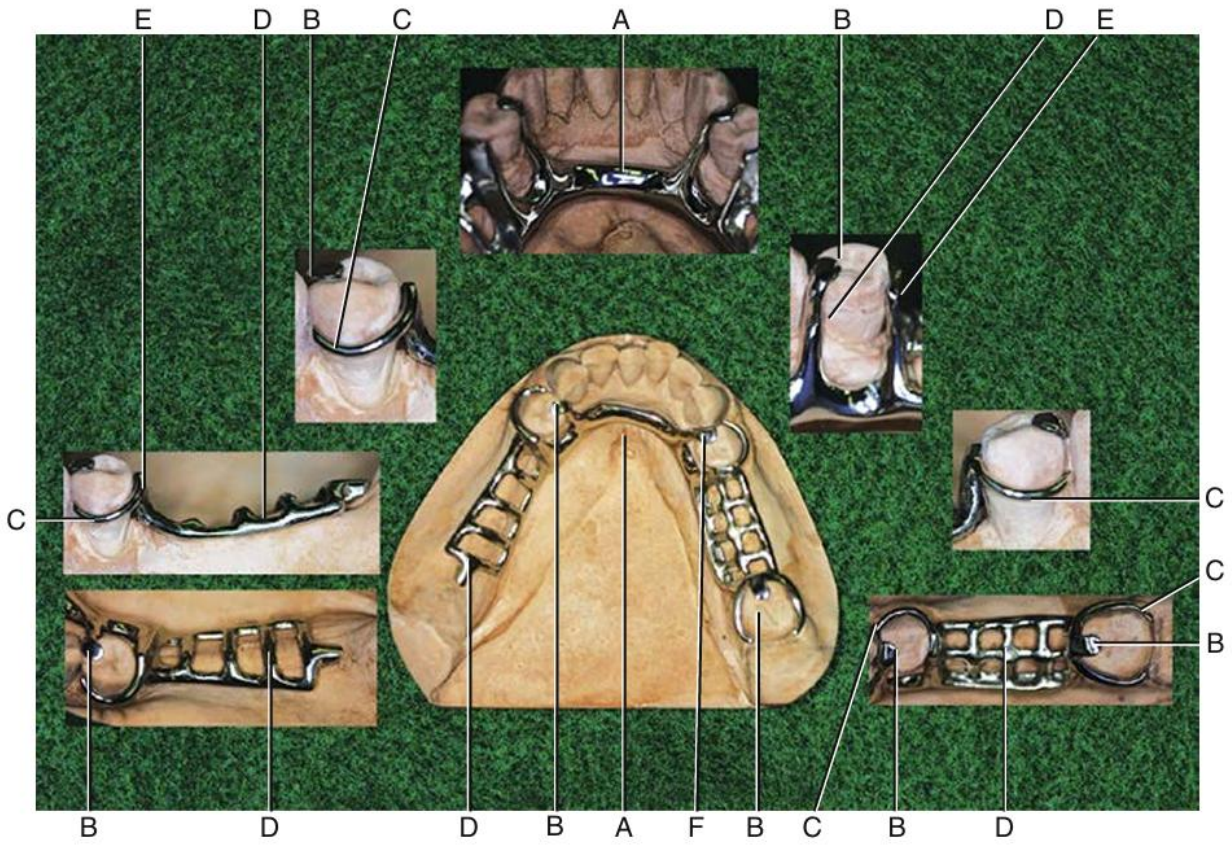
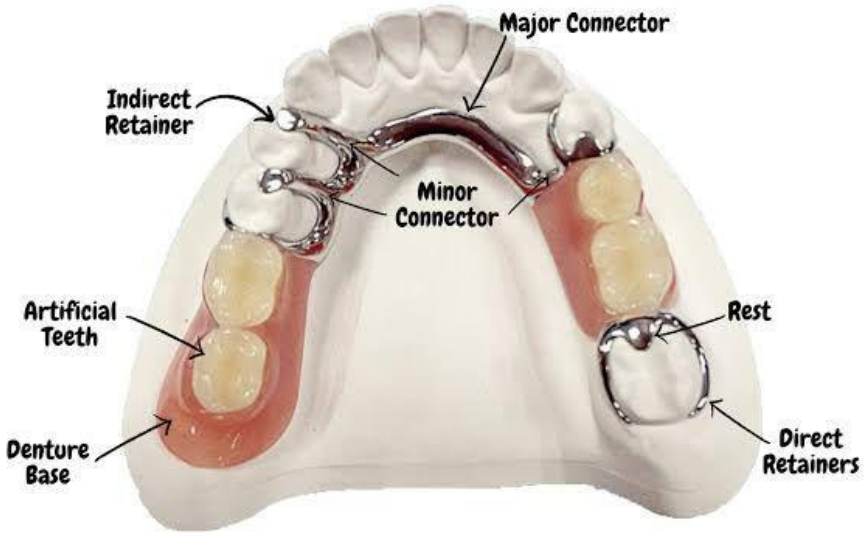


FIGURE 1-2 Mandibular framework designed for a partially edentulous arch with a Kennedy Classification II, modification 1 (see Chapter 3). Various component parts of the framework are labeled for identification. Subsequent chapters will describe their function, fabrication, and use. *A*, Major connector. *B*, Rests. *C*, Direct retainer. *D*, Minor connector. *E*, Guide plane. *F*, Indirect retainer.

RPDs Components Overview what each part does

- Framework: provides rigidity and connects components acrc arch.
- Denture base: supports replacement teeth and transmits for tissues.
- Rests/rest seats: provide support and prevent tissue-ward movement.
- Connectors: major (cross-arch) and minor (link to saddles/retainers).
- Retainers: direct (clasp assemblies) and indirect (control rotation).

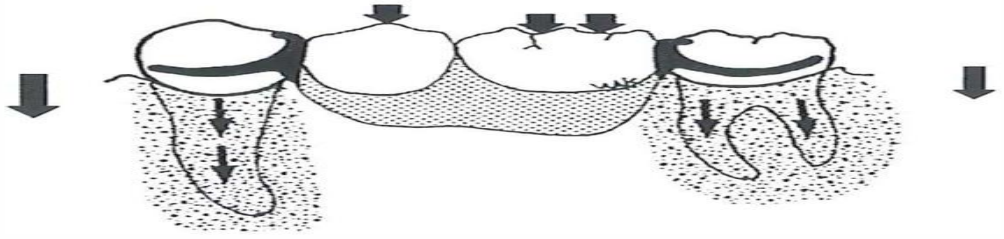


These Components May Provide One or More of the Following Functions:

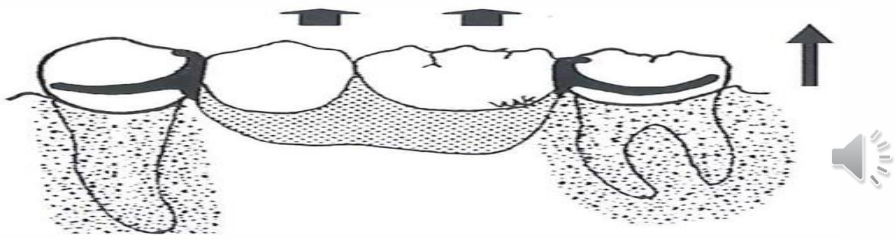
- **Support:** . The resistance of a denture to tissue- ward movement .
- **Retention:** The resistance of a denture to vertical displacement force (to move away from its tissue foundation) .
- **Indirect retention:** The resistance of denture rotation away from the tissues about an axis .
- **Bracing:** The resistance of a denture to lateral forces .
- **Reciprocation:** The resistance of lateral forces on the abutment during insertion and removal of the removable partial denture .

Reciprocation is required as the denture is being displaced occlusally whilst the bracing function, comes into play when the denture is fully seated.

- **Stability:** The resistance of a denture to tipping movement. Tipping movement: Vertical rotation around a line parallel to ridge crest (twisting of the denture base).



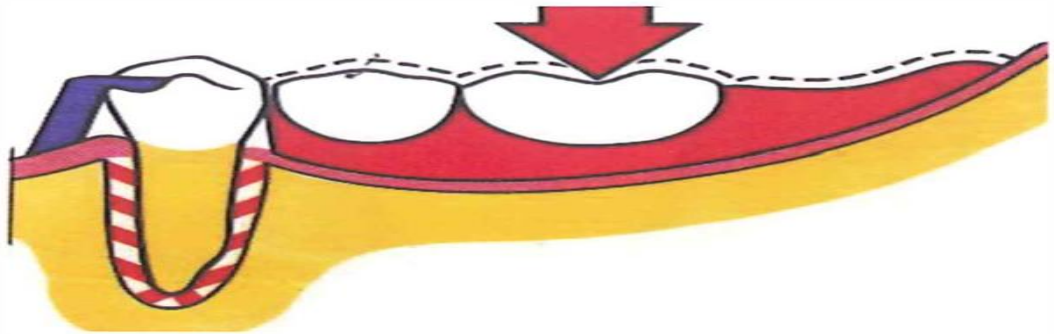
Support is the resistance of a denture to tissue-ward movement.

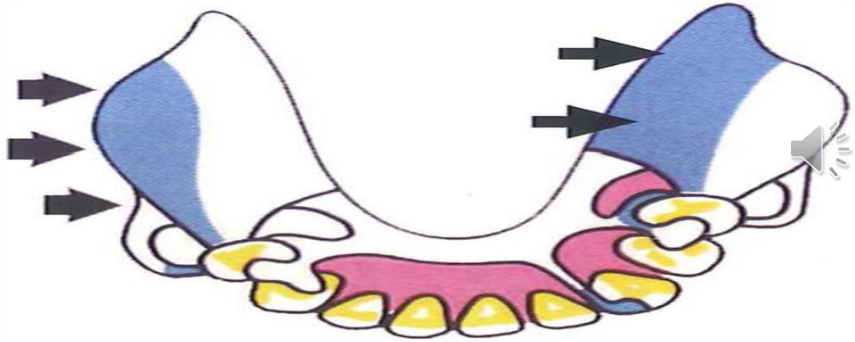


Retention is the resistance of a denture to tissue away movement.

Denture bases: functions & design goals

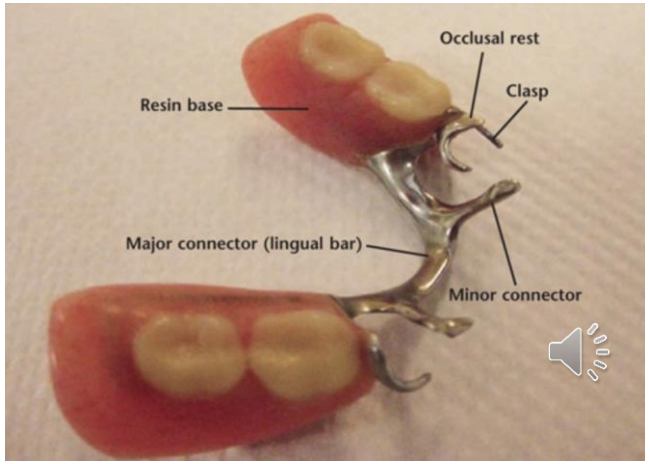
- Replace missing teeth and associated tissues; provide support for artificial teeth.
- Transmit functional loads to teeth and mucosa (distal extension: more mucosal support).
- Maximize coverage within functional limits to improve support.
- Provide stability via proper extension and intimate tissue adaptation.
- Allow future relines/rebases/repairs where expected.
- Metal framework provides the base for acrylic resin attachment (mesh/lattice/bead/finish lines).
- Denture base should have adequate thickness and strength without overbulking.
- Finish lines provide a defined junction between metal and acrylic.
- Design should permit hygiene and minimize food traps.





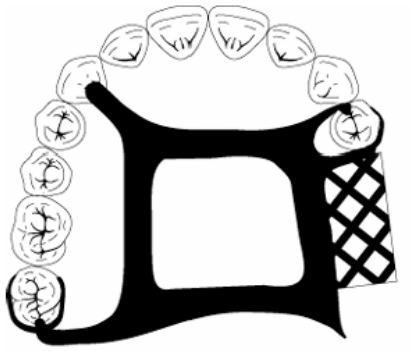
Major connectors: functions & requirements

- Unite RPD components across the arch and provide cross-arch stabilization.
- Must be rigid to distribute forces and prevent flexure.
- Should avoid impinging on gingival margins and allow hygiene access.
- Borders should be shaped for comfort and minimize food entrapment.
- Design is influenced by palatal/lingual anatomy and presence of tori.



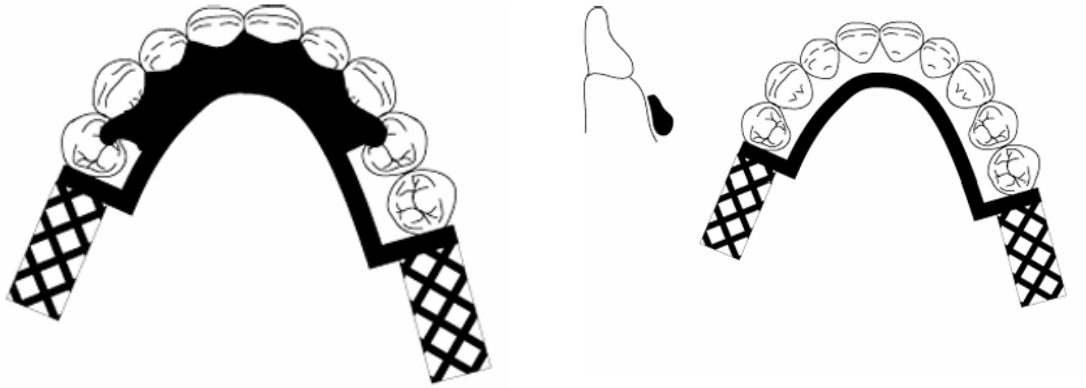
Maxillary major connectors: overview

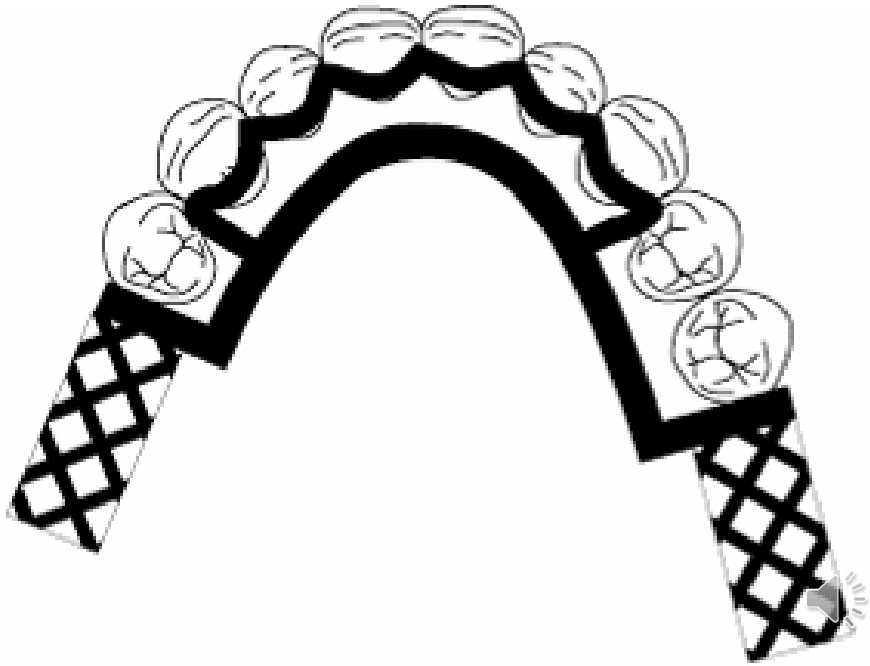
- Common designs: palatal strap/bar , anteroposterior (A-P) strap, palatal plate, U-shaped connector.
- Selection depends on support needs, palatal shape, tooth distribution, and tori.
- Aim for rigidity with minimal tissue coverage compatible with support requirements.
- Borders should generally be away from gingival margins where possible.
- Relief may be needed over midline suture or torus areas.



Mandibular major connectors: overview

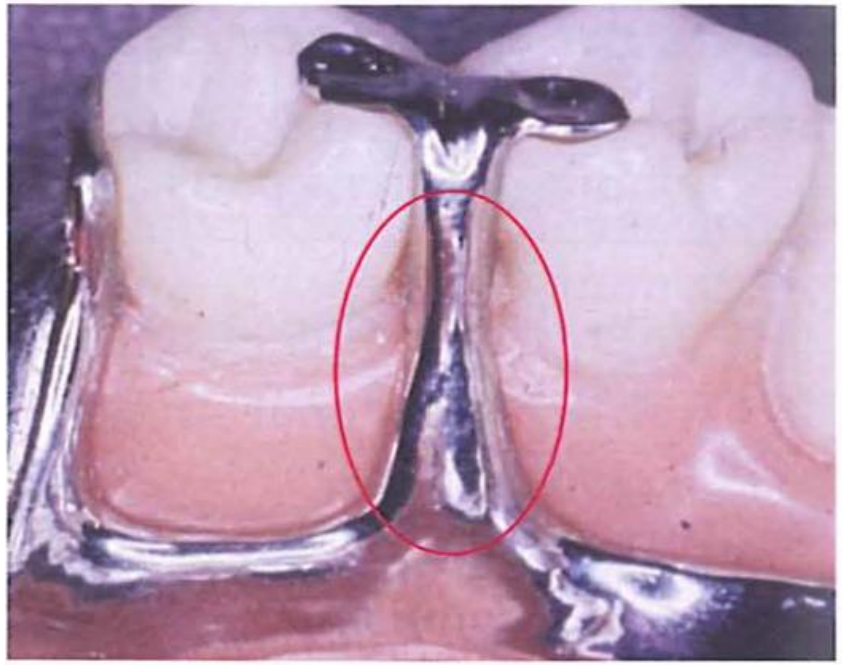
- Common designs: lingual bar and lingual plate (others less common).
- Lingual bar requires adequate functional depth of the floor of mouth.
- Lingual plate may be indicated when depth is limited or for additional stabilization (case-dependent).
- Avoid gingival impingement and allow cleaning of gingival margins.
- Connector borders must respect tongue movement and frena.

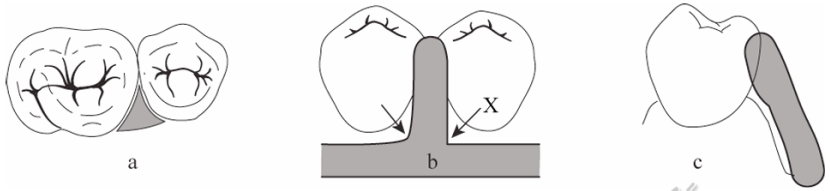




Minor connectors: functions

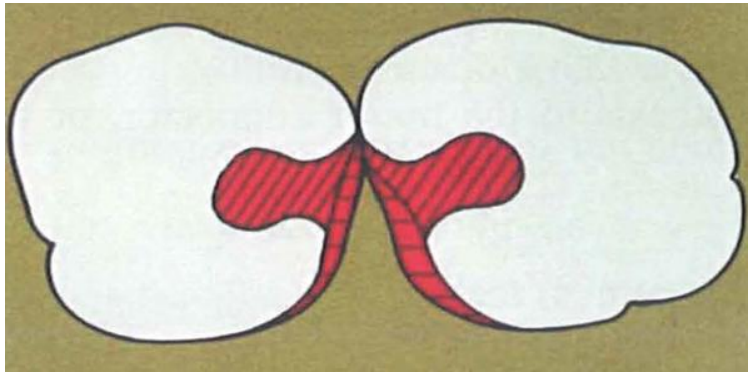
- Join the major connector to other components (rests, clasp assemblies, denture bases).
- Transmit forces between teeth, base, and major connector.
- Provide bracing and stabilization via contact with guiding planes (proximal plates).
- Define finish lines and support acrylic attachments.
- Support the principle of rigid cross-arch design.

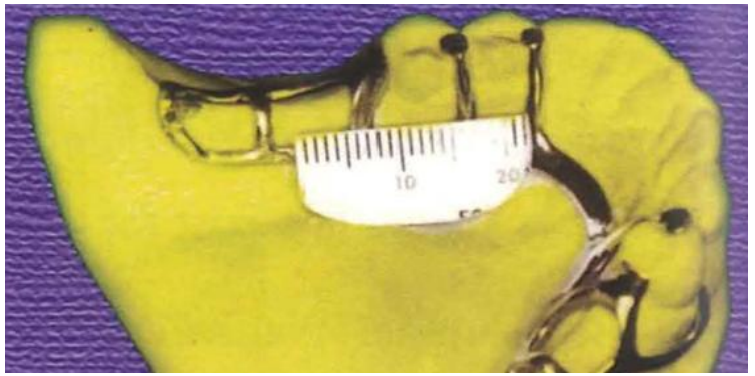


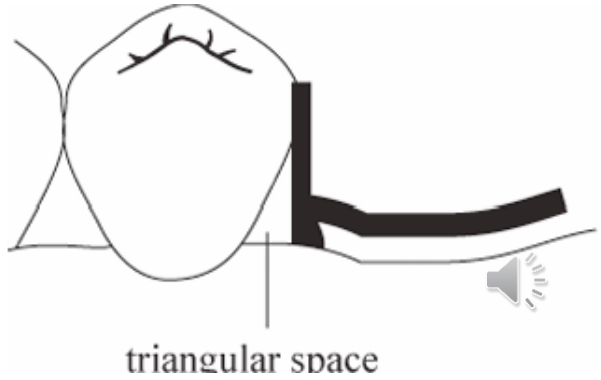


Minor connectors: design principles (overview)

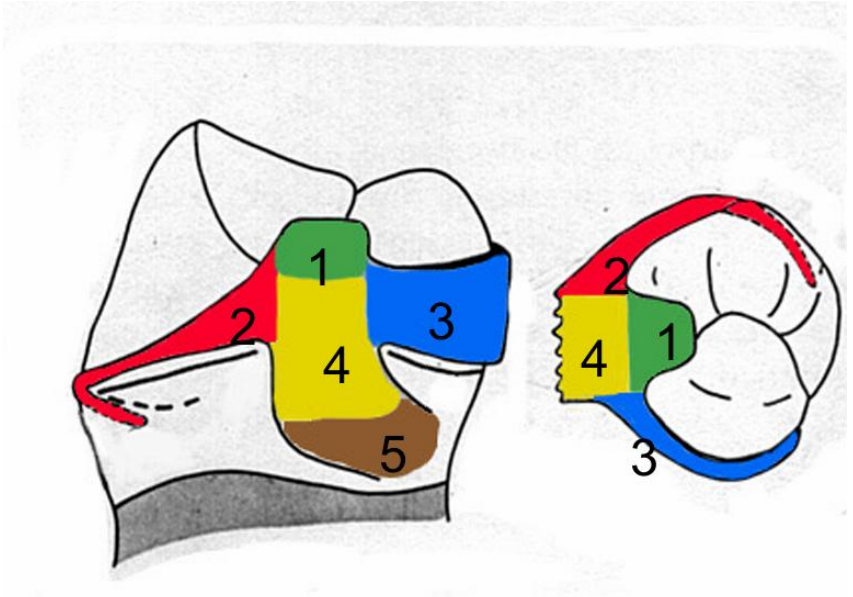
- Should be rigid and properly contoured to avoid soft tissue impingement.
- Proximal plates should contact prepared guiding planes appropriately.
- Avoid unnecessary coverage of gingival tissues.
- Maintain adequate embrasure clearance and avoid food traps.
- Provide well-defined finish lines for acrylic resin.







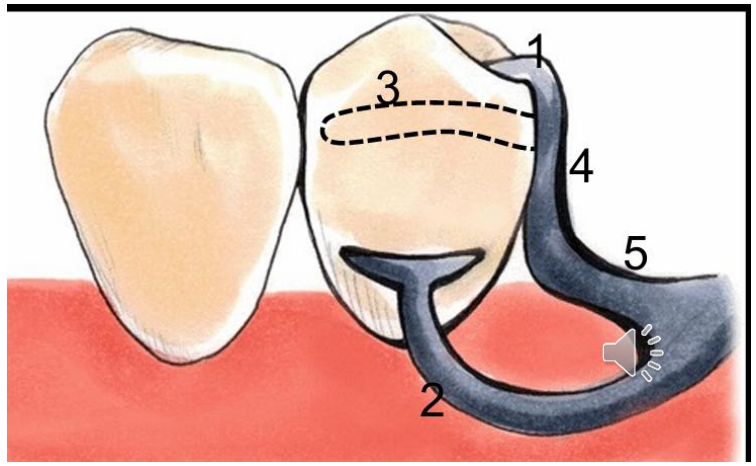
Clasp Assembly (overview)



- Clasp assembly are essential components in RPDs that provide retention and stability. Avoid retentive tips in areas prone to food impaction or soft tissue interference.

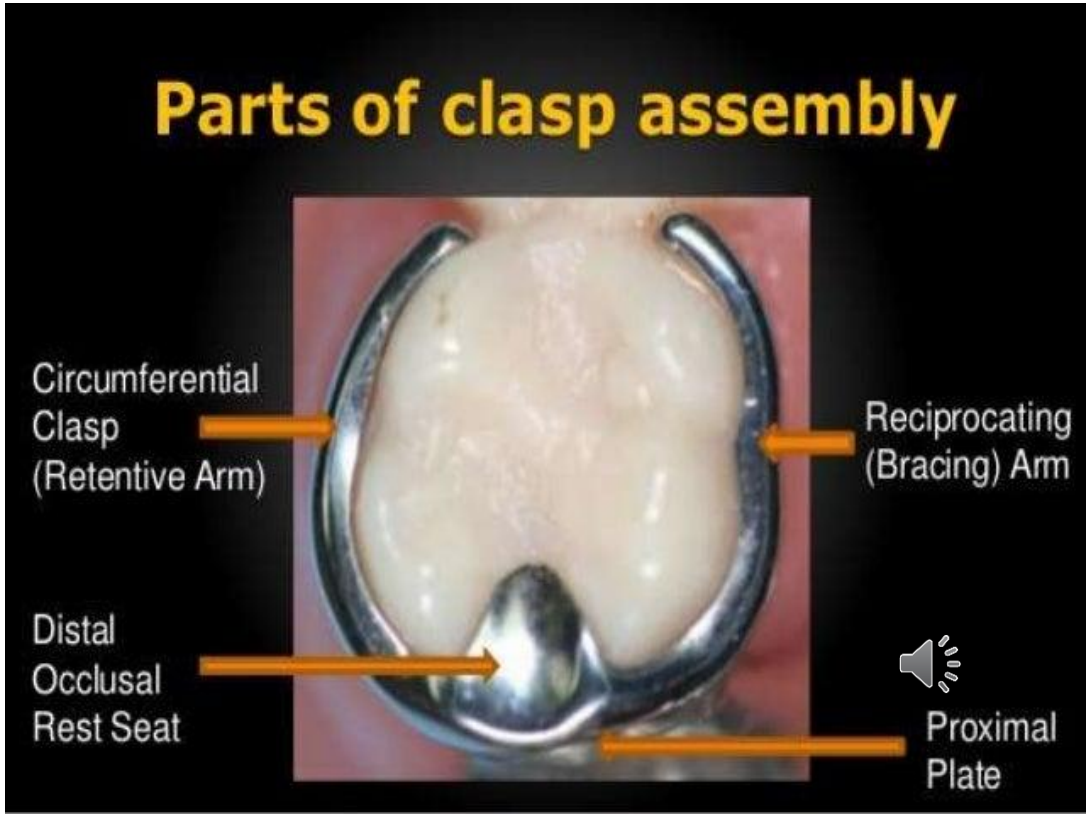
- The components of clasp assembly are:

(1) rest, (2) retentive arm, (3) reciprocating arm, (4) clasp body (proximal plate), and (5) minor connector.

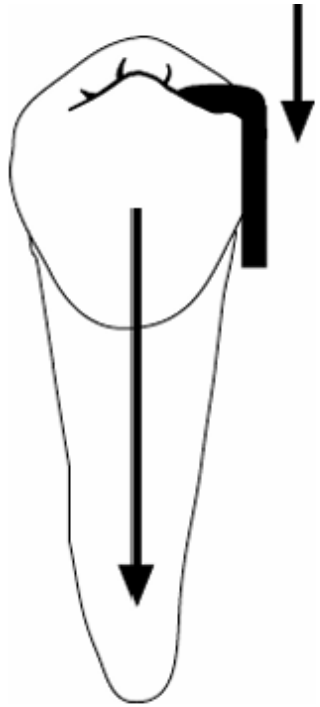


Clasp assembly: Function

- **Rest:** provides support and a positive seat.
- **Retentive clasp arm:** engages an undercut to resist dislodgement.
- **Reciprocal/bracing element:** counteracts lateral forces during insertion/removal.
- **Minor connector:** connects clasp assembly to major connector.
- **Proximal plate** (when used): contributes to guidance and stabilization.

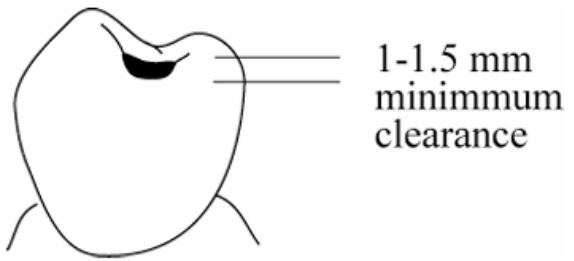


Rests & rest seats: functions

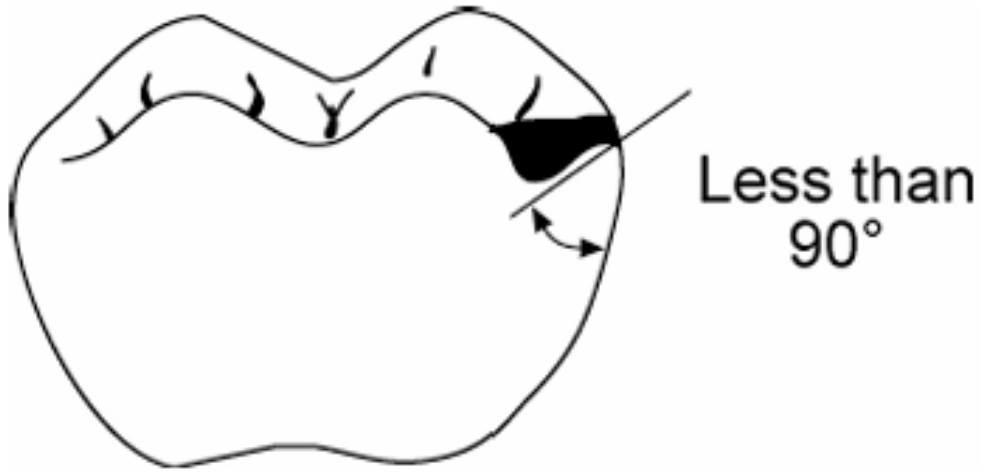


- Provide vertical support and prevent tissue-ward movement of the RPD.
- Maintain occlusal relationship and framework position.
- Direct forces along the long axis of abutment teeth when properly designed.
- Contribute to stability and can assist in indirect retention (distal extension cases).
- Create a positive seat (framework should not slide).

Occlusal rest seats: key design principles

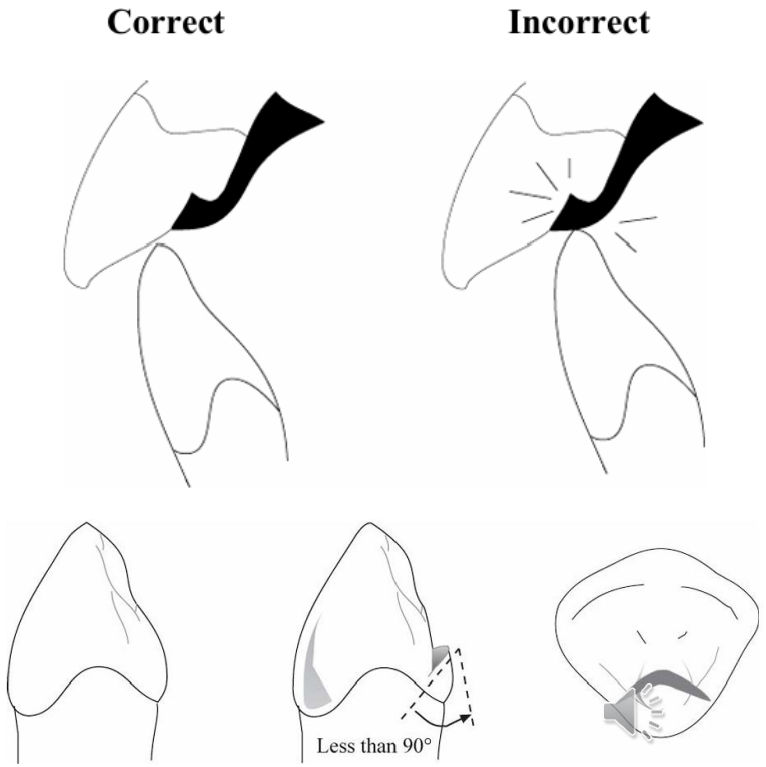


- Positive seat: the angle at the floor should be < 90° to resist slipping.
- Adequate thickness of metal at the rest for strength.
- Rounded internal line angles to reduce stress concentration.
- Maintain marginal ridge integrity while providing clearance.
- Avoid creating food traps or periodontal irritants.



Cingulum / incisal rests

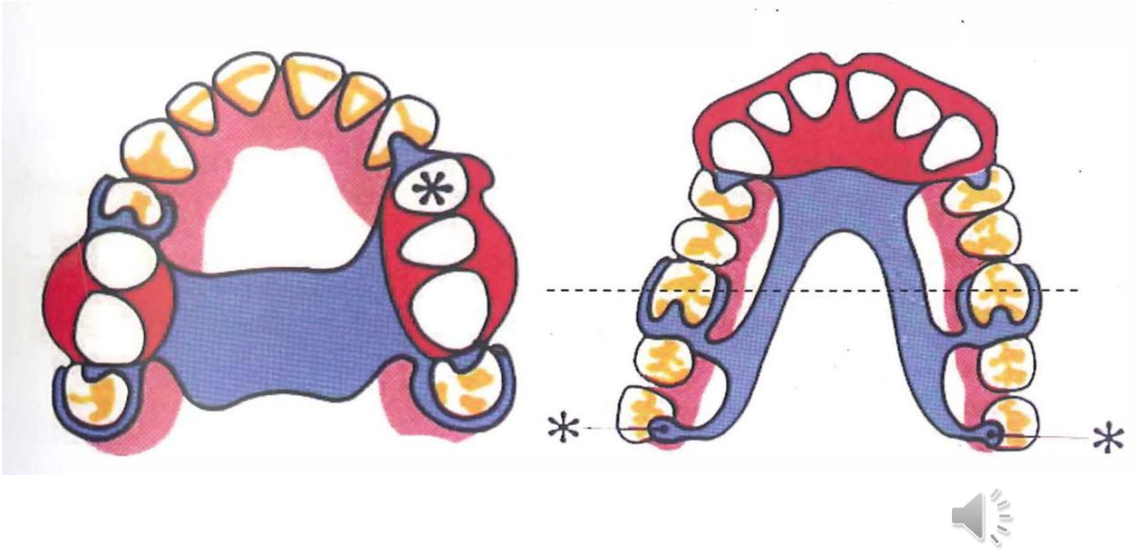
- Cingulum rests: common on canines/premolars—aim for a positive seat and enamel preservation.
- Incisal rests: may be used when cingulum rest is not feasible but can be less aesthetic.
- Common errors: too shallow (weak), too deep (risk pulp), wrong angulation (slippage).
- Composite bonded rests can be used when anatomy is inadequate (case selection).
- Rest seats should be prepared in conjunction with guiding plane preparation.



The cingulum rest seat should be prepared in the bulk of the cingulum to minimize tooth reduction. The cavosurface should be less than 90° to prevent orthodontic movements of the tooth.

Indirect retention: connection to rests (concept)

- Indirect retainers resist rotation of a distal extension base away from tissues.
- Typically implemented via a rest placed anterior to the fulcrum line.
- Effectiveness increases with distance from the fulcrum line and with well-prepared guiding planes.
- Indirect retention complements, but does not replace, good support and base extension.
- Plan indirect retention during the design stage (not as an afterthought).



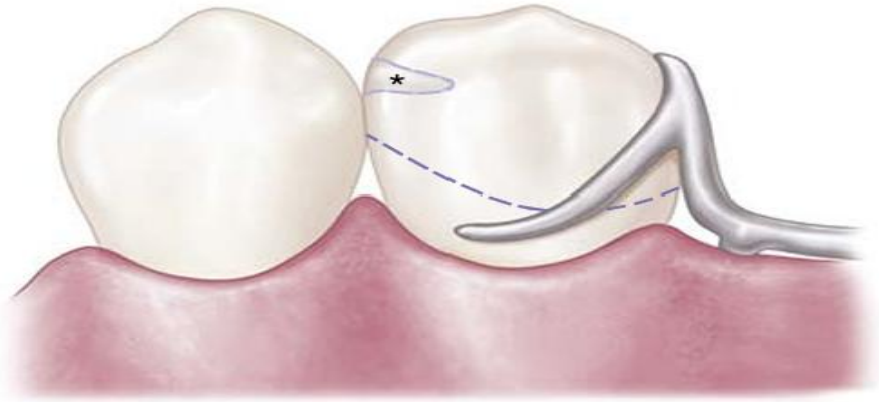
Direct Retainers (Clasp Assemblies)

- Direct retainer: engages an abutment tooth to resist displacement of the RPD away from basal seat tissues.
- Typical components: retentive arm + reciprocal (bracing) element + rest + minor connector.
- Mechanical retainers: intracoronal (precision attachments) vs extracoronal (clasps).
- Extracoronal clasps: suprabulge (approach from above height of contour) vs infrabulge (approach from below).

Direct retainers: Abutment approach

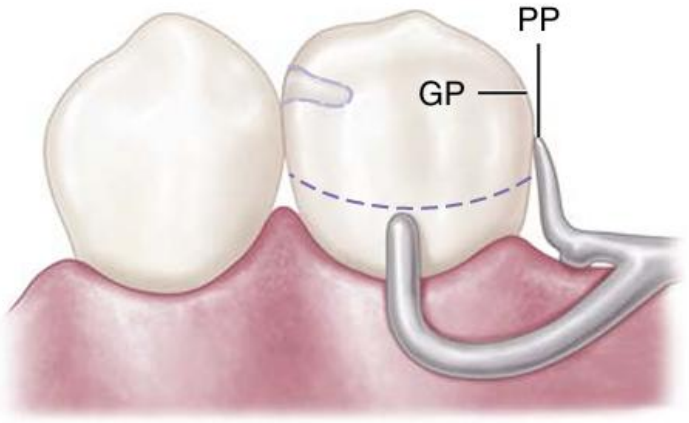
Supra-bulge

- Retentive arm approach the undercut region of the abutment from the Occlusal direction
- Continuous contact with the crown
- From occlusal to gingival
- Retention arm needs to be pull over the height of contour



Infra-bulge

- Retentive arm approach the undercut region of the abutment from the apical direction
- Short contact of retentive arm with the crown
- From gingival to occlusal
- Retention arm needs to be push over the height of contour

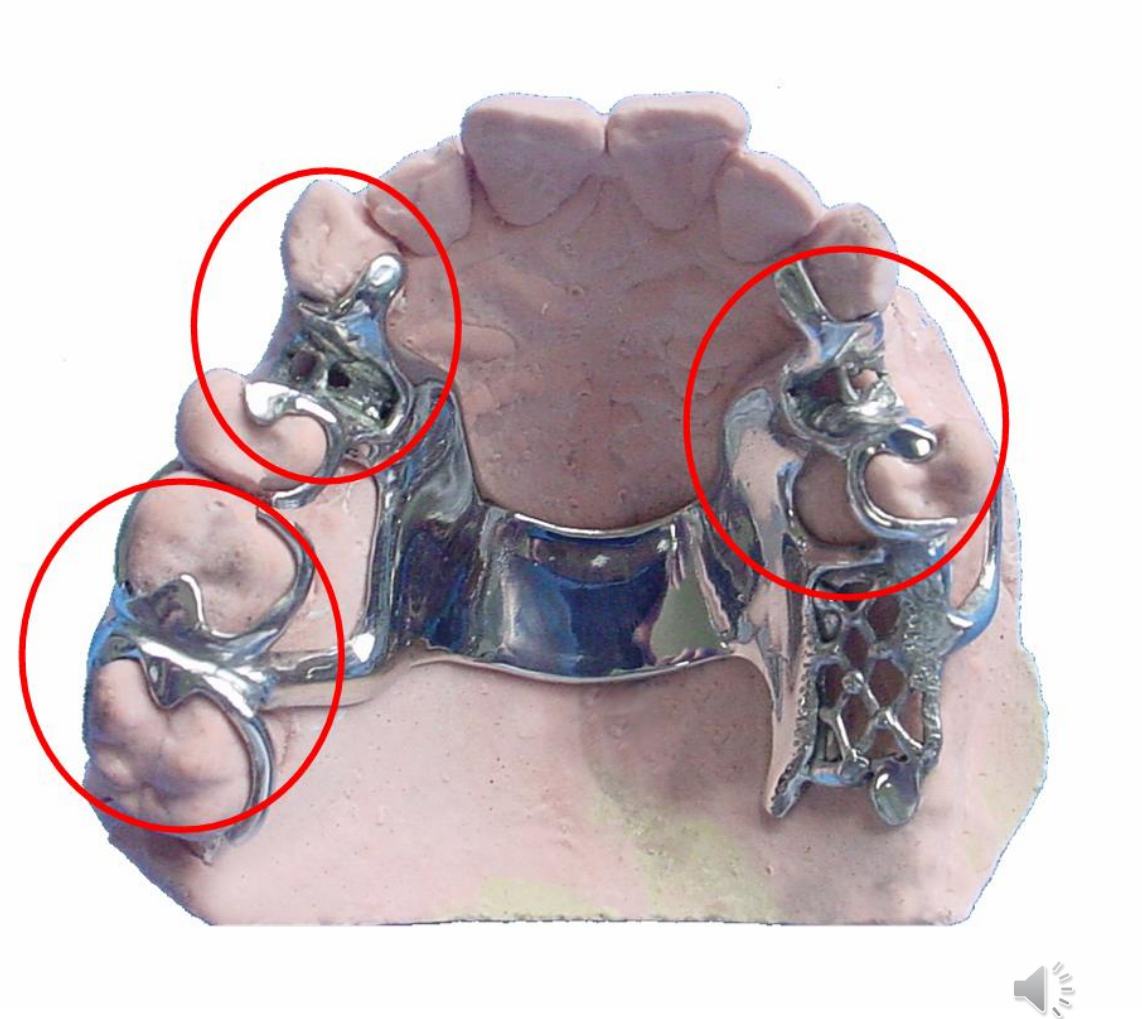


Direct retainers: Classification

According to the retention:

- Direct retainer: adjacent to the edentulous area

- Indirect retainer: away from the edentulous area

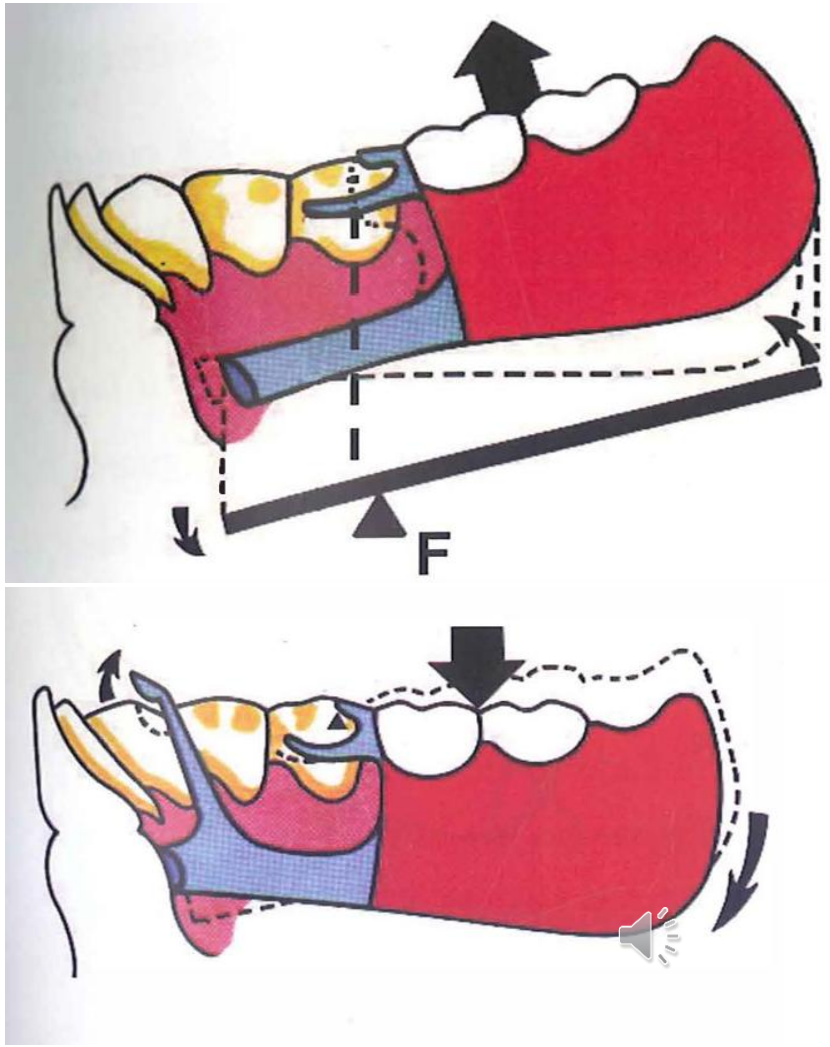


Direct retainers: Classification

- According to fabrication method:
- • Casting
- • Wrought wire

Direct retainers: Biomechnical requirements

- **Retention:** resists occlusal displacement and is provided by the terminal third of the retentive arm.
- **Support:** mainly provided by the rest. It distributes loading through the abutment - teeth protects the soft tissues & periodontium.
- **Stabilization:** bracing effect resists horizontal forces evenly through all abutment teeth



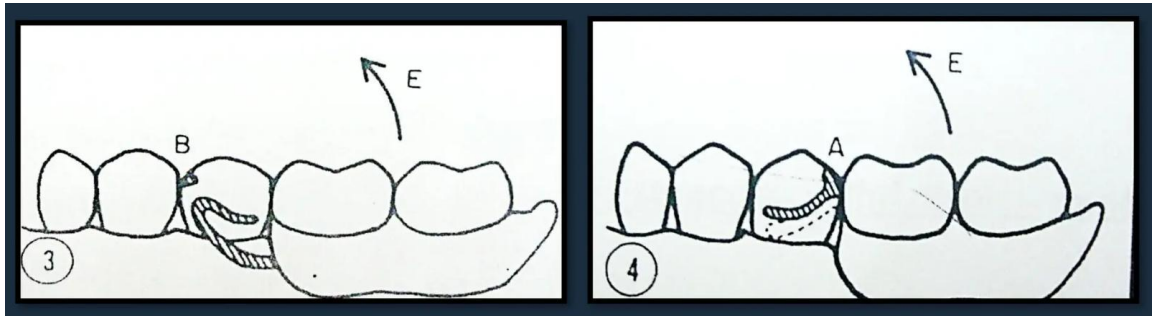
Requirements of direct retainers

- Support: resistance to gingival displacement (via rests).
- Reciprocity: counters forces as the retentive arm flexes over the height of contour.
- Stability: resistance to lateral displacement (reciprocal arms, minor connectors).
- Retention: retentive arm engages a planned undercut.
- Encirclement >180° of the tooth to prevents the prosthesis moving away from the tooth.
- Passivity: when seated, the retainer should not exert force on the tooth.
- Clinical note: select retainers to fit existing tooth form where possible; use judicious tooth preparation when needed.

Retention: Retentive Arm

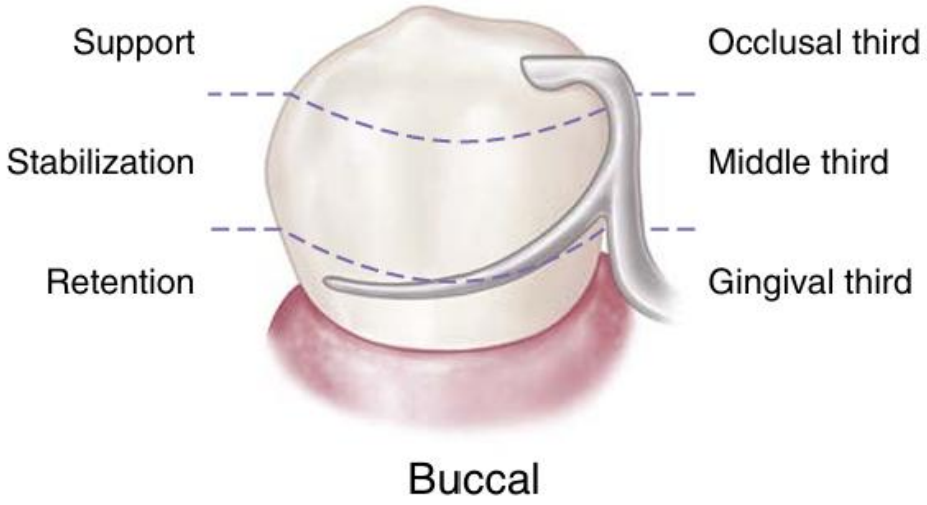
- Retentive arm engages an abutment tooth undercut to resist displacement of the RPD away from basal seat tissues due to dislodgment force.

- Dislodging forces include gravity (maxillary), adherent foods, and functional forces acting across a fulcrum.

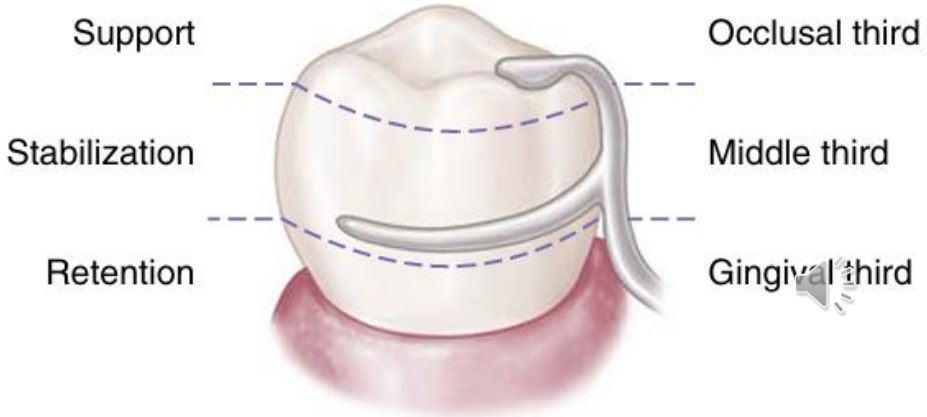


Retention principles (overview)

- Retention is achieved by engaging a suitable undercut with a flexible retentive tip.
- Choose undercut depth consistent with clasp material and design.
- A clasp should be passive when seated (retention only on attempted dislodgement).
- Encirclement: clasp assembly should surround >180° of tooth to prevent slip.
- Reciprocity and bracing are required to protect the abutment during insertion/removal.



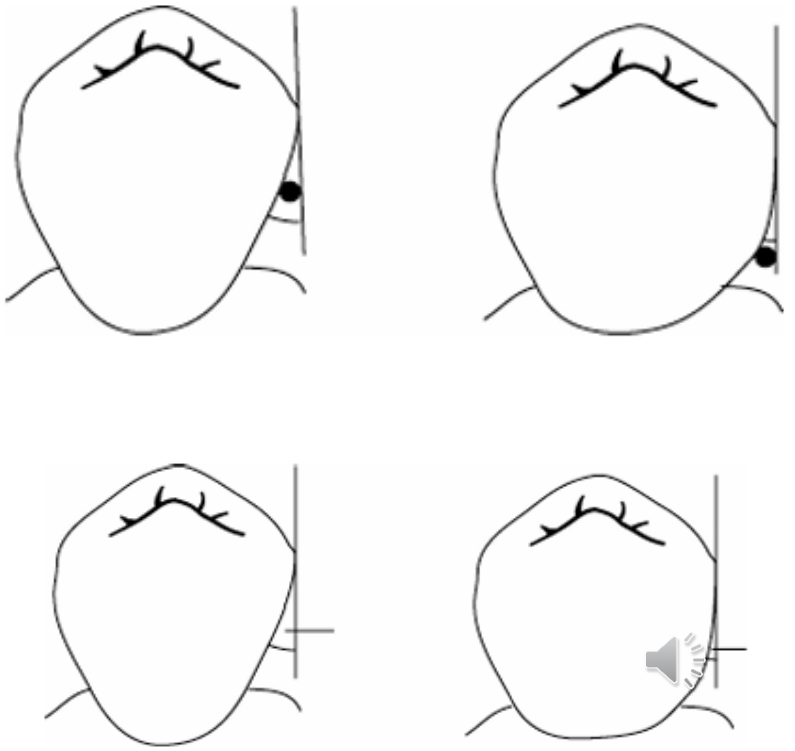
Buccal



Lingual

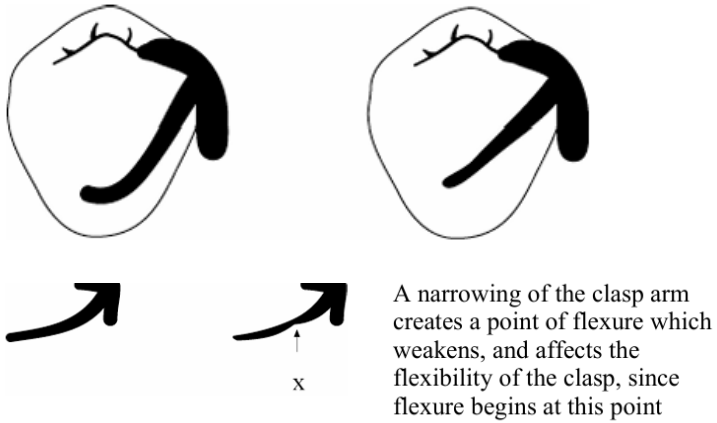
Factors affecting clasp retention: Retentive arm

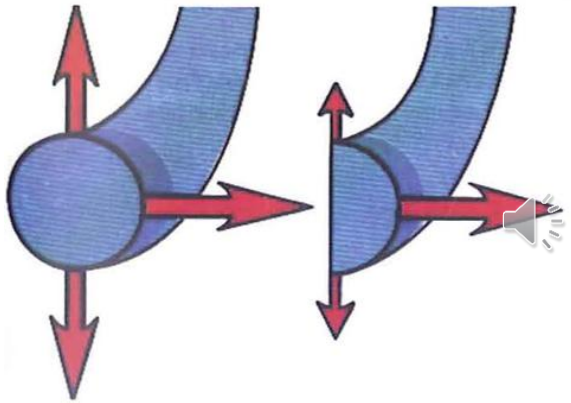
- Size of the angle of convergence.
- How far into the angle of convergence the clasp terminal is placed.
- Design principle: retention should be uniform in magnitude and bilaterally opposed.



Factors affecting clasp retention: Retentive arm

- Clasp arm flexibility depends on:
- Length (longer/curved arms ↑ flexibility).
- Diameter (smaller diameter ↑ flexibility; non-uniform taper creates a weak point).
- Cross-sectional form (round > half-round flexibility).
- Material (wrought wire generally more flexible/strong than cast clasp arms).

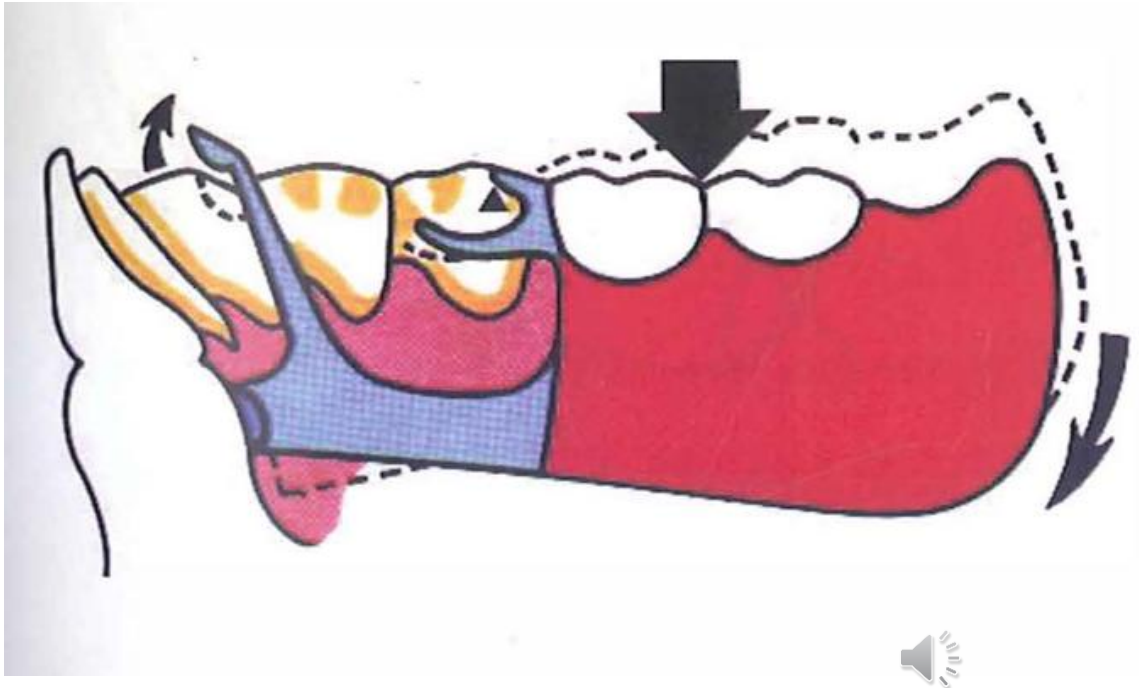




Support: Rest

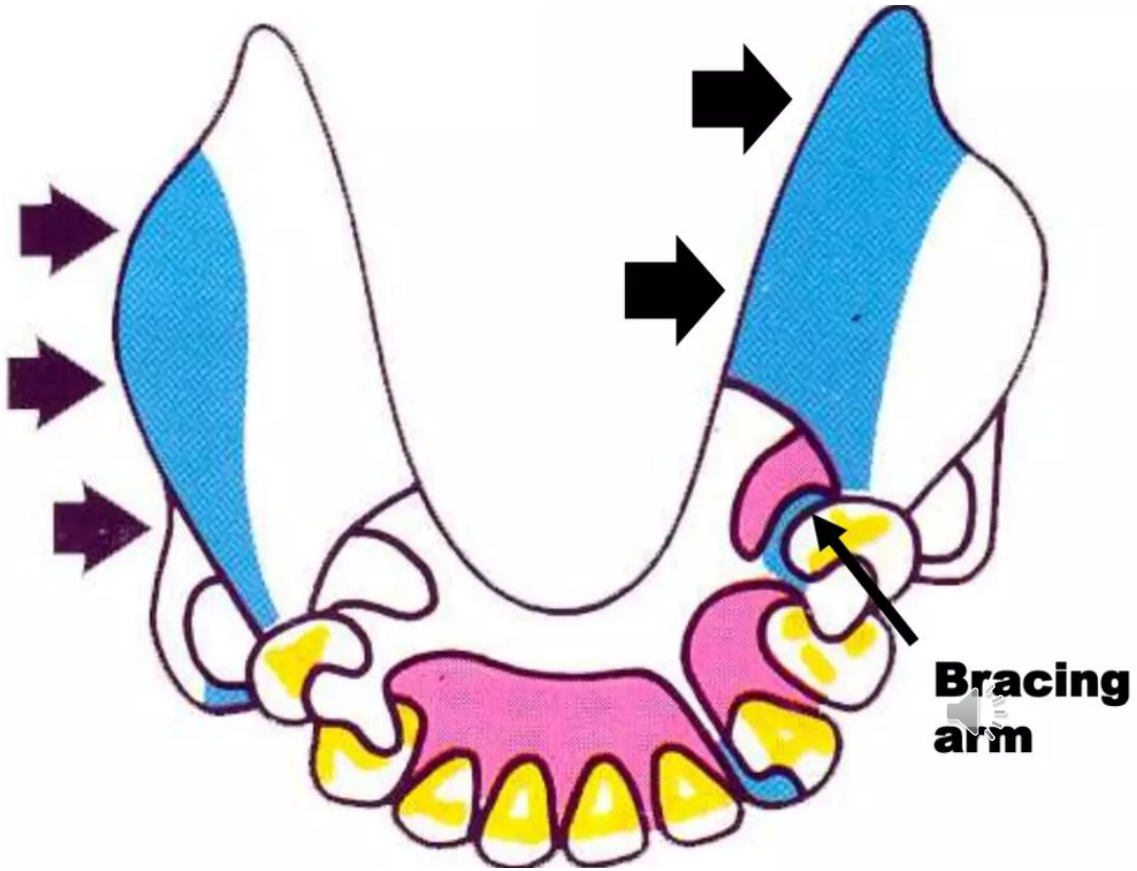
- Mainly provided by the rest. It distributes loading through the abutment - teeth protects the soft tissues & periodontium

- With lack of support, the denture has sunk into the supporting tissues, and the clasp has retreated cervically.



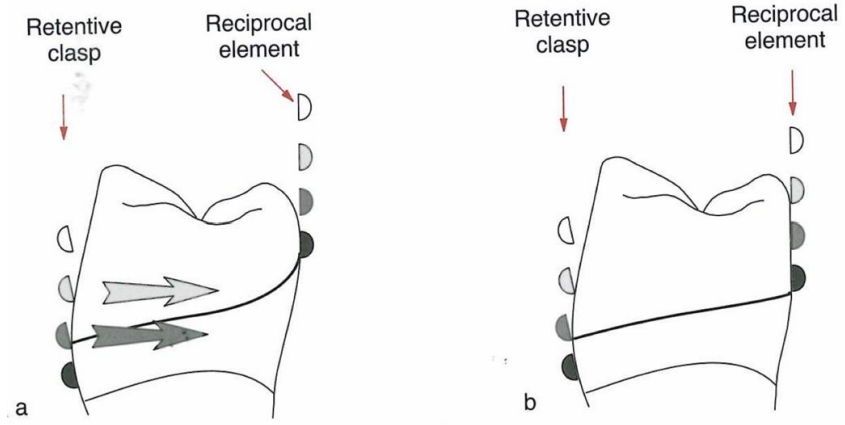
Stabilization

- Bracing effect resists horizontal forces
- Most important in distal extension cases (Kennedy Class I and II).
- Stabilization is achieved through reciprocating arm, proximal plate (minor connector) and initial third of the retentive arm.



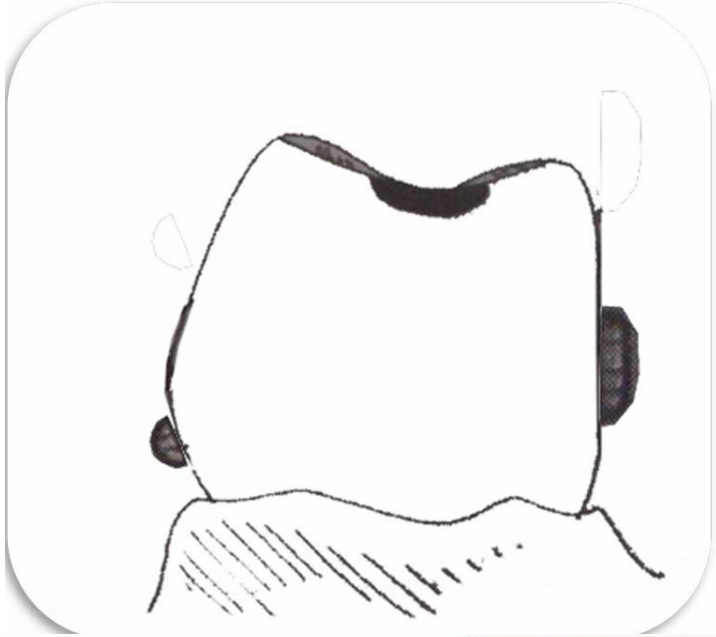
Reciprocation

- Reciprocity: Insertion force of the retention arm must be opposed by reciprocating arms and/or other components of the RPD.
- Mainly achieved through reciprocating arm of the clasp assembly
- Optimally the reciprocating arm should contact the tooth when the retentive arm engages.



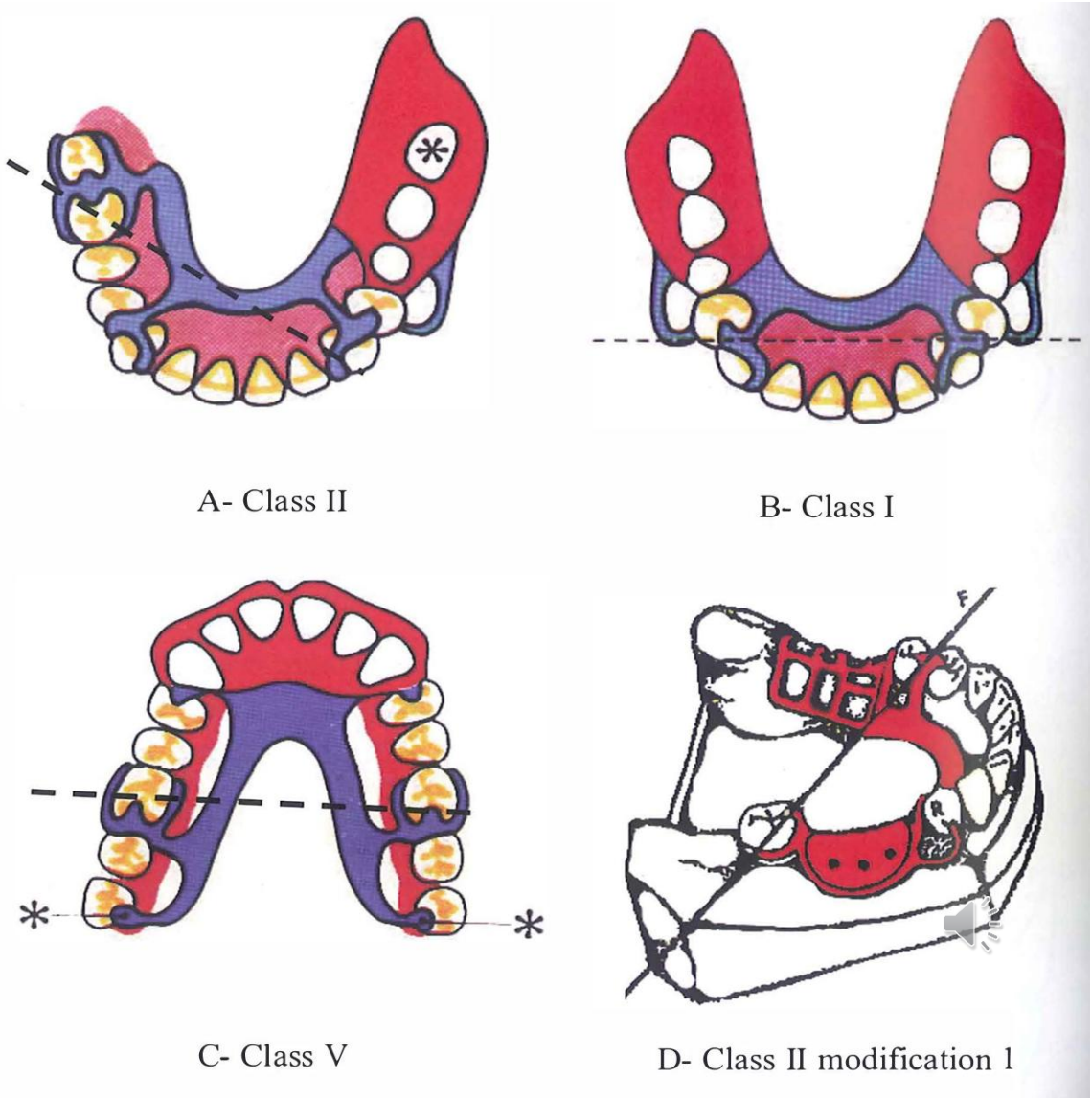
Other functional requirements of direct retainers

- **Passivity:** when fully seated the clasp assembly exerts no force on the tooth.
- **Engagement:** Components must encircle more than 180° of the tooth to prevent movement of the abutment out of the assembly.



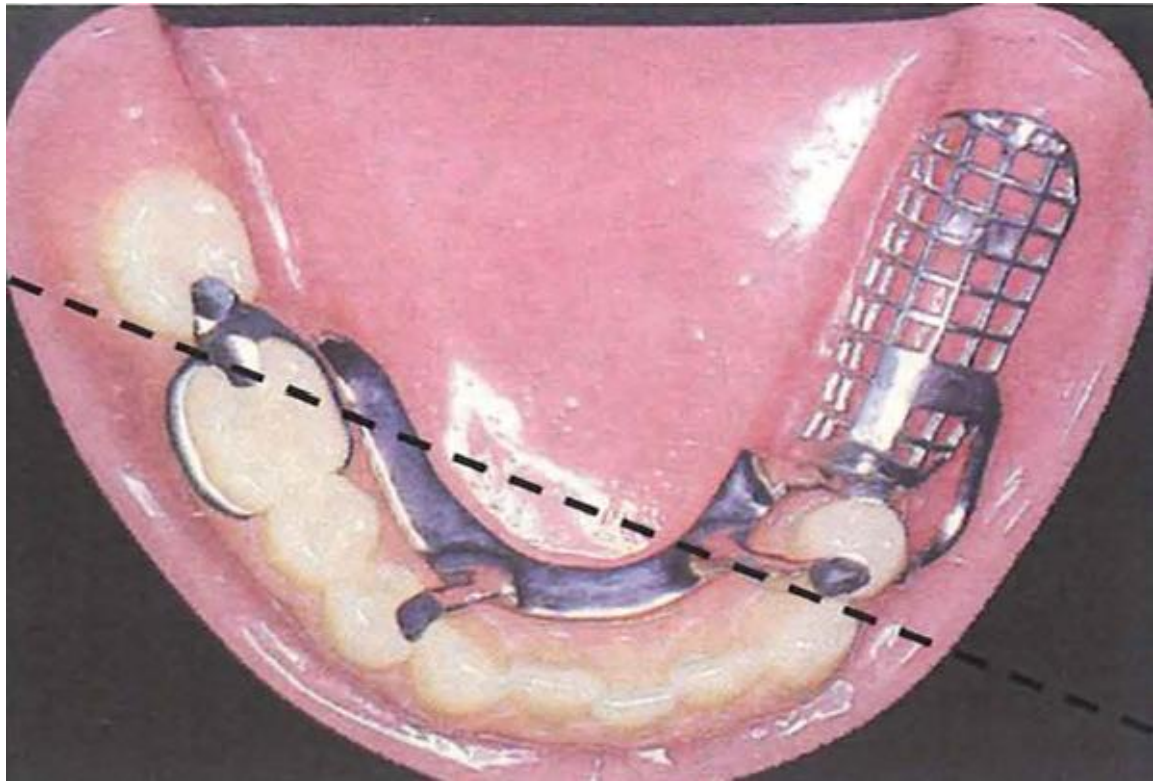
Indirect retainers: when and where?

- Indirect Retainers are "components of removable partial denture that are used to reduce the tendency of the denture to rotate in an occlusal direction about the fulcrum axis"
- Most important in distal extension cases (Kennedy Class I and II).
- Place an indirect retainer anterior to the fulcrum line to resist rotational displacement.



Indirect retainers: when and where?

- Use a well-prepared rest seat and guiding plane for effectiveness.
- Select location with good periodontal support and favorable anatomy.
- Consider multiple indirect retainers in long-span distal extensions (case-dependent).
- Indirect retention could be achieved by the rigidity of the denture frame



Types of Direct retainers: Circumferential clasps

Simple circumferential design

- The most simple and versatile clasp
- Clasp assembly has one retentive arm opposed by a reciprocal arm originating from the rest
- Used in molars and premolars
- Limitation: Abutment is tilted toward the edentulous space

Reverse circumferential design

- Rest and body opposite to the edentulous area and the arms run towards the edentulous space
- Need a proximal
- Indicated in abutment is tilted to the edentulous space
- Limitation: Short clinical crown

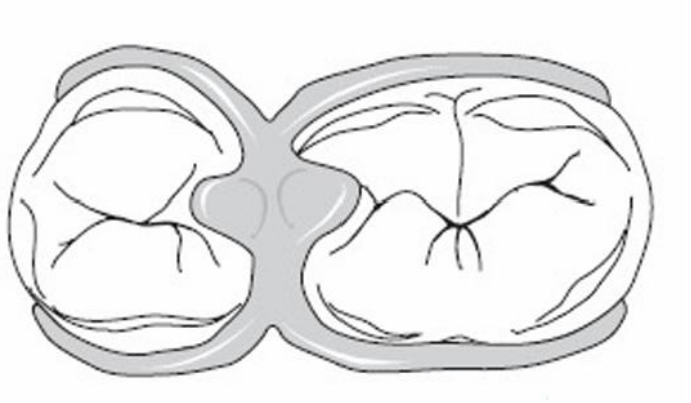
Types of Direct retainers: Circumferential clasps

Ring clasp design

- Mesial and distal rests
- Encircle nearly all tooth
- Used with molars tipped in a mesiolingual direction
- Limitation: Free-end saddle

Embrasure clasp design

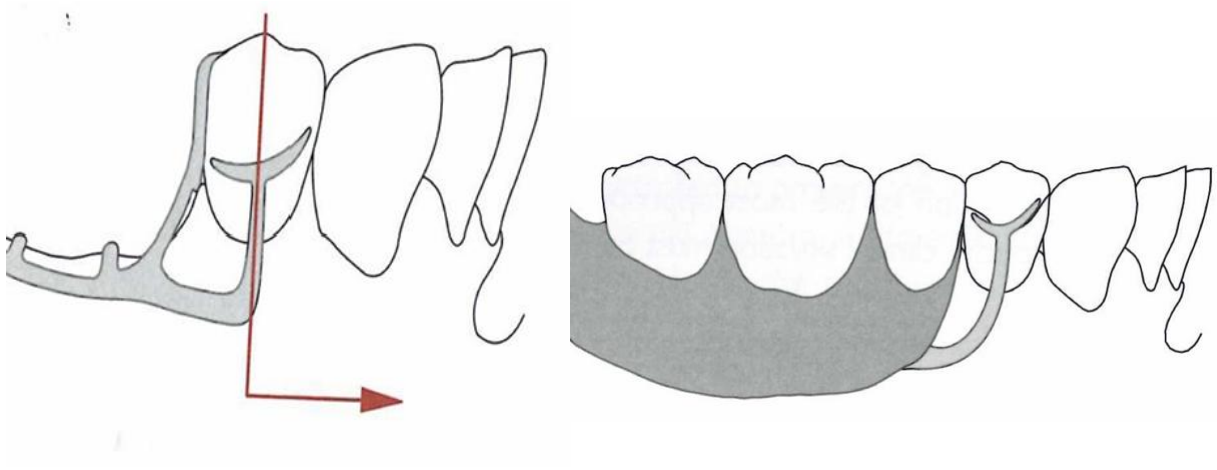
- Essentially two simple circumferential clasps joined at bodies
- There should be enough occlusal clearance
- Provides indirect retention
- Limitation: Extensive preparation



Types of Direct retainers: Bar clasps

T-clasp design

- Approach arm originates from components in the edentulous area
- Retention arm cross gingival margin at 90°
- Limitations: Interference with frenulum and Severe soft tissue undercut
- Indication: Intercalated or free end edentulous area

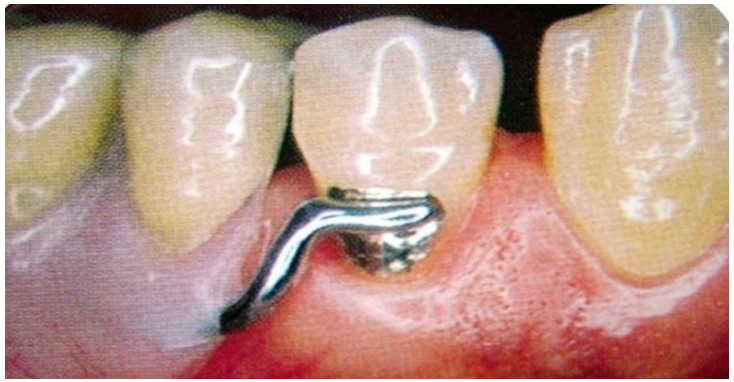


Modified T-clasp design

- Only one horizontal projection
- Design to avoid significant soft tissues undercuts

Indication:

- Intercalated or free end edentulous area Limitation
- Interference with frenulum
- Severe soft tissue undercut (Risk of food entrapment and Soft tissue irritation)
- Height of contour near the occlusal surface



Types of Direct retainers: Bar clasps

I-clasp design

- Cross perpendicular the gingival margin
- Should be placed mesially to the midfacial prominence of the abutment

Indication:

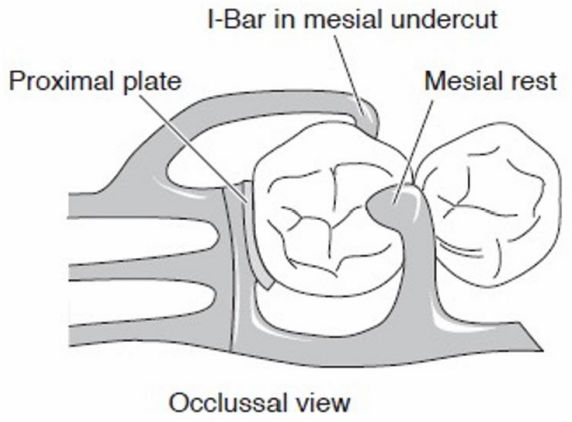
- Intercalated or free end edentulous area

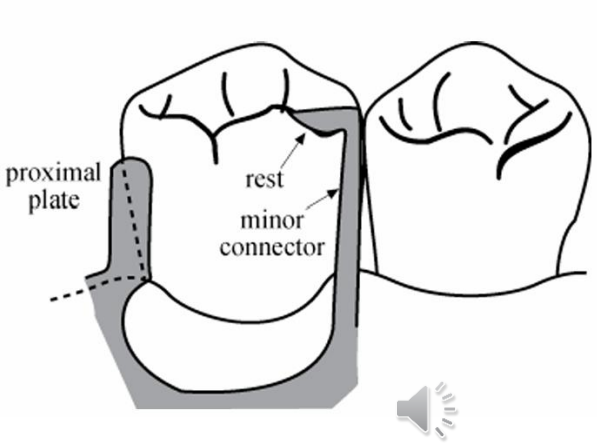
Limitation

- Interference with frenulum
- Severe soft tissue undercut (Risk of food entrapment and Soft tissue irritation)
- Height of contour near the occlusal surface

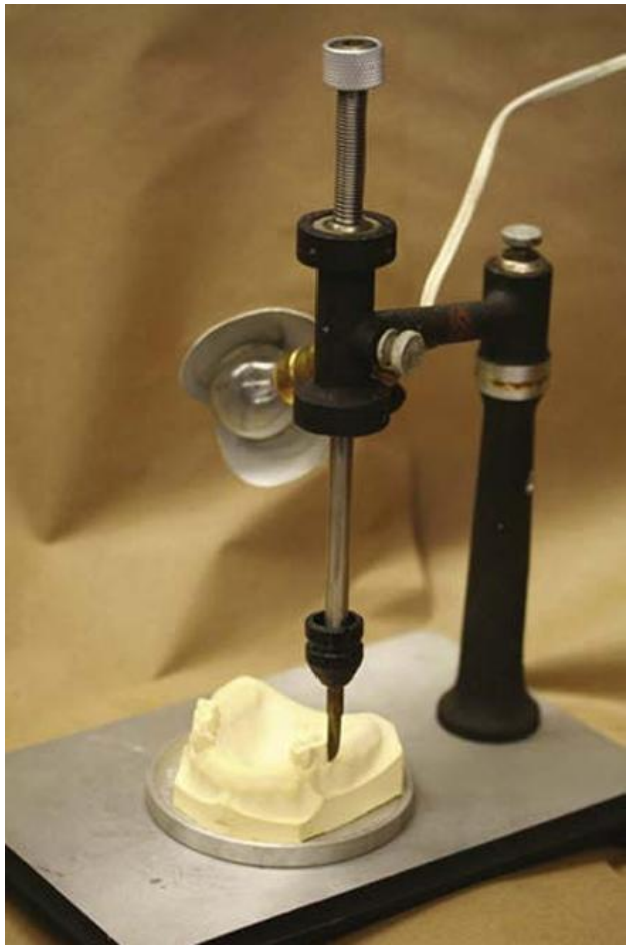
RPI clasp design

- Comprises of rest (R), proximal plate (P) and I bar (I).
- The I bar is located in the mesio-buccal undercut
- Need preparation of guiding planesFrom gingival to occlusal
- Indication: Kennedy Class I and II



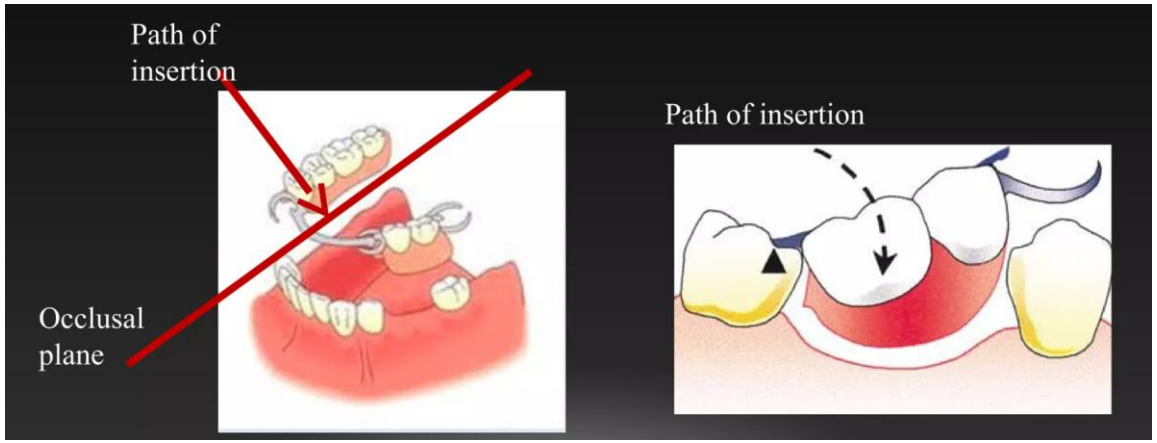


4. Surveying, Path of Insertion, Guiding Planes



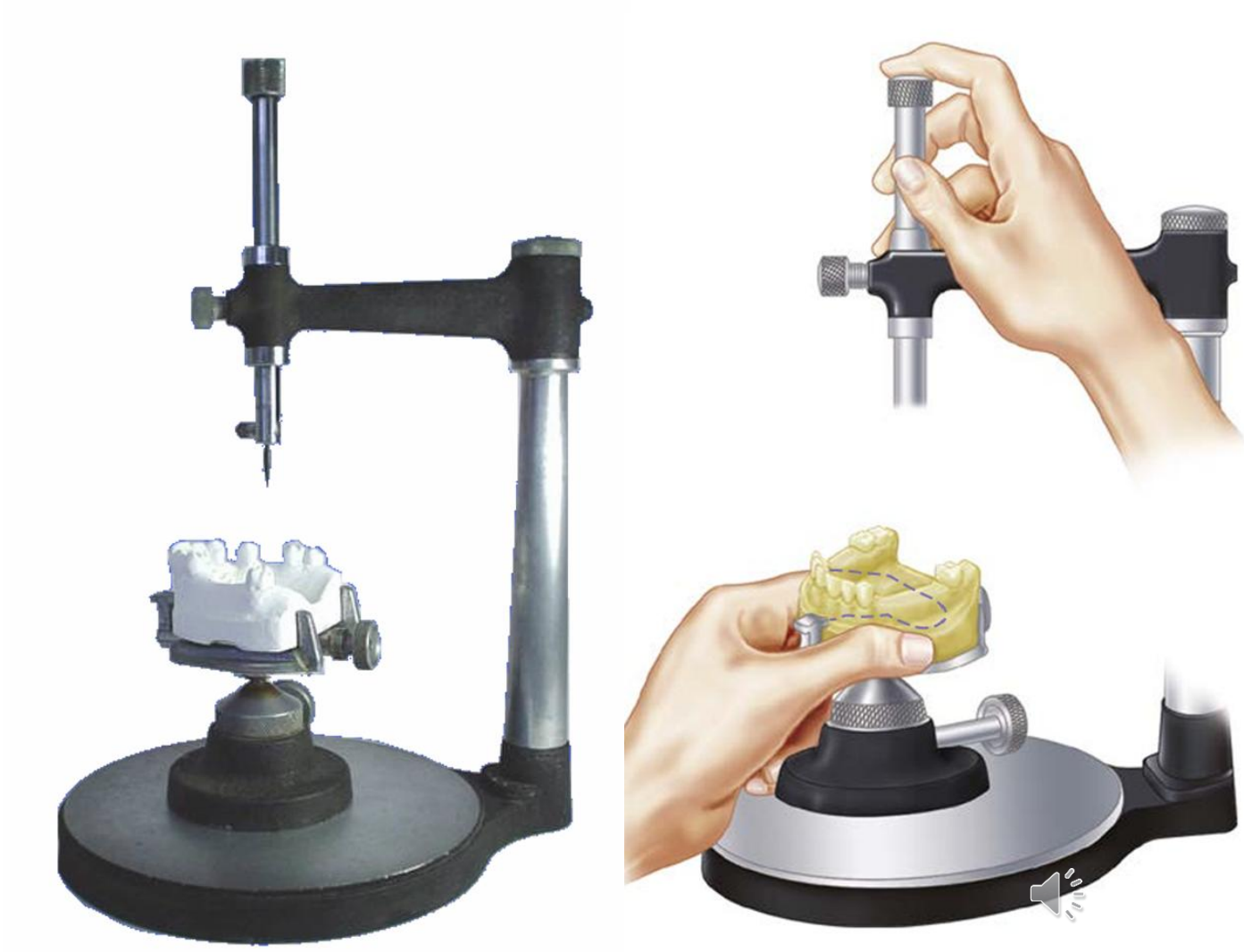
Definitions: Path of insertion

- A path of insertion (or removal) is the path along which a prosthesis is placed (or removed) intraorally. A removable partial denture is usually fabricated to have a single path of insertion or removal from the mouth. A single path of insertion is advantageous because it: Evaluate tooth alignment, soft tissue undercuts, and interferences to insertion/removal.



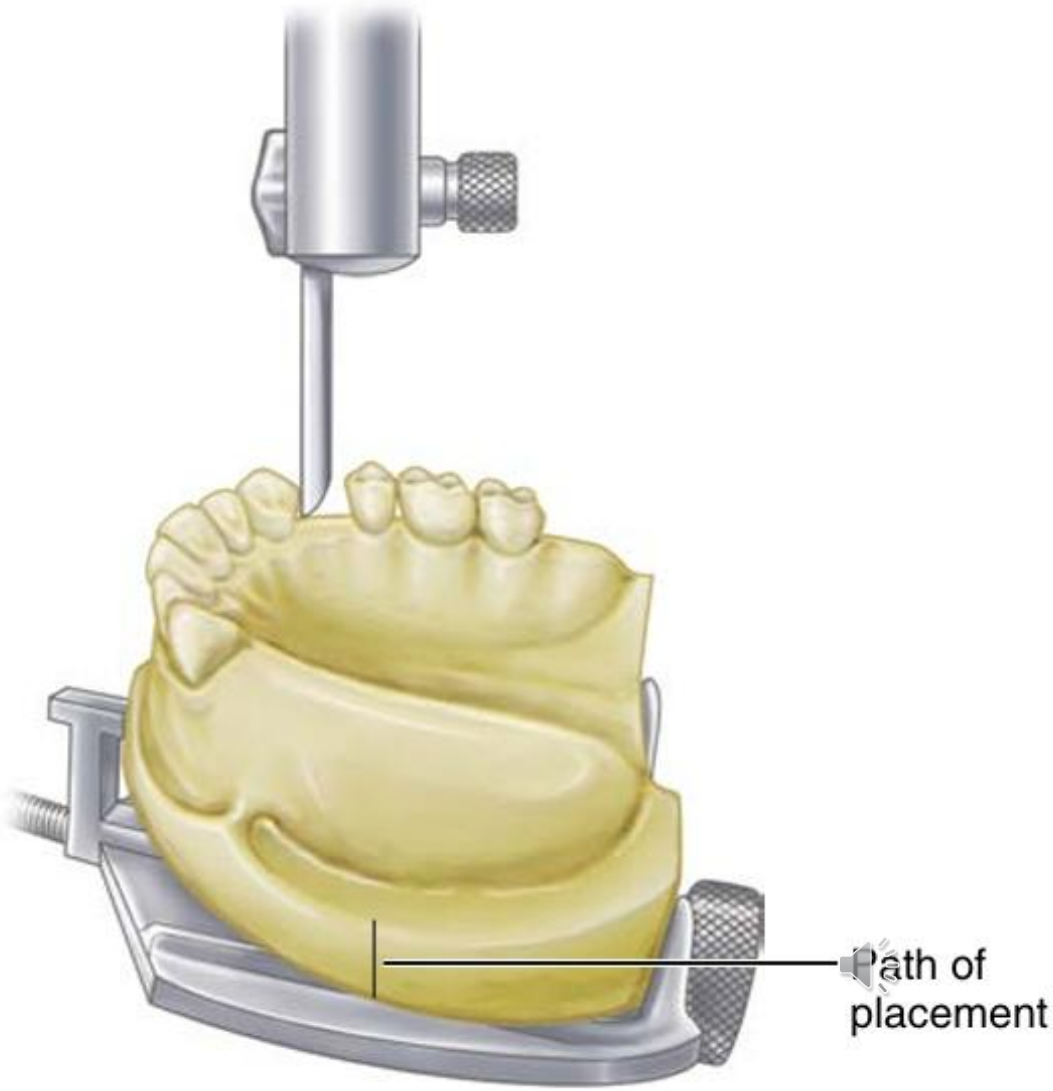
Definitions: Surveyors

- The dental surveyor is a diagnostic instrument used to select the most favorable path of insertion and aid in the preparation of guiding planes. It is an essential instrument in designing removable partial dentures. The act of using a surveyor is referred to as surveying.



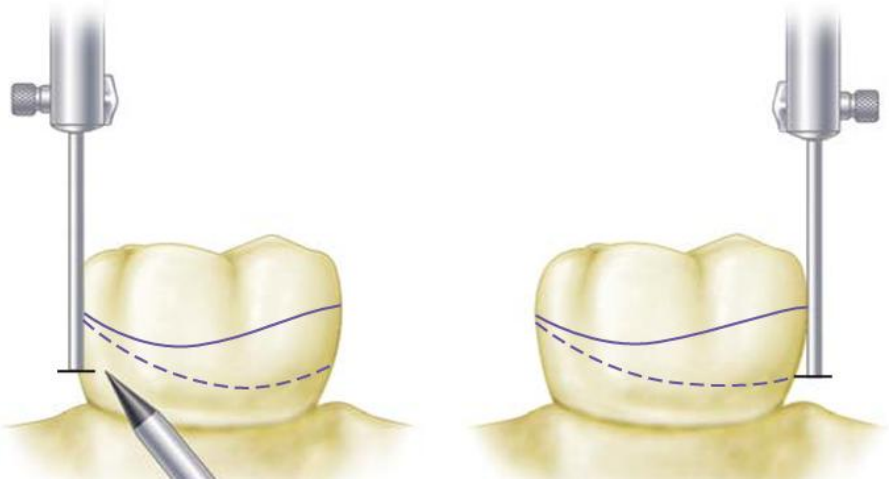
Why we survey: diagnostic cast analysis

- Identify the height of contour and usable undercuts on abutment teeth.
- Evaluate tooth alignment, soft tissue undercuts, and interferences to insertion/removal.
- Select a path of insertion that balances retention, esthetics, and minimal tooth modification.
- Guide design decisions: clasp type, guiding planes, and mouth preparation needs.
- Record the selected tilt (tripoding) for consistency.



Survey lines, height of contour, and undercuts

- Survey line depends on the chosen path of insertion (tilt changes the survey line).
- Undercuts can be buccal, lingual, mesial, or distal—location influences clasp selection.
- Select undercuts that provide retention while minimizing esthetic compromise.
- Evaluate soft tissue undercuts to avoid impingement and insertion difficulties.
- Plan enamel recontouring or surveyed restorations if needed.



Determining the path of insertion: key factors

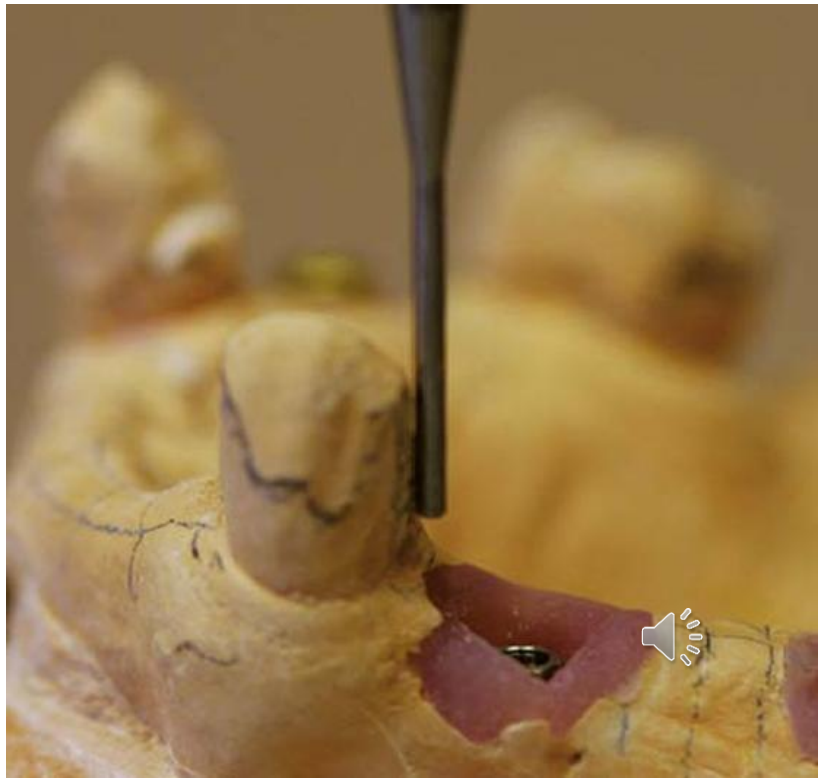
- Minimize interferences while maintaining effective guidance and stability.
- Consider esthetics: clasp display, especially in anterior region.
- Consider biomechanics: tilt may change undercut availability and clasp effectiveness.
- Aim for a path compatible with prepared guiding planes.
- Record the selected path for laboratory communication.

Guiding planes: definition and benefits

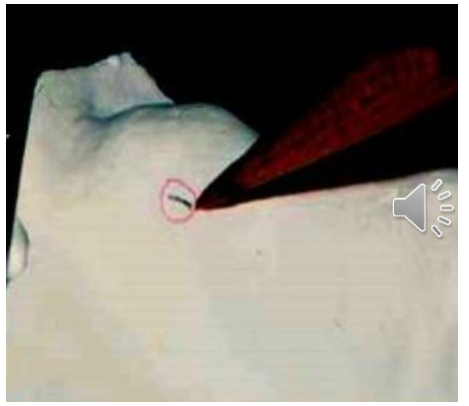
- Guiding plane: a prepared axial surface (usually 2–3 mm) parallel to the path of insertion.
- Benefits: improved stability, reduced food trapping, controlled insertion/removal.
- Enhances effectiveness of proximal plates and indirect retainers.
- Creates a more definite path of insertion for patient ease.
- Should be planned on diagnostic casts and created during mouth preparation.

Guiding plane preparation: practical guidelines

- Prepare on proximal surfaces adjacent to edentulous areas (where indicated).
- Maintain enamel integrity; smooth, parallel surfaces without undercuts.
- Avoid over-reduction that compromises tooth structure or creates sensitivity.
- Check parallelism relative to the selected path of insertion.
- Common pitfalls: short planes, divergence, or creating new undercuts.

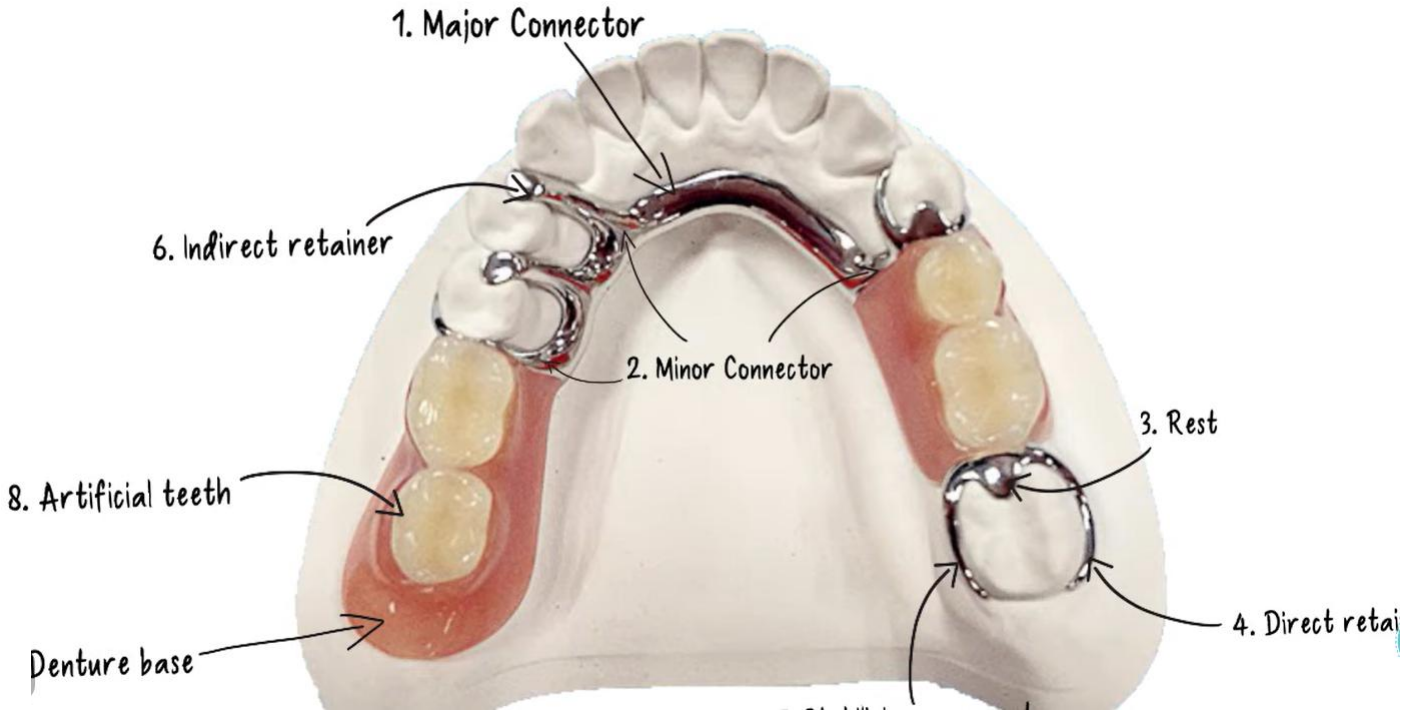


Tripoding and recording the cast position



- Tripoding marks preserve cast orientation on the surveyor.
- Allows consistent re-surveying after mouth preparation or design changes.
- Supports accurate framework fabrication and clasp placement.
- Re-survey after altering tooth contours or preparing guiding planes/rest seats.
- Document planned modifications clearly on the lab prescription.

5.Principles of Partial Denture Design



Design sequence (recommended workflow)

1) Diagnose and define the problem (missing teeth, periodontal status, occlusion).

2) Classify the arch (Kennedy) and identify support type (tooth vs tooth–tissue).

3) Survey diagnostic casts and select a path of insertion.

4) Plan mouth preparation: guiding planes, rest seats, contours, restorations.

5) Select major/minor connectors, rests, clasp assemblies, and indirect retainers.

6) Plan impressions and base extension appropriate to support needs.

Support & stability principles (overview)

- Maximize support: use rests on suitable abutments and extend bases within functional limits.
- Rigidity: major connectors must be rigid for cross-arch stabilization.
- Bracing: use reciprocal elements and guiding planes to resist horizontal forces.
- Stability improves with broad, well-adapted bases and controlled path of insertion.
- Avoid designs that concentrate stress on a single abutment or small tissue area.

Stress control in distal extension cases

- Distal extension bases rotate under load → control rotation and protect abutments.
- Use broad base extension and appropriate impression technique to improve tissue support.
- Use indirect retainers to resist lifting of the base away from tissues.
- Consider clasp designs that reduce torque on abutments (case-dependent).
- Aim for force distribution: across teeth, tissues, and the arch (cross-arch stabilization).

Retention and reciprocity: clasp design rules (overview)

- Retention: flexible retentive tip engages a planned undercut; clasp must be passive when seated.
- Reciprocity: a reciprocal element contacts the tooth as the retentive arm flexes over the height of contour.
- Encirclement: clasp assembly should surround >180° of the tooth.
- Support: include a rest to direct forces appropriately and stabilize the assembly.
- Simplicity and hygiene: minimize coverage consistent with function.

Hygiene, esthetics, and maintenance (design for long-term success)

- Minimize gingival coverage; avoid plaque-retentive contours and food traps.
- Select connector designs that balance rigidity with patient comfort and cleaning access.
- Place clasps to minimize display where possible while maintaining function.
- Plan for maintenance, relines, repairs, and periodic review.
- Patient education is part of design success (cleaning, insertion/removal, recall).

Kennedy Class I: implications for design

- Tooth–tissue support → greater potential for rotation under function.
- Maximize denture base extension for support.
- Use rigid major connectors for cross-arch stabilization.
- Indirect retainers are usually important to control rotation.
- Clasp selection should help minimize torque on abutments.

Kennedy Class II: implications for design

- Unilateral distal extension → asymmetrical loading and rotation.
- Cross-arch stabilization is essential.
- Indirect retention commonly required.
- Denture base extension and impression technique influence support.
- Design aims to balance retention while protecting abutment tooth.

Kennedy Class III: implications for design

- Primarily tooth-supported (bounded saddle) → more predictable support.
- Less rotation compared with distal extension cases.
- Indirect retainers may be less critical (case-dependent).
- Clasping often straightforward; focus on hygiene and esthetics.
- Connector choice still must be rigid and hygienic.

Kennedy Class IV: implications for design

- Single anterior edentulous area crossing midline.
- Esthetics and support are key considerations.
- Canine guidance, lip support, and phonetics may influence tooth position.
- Often no modification spaces allowed under Applegate rules.
- Clasp display should be minimized where possible.