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**WESTERN
AUSTRALIA**



Oral Health Centre
of Western Australia

Dental Surveyor

Dr Matsubara

Learning outcomes:

- Discuss the aim of using a dental surveyor,
- Describe all components of a surveyor,
- Discuss how the surveyor is used for the fabrication of a Co-Cr RPD,
- Describe three different techniques to establish the ideal path of insertion of an RPD.



DEFINITION

Paralleling instrument: the relative parallelism of two or more tooth surfaces

It is an instrument used to locate and delineate the contours and relative positions of abutment teeth and associated structures. GPT

Used to select the most favorable path of insertion and aid in the preparation of guiding planes.



Dental Surveyor



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Parts of a dental surveyor

- Dental surveyor



Dental Surveyor



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Parts of a dental surveyor

- Dental surveyor:
 - Surveying platform
 - Vertical column
 - Horizontal arm
 - Surveying arm
 - Mandrel

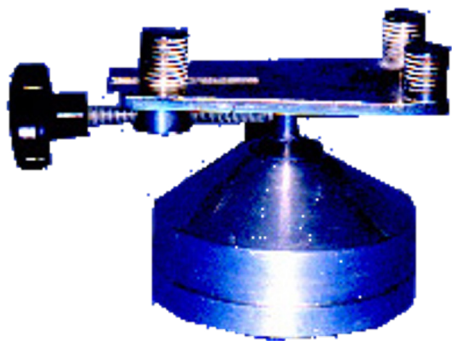
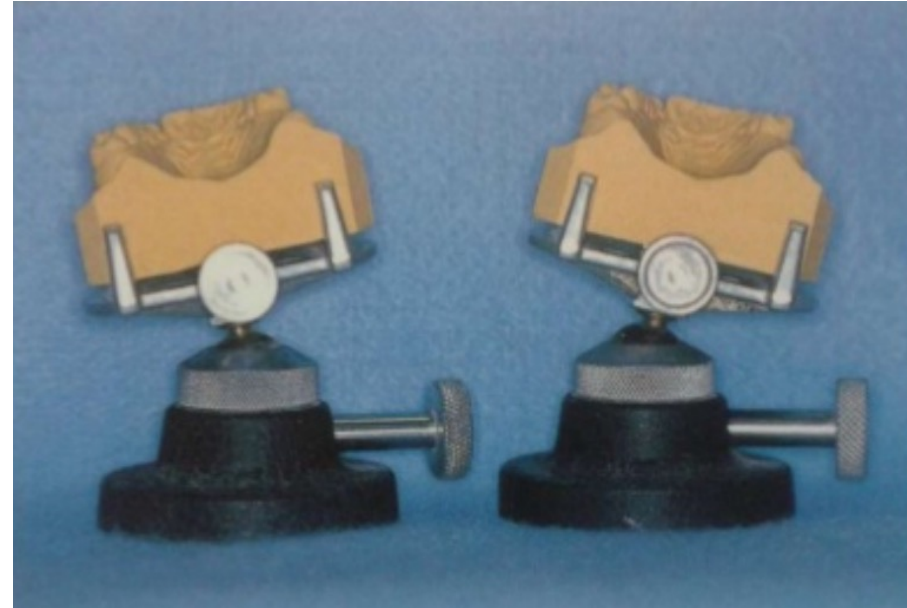


Dental Surveyor



Parts of a dental surveyor

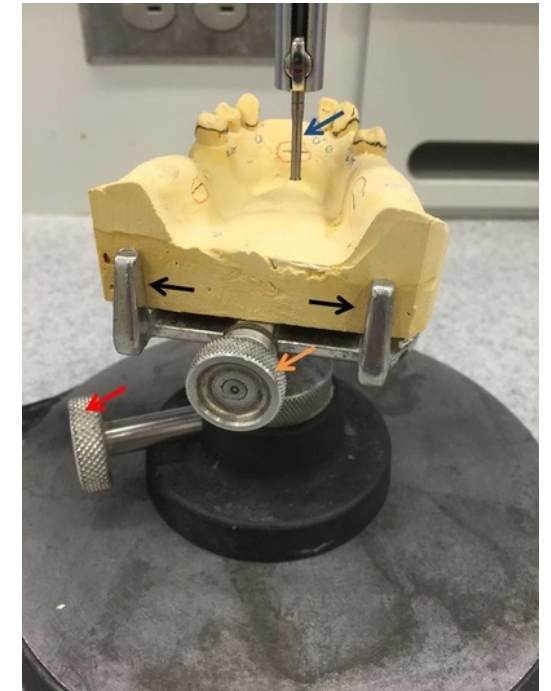
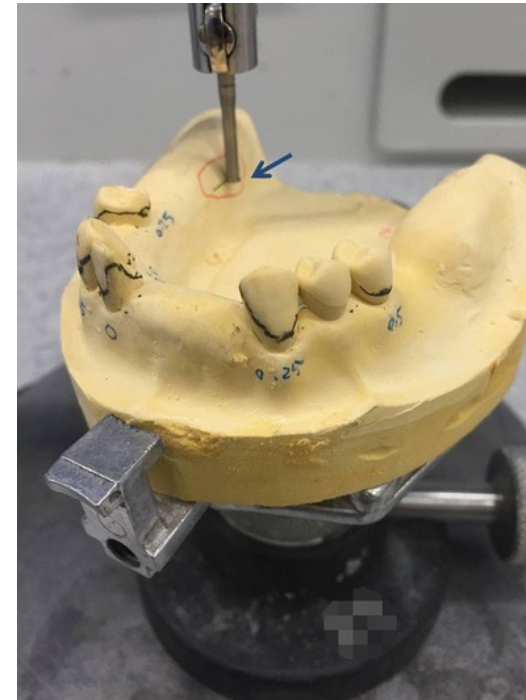
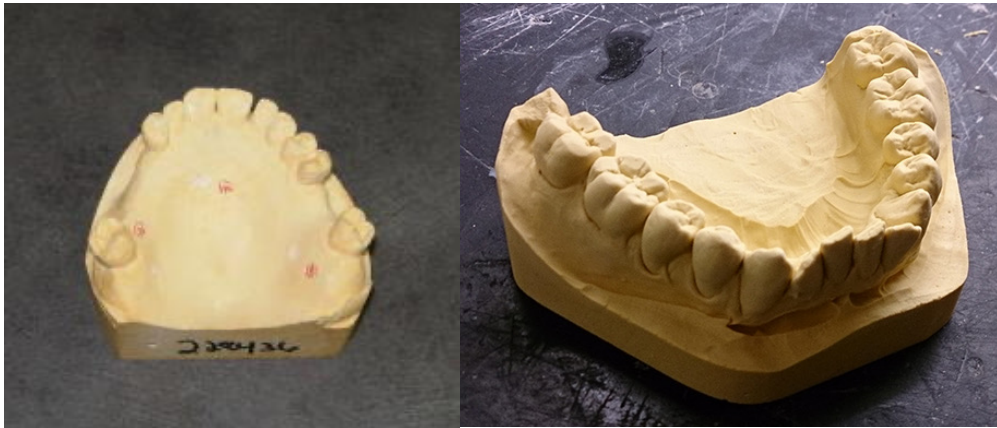
- Surveying table:
 - Hold dental cast
 - Ball-and-socket joint



Dental Surveyor

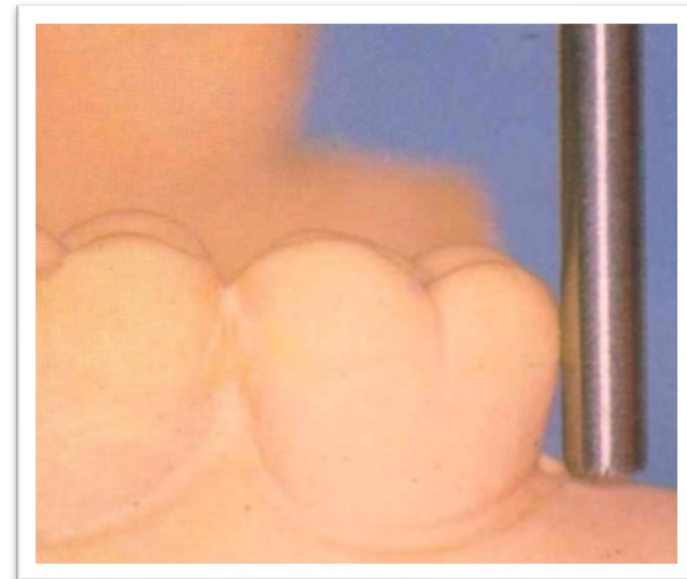
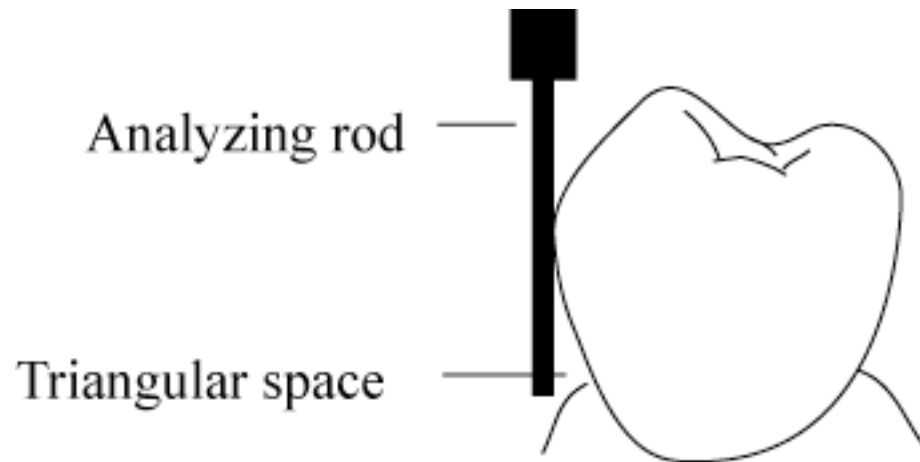
Parts of a dental surveyor

- Surveying table:



Parts of a dental surveyor

- Surveying tools:
 - Analyzing rod: determine relative parallelism of axial surfaces, analyze contours and undercut area without marking the cast



Parts of a dental surveyor

- Surveying tools:
 - Analyzing rod
 - Carbon marker: mark the height of contour of teeth on surfaces of the dental cast.



Parts of a dental surveyor

- Surveying tools:
 - Analyzing rod
 - Carbon marker
 - Undercut gauges: Identify the position of desired undercuts on casts



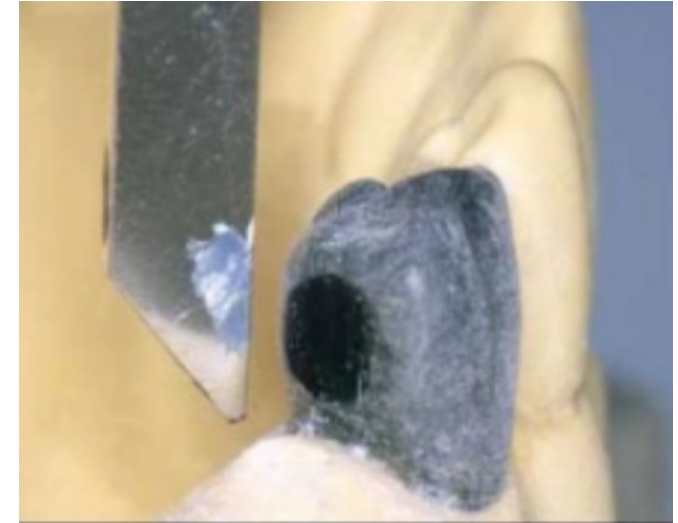
Parts of a dental surveyor

- Surveying tools:
 - Analyzing rod
 - Carbon marker
 - Undercut gauges
 - Surveyor blade: trim stone tooth to adjust the height of contour to the desirable position.



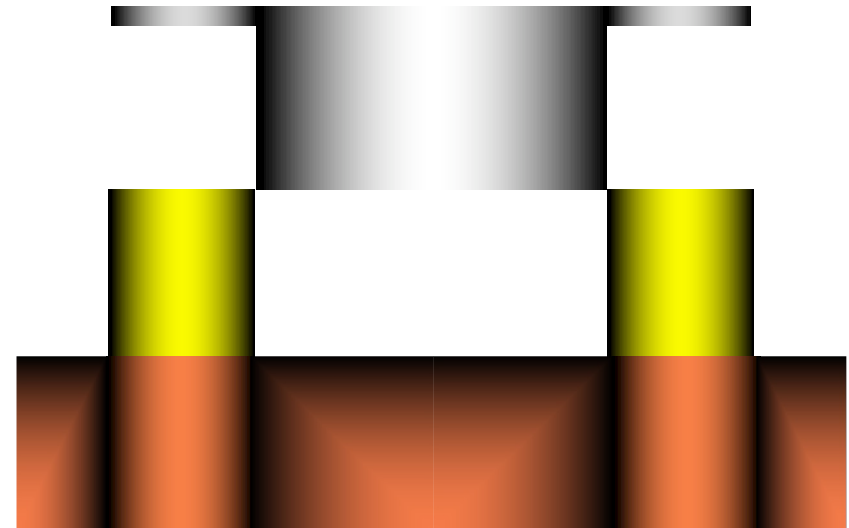
Parts of a dental surveyor

- Surveying tools:
 - Analyzing rod
 - Carbon marker
 - Undercut gauges
 - Surveyor blade
 - Wax knife: used during blockout procedures cutting wax and in the construction of surveyed restorations (preparing guiding planes).

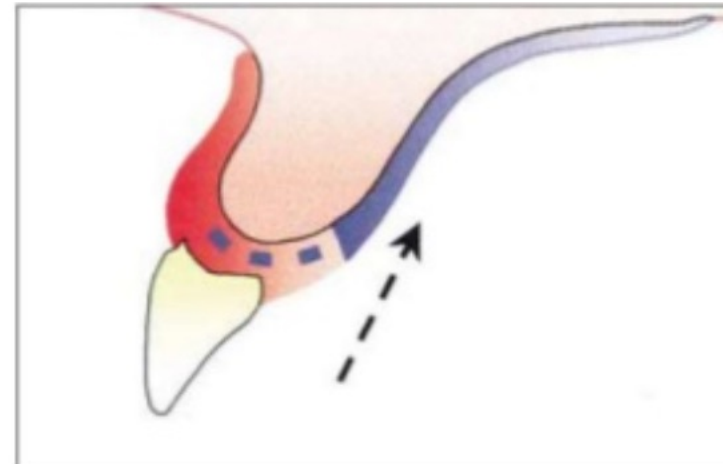
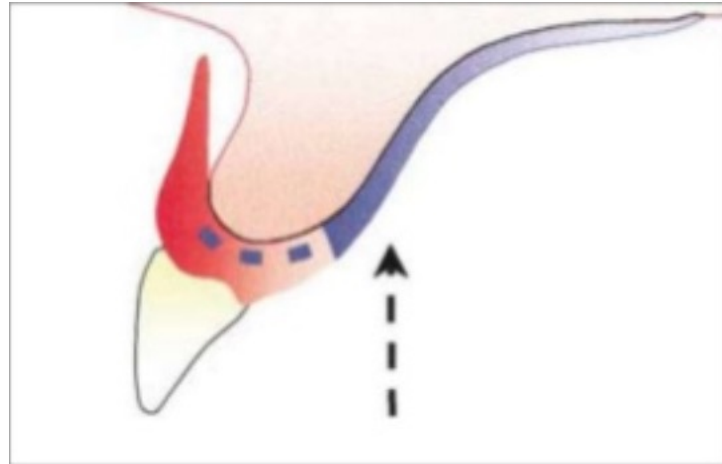


Functions of surveyor

- 1) Determine the most favorable path of insertion:
 - Presence of suitable undercuts
 - Elimination of hard and soft tissues interferences
 - Creation of desirable aesthetic
 - Establish of appropriate guide planes



Interferences



Interferences



Exostoses



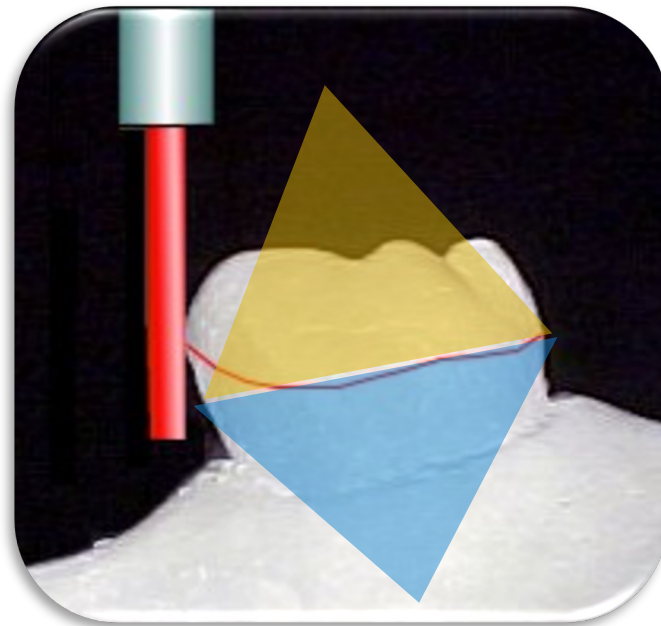
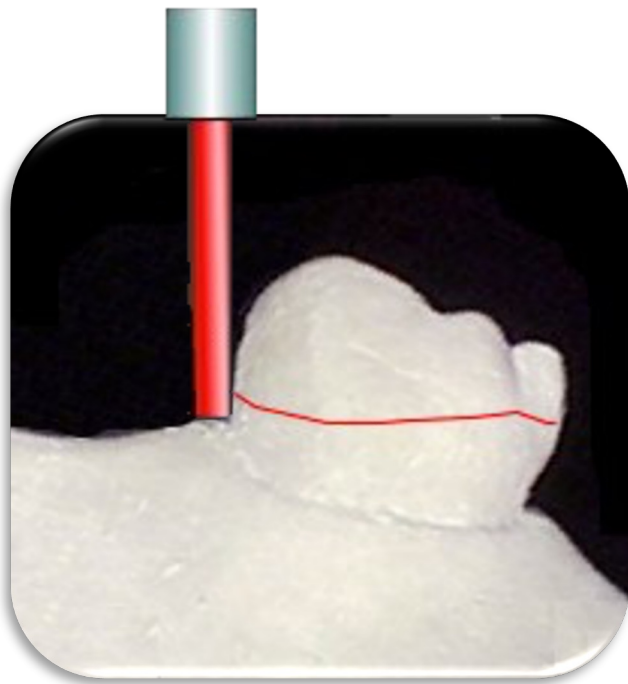
Mandibular Tori

Interferences



Functions of surveyor

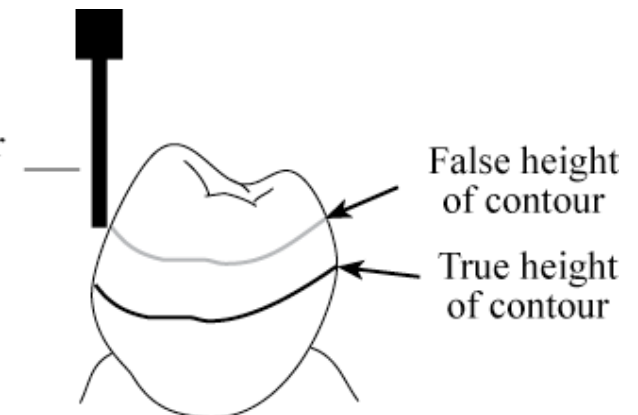
2) Delineate the height of contour of supporting teeth.



Surveyor blade



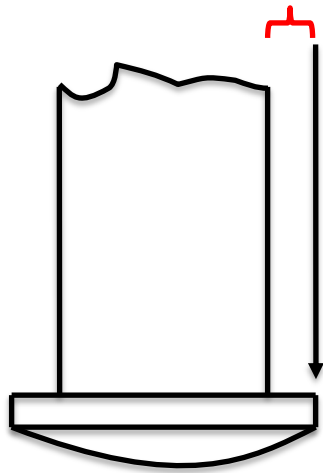
Carbon marker
too high on
tooth



Functions of surveyor

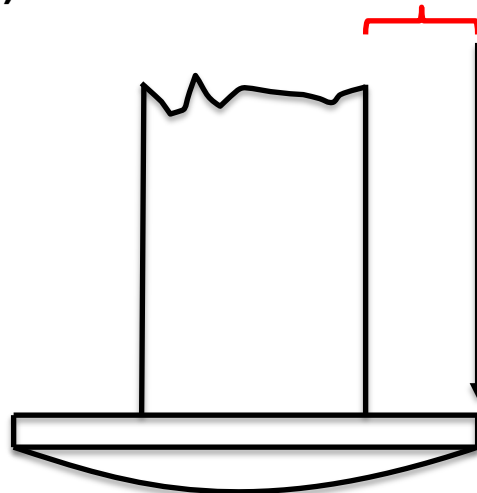
3) Determine the areas of the teeth that may be used for the denture retention

0.25 mm (0.01 inch)



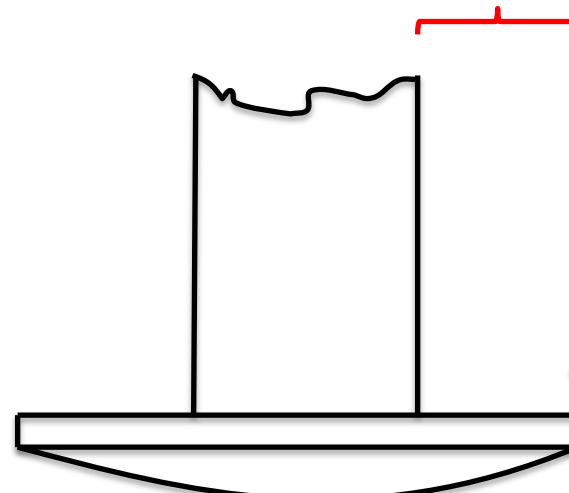
CoCr alloys

0.50 mm (0.02 inch)

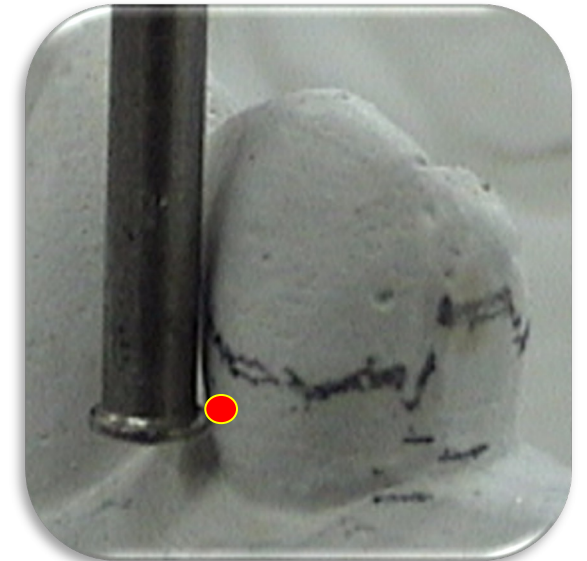


Cast gold

0.75 mm (0.03 inch)



Stainless steel wire



Functions of surveyor

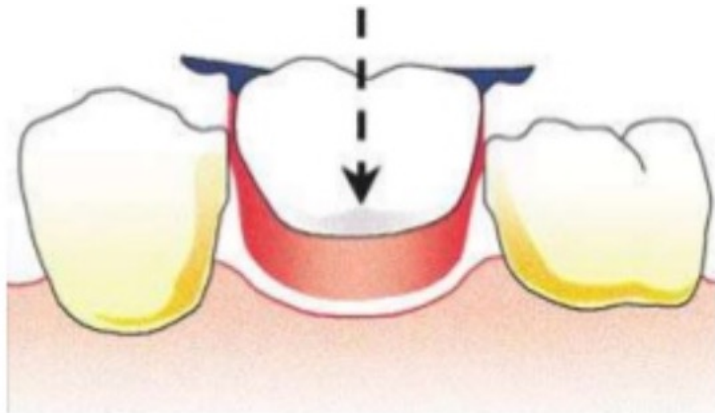
4) Identify proximal tooth surfaces that are parallel, so they act as guiding planes during placement and removal.

If no parallel walls are available, we need to adjust the supporting teeth contour to create parallel interproximal surfaces.

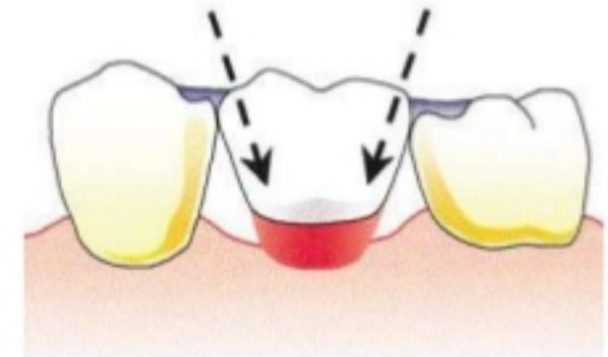


Functions of surveyor

- 4) Identify proximal tooth surfaces that are parallel, so they act as guiding planes during placement and removal.



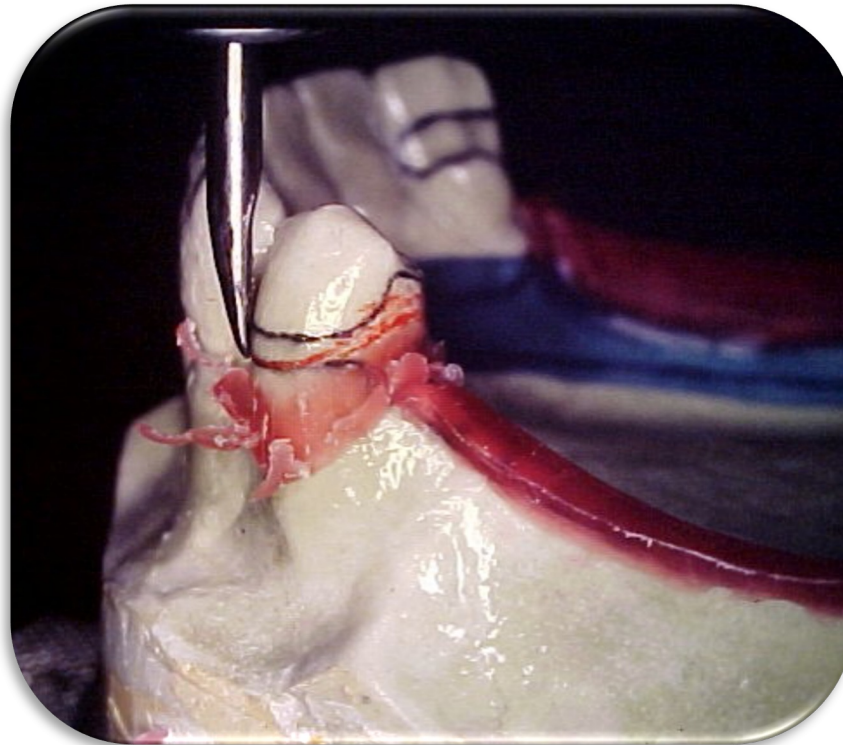
Single path



Multiple paths

Functions of surveyor

- 5) Assist the relieve of master cast (block-out procedures): shaping and cutting wax



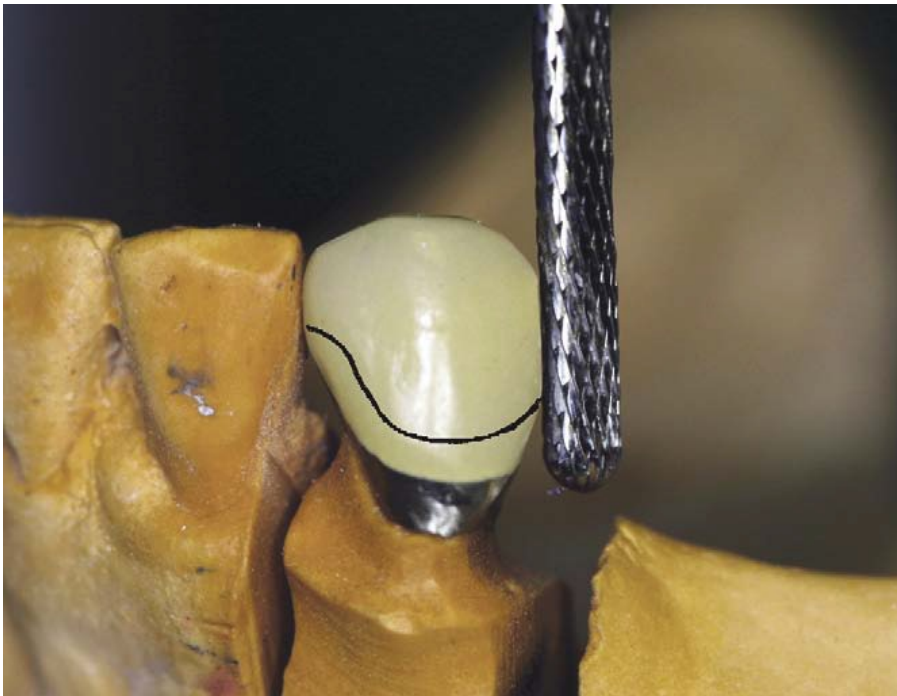
Functions of surveyor

6) Placement of precision attachments: internal and external attachments



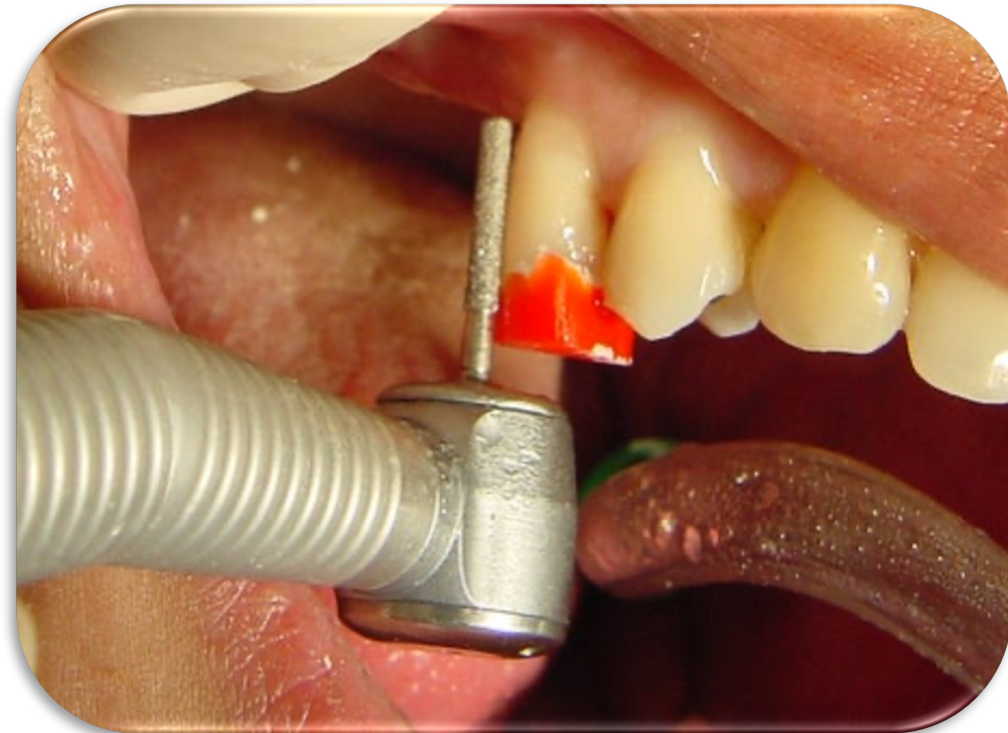
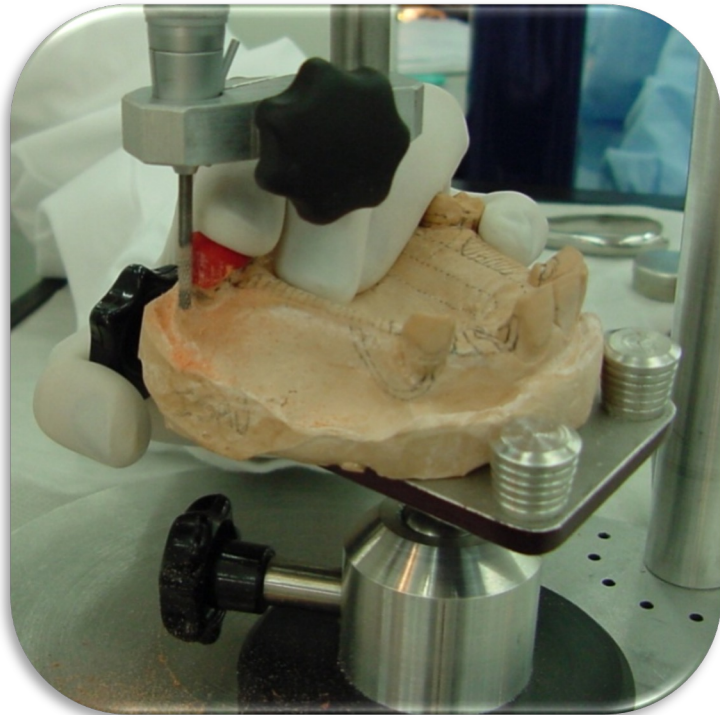
Functions of surveyor

7) Preparation of surveyed crowns



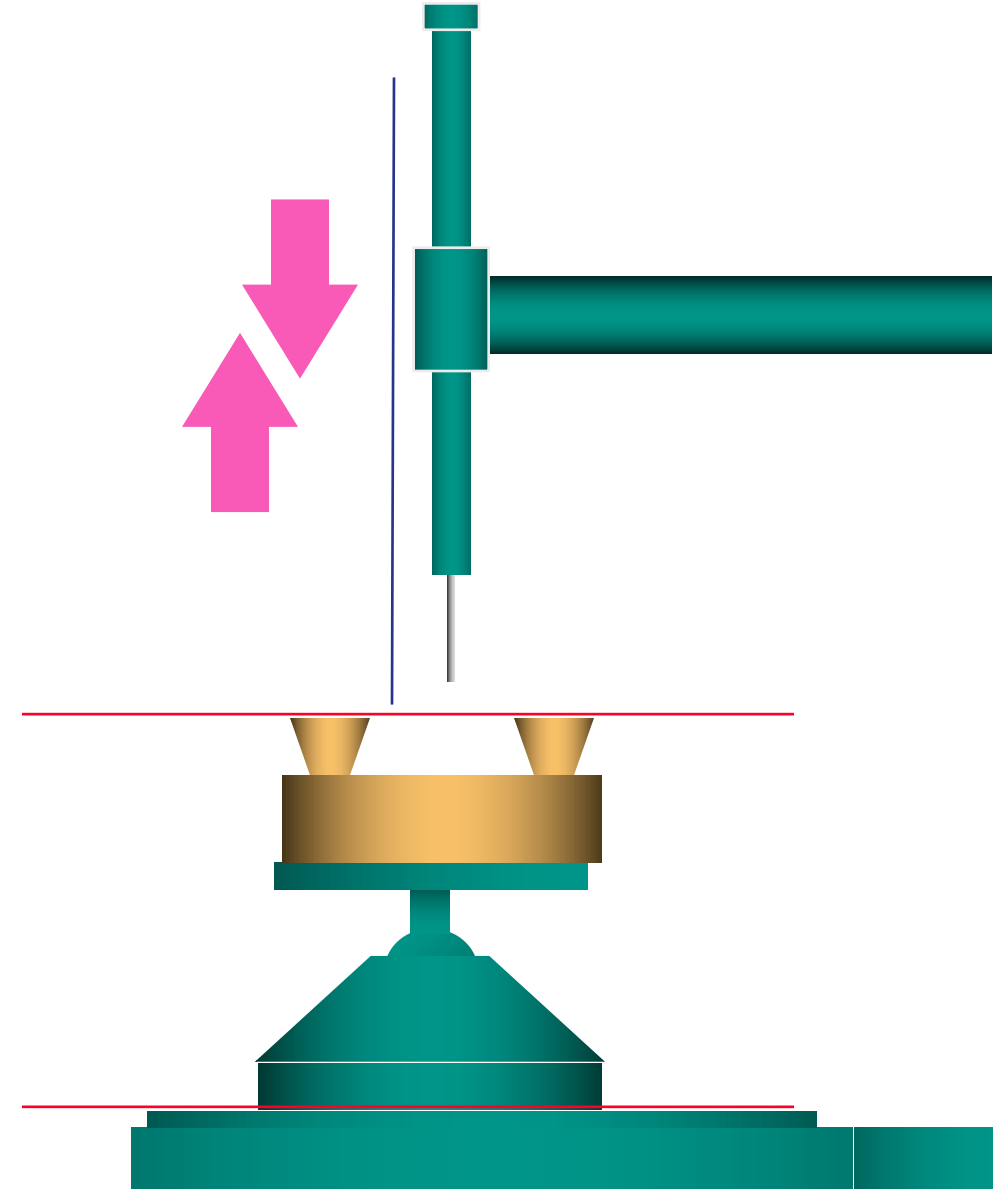
Functions of surveyor

8) Assist mouth preparation



Path of Placement - Techniques

- Roach technique
- Bisector or Roth technique
- Applegate technique

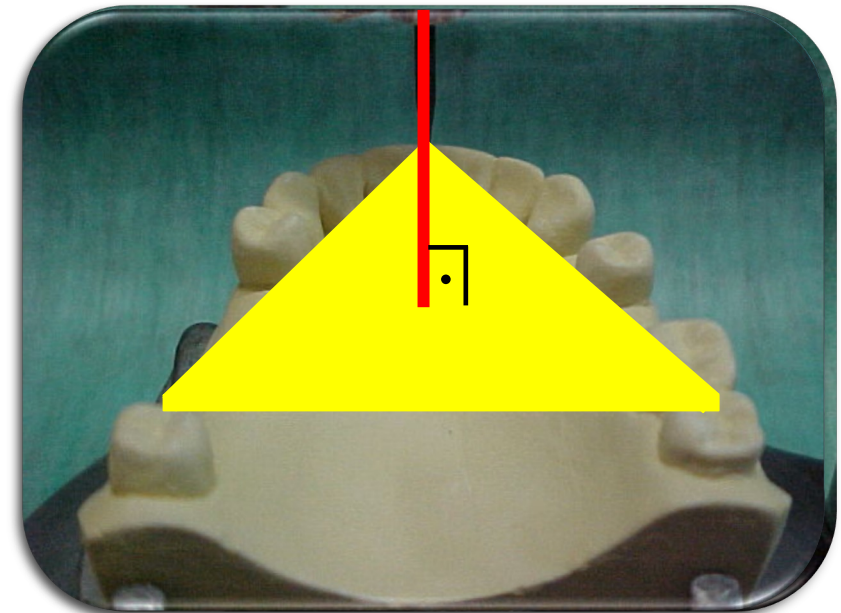


Roach technique

- Perpendicular to an insertion plane (occlusal plane), defined by three points on the model.

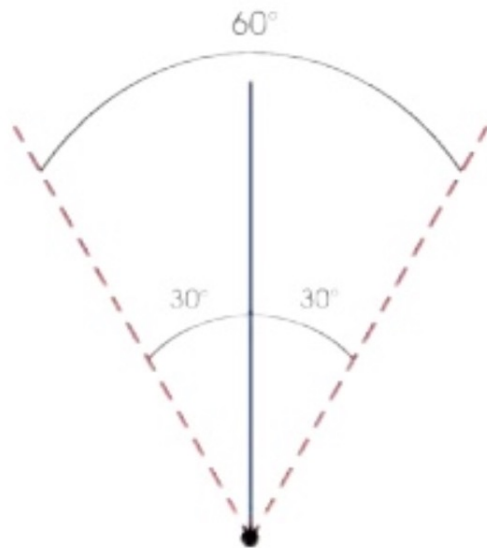
Limitation:

The long axes of the teeth are not perpendicular to the occlusal plane

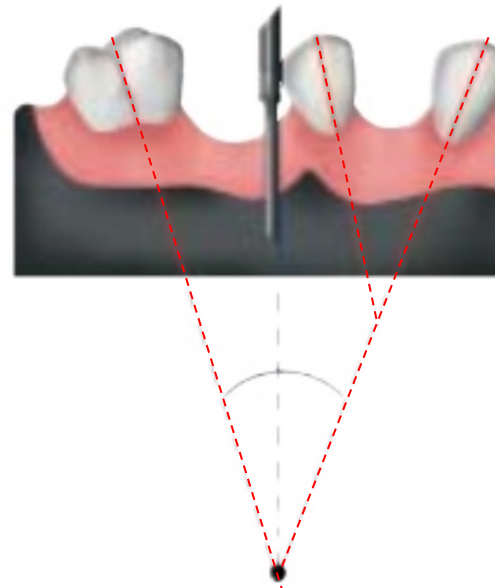


Bisector or Roth technique

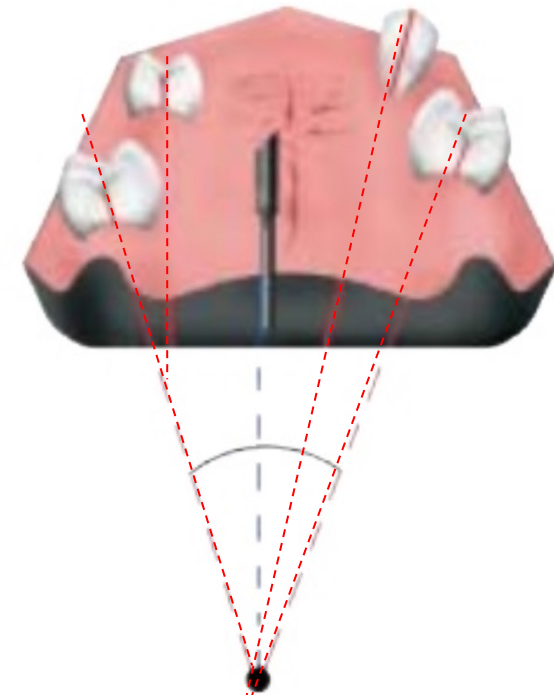
- The path of placement will be the average of the inclination of the supporting teeth



Mesiodistal

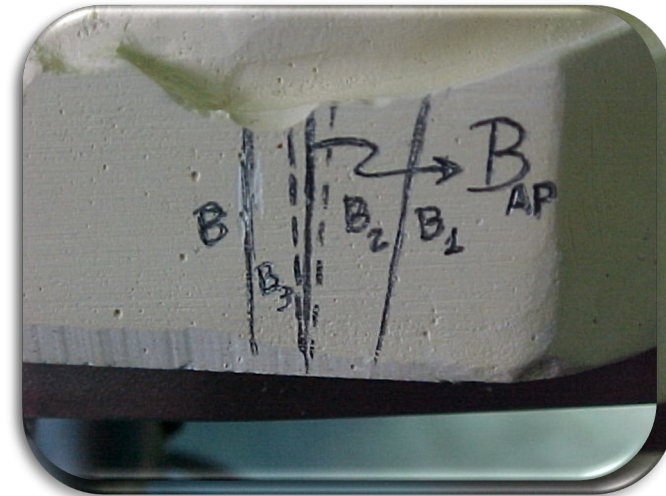
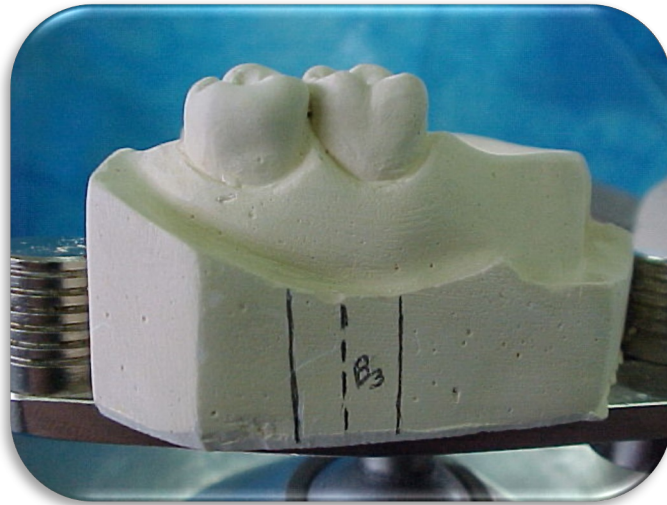


Buccolingual



Bisector or Roth technique

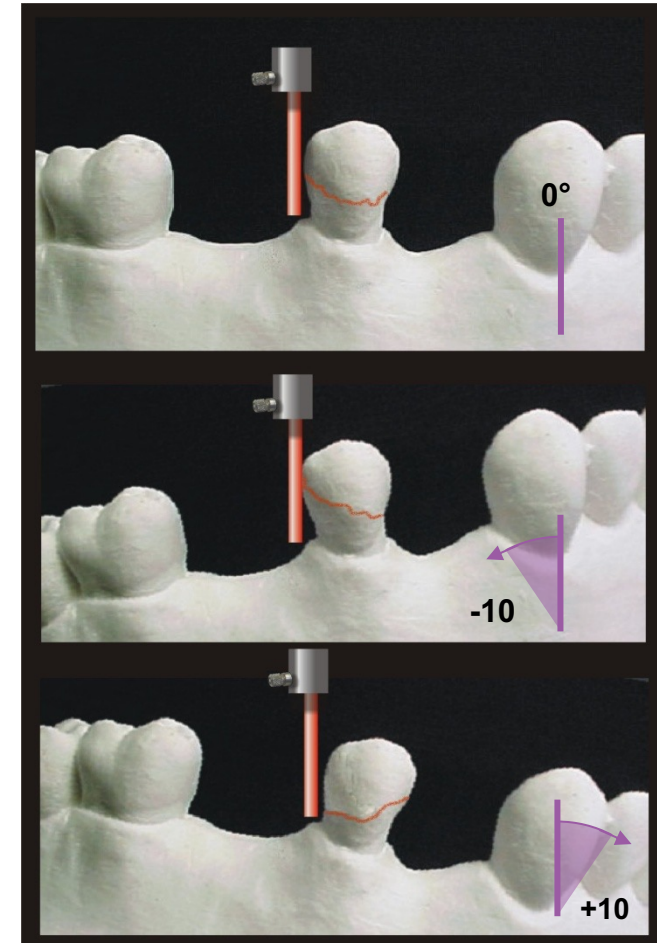
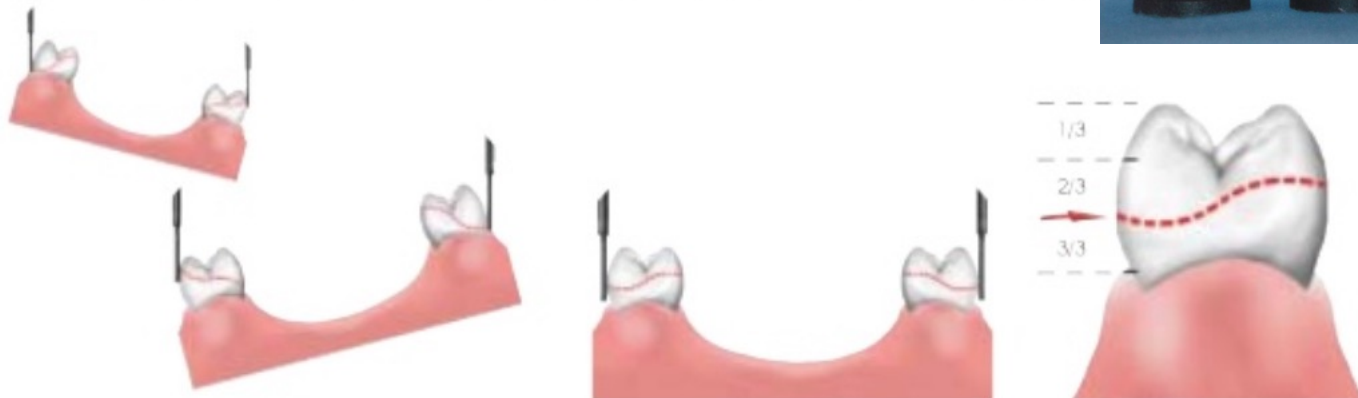
- The path of placement will be the average of the inclination of the supporting teeth



Limitation: difficult with multiples supporting teeth

Applegate technique (convenience)

- Establish the best incline of the cast where the height of contour of the supporting teeth is located between the gingival and middle thirds or the position that favors the mouth preparation.

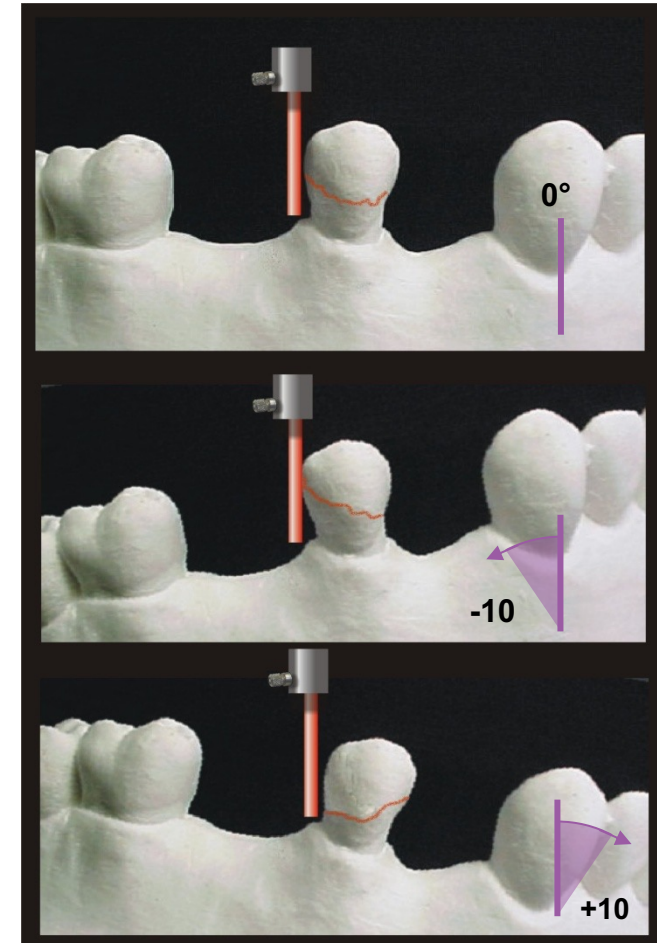


Applegate technique (convenience)

- Establish the best incline of the cast where the height of contour of the supporting teeth is located between the gingival and middle thirds or the position that favors the mouth preparation.

Limitations:

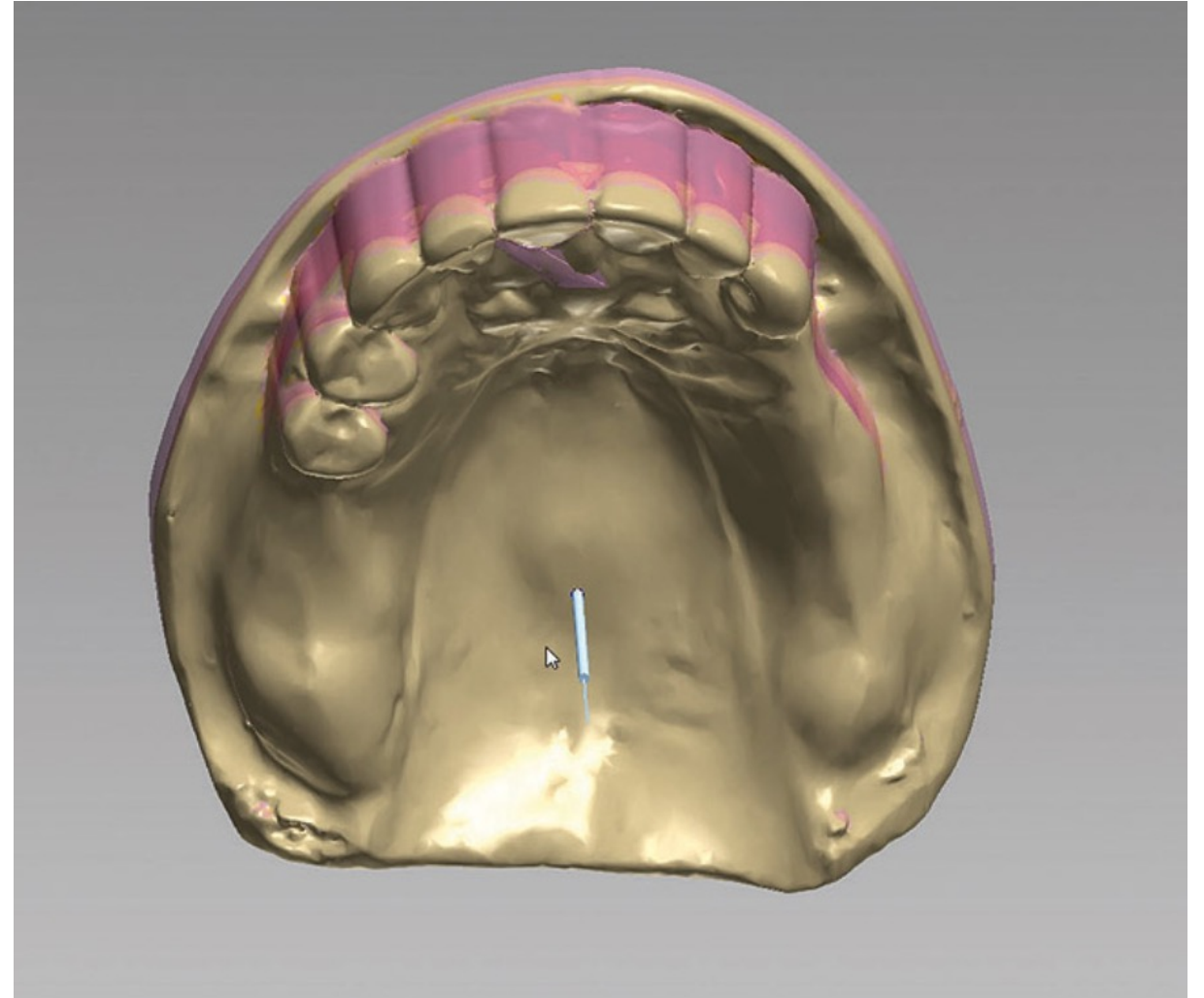
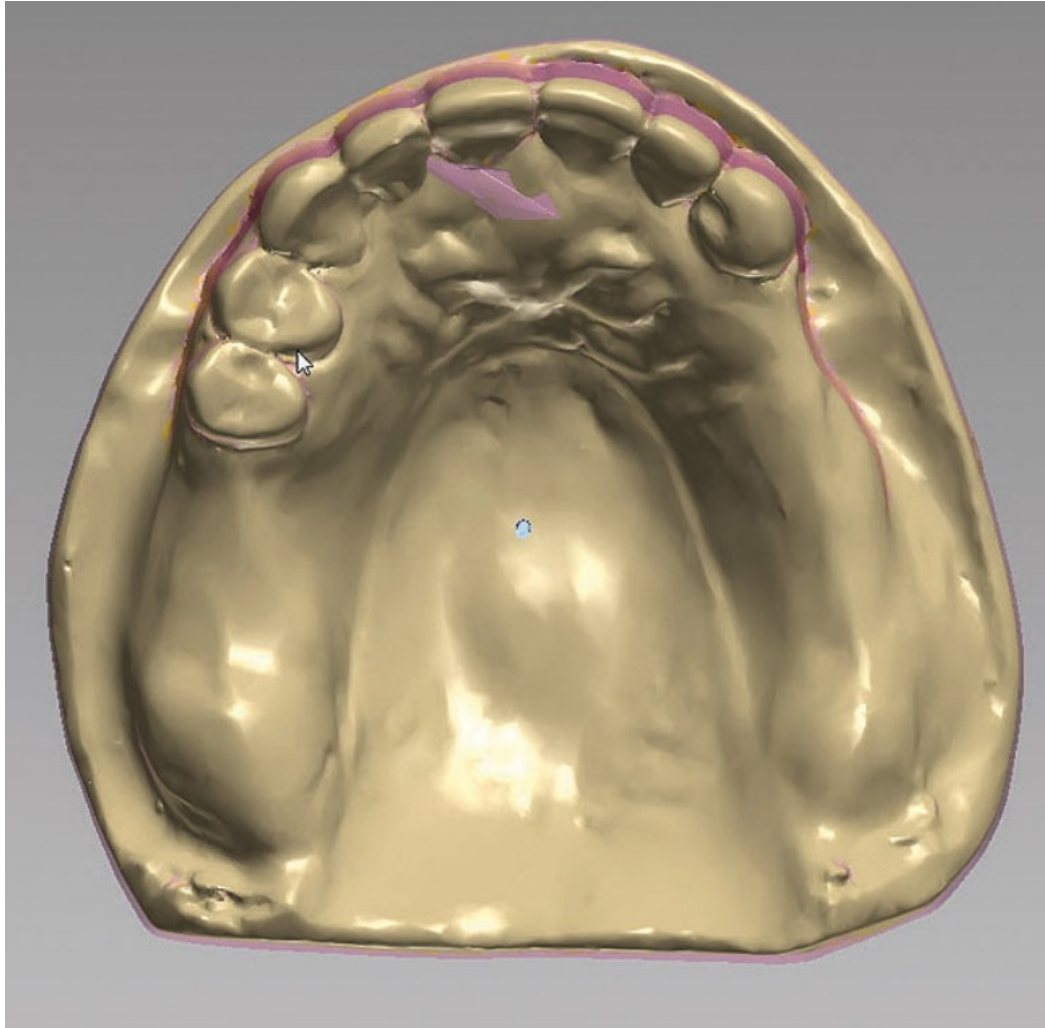
- Operator experience
- Previous planning



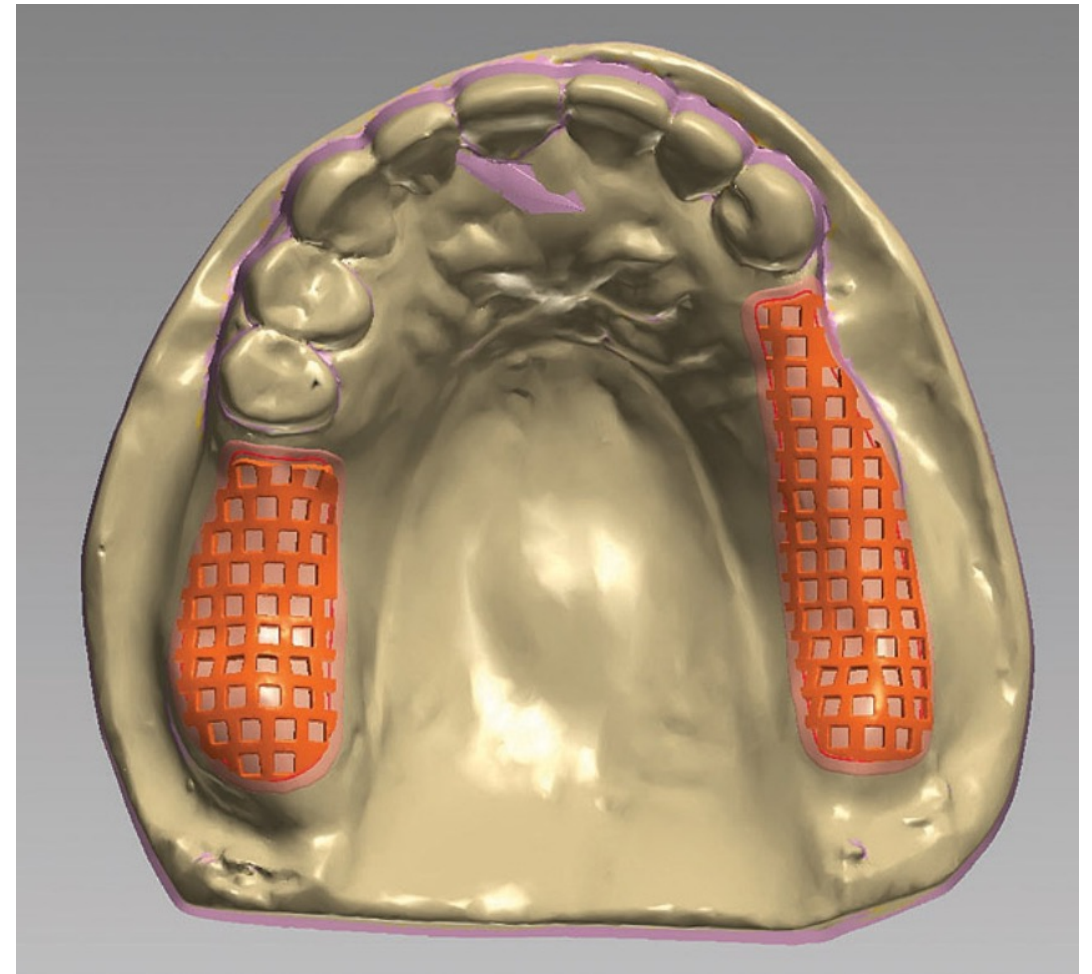
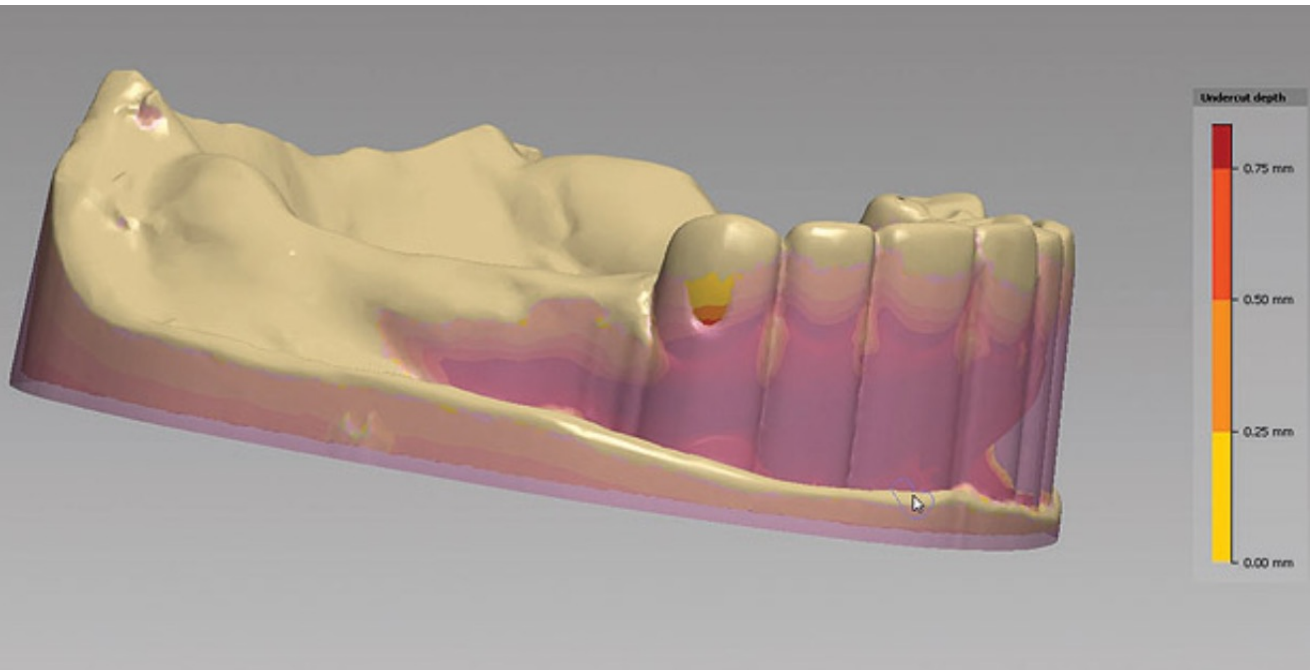
3Shape CAD software + Scanner



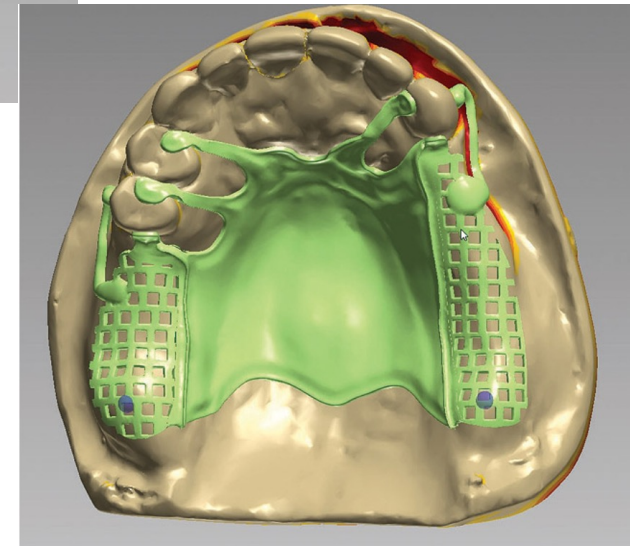
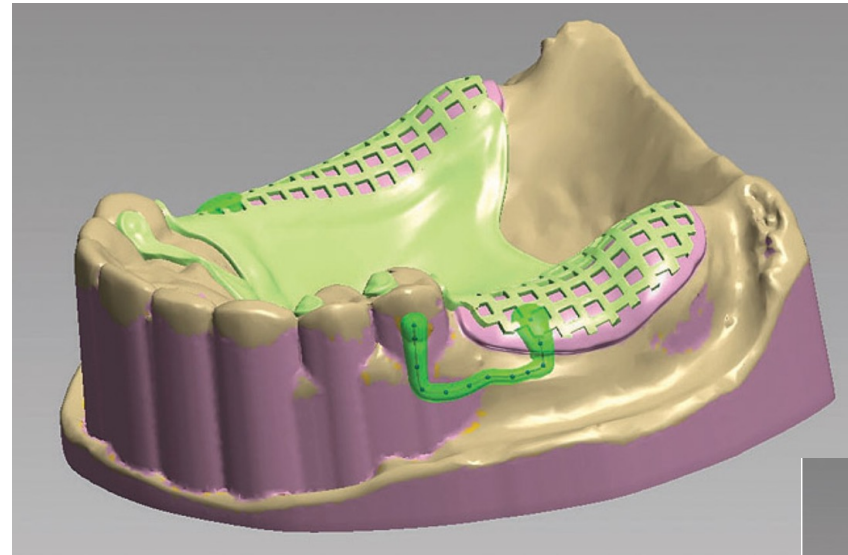
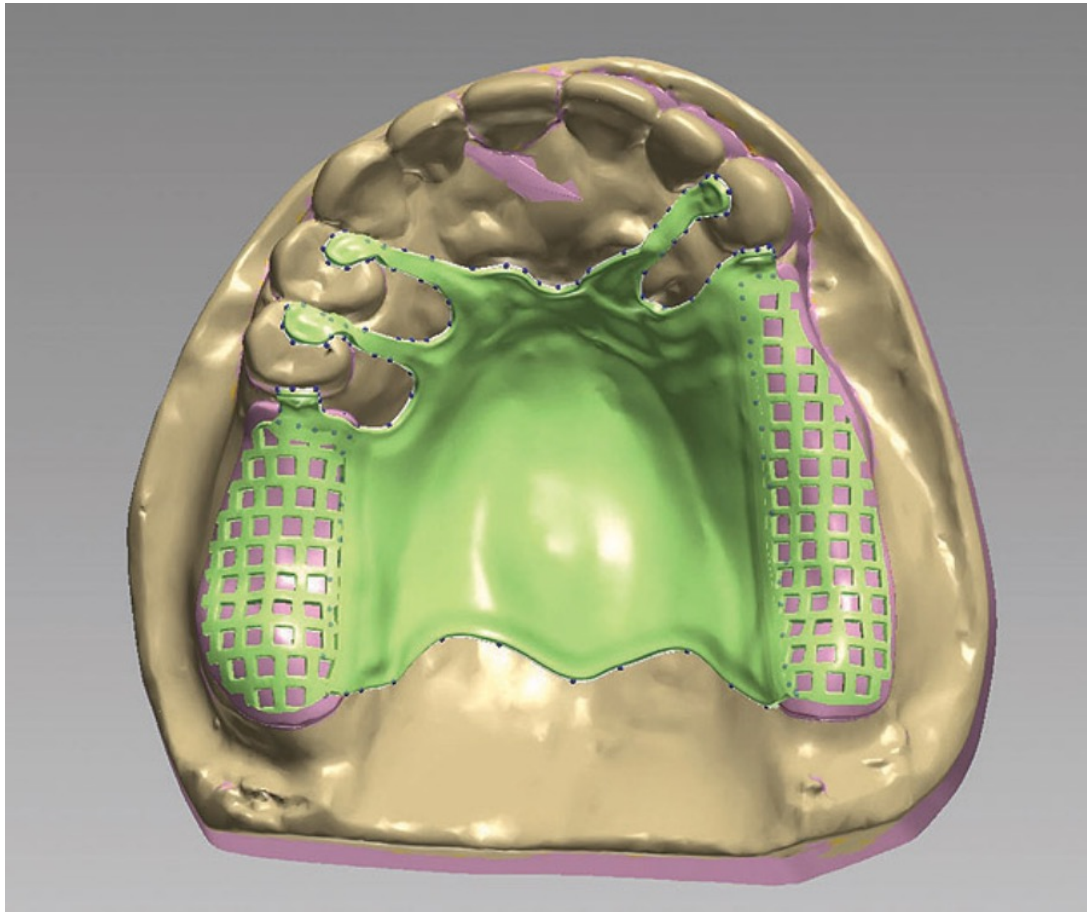
3Shape CAD software + Scanner



3Shape CAD software + Scanner



3Shape CAD software + Scanner



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Thank you.