4 Steps from Start to Finish

Mandibular Suction-Effective Denture and BPS: A Complete Guide

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For All Types of Fully Edentulous Cases

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With an abundance of spongy tissue, the contact between the denture border and mucosa in the sublingual fold region is maintained even during tongue movement, providing a stable and strong seal.

The sublingual fold region posterior to the alveolar ridge is rich in spongy tissue. A strong suction can be expected in this case. A deep and thick border of denture base.

With an abundance of spongy tissue, the contact between the denture border and mucosa in the sublingual fold region is maintained even during tongue movement, providing a stable and strong seal.
With a lack of spongy tissue in the sublingual fold region, the seal can be easily broken as the tongue retracts during mouth opening (Figs 4-13 and 4-14). This makes it difficult to obtain suction of the mandibular complete denture. How to approach a difficult-to-treat case lacking in spongy tissue will be discussed in chapter 9.

Fig 4-13 The sublingual fold region is lacking in spongy tissue.

Fig 4-14(a) Transition from closed- to open-mouth position.

Fig 4-14(b) Because of limited contact between the denture border and mucosa in the sublingual fold region, the denture lifts with the slightest tongue movement.
Constructing base plates (waxing out undercuts)

Fig 5-103 Block out undercuts with a minimal amount of wax, and apply a separating medium with a fairly large brush.

Constructing the maxillary base plate

Fig 5-104 Ostron II® (GC) or SR Ivoren ® (Ivoclar Vivadent) base plate material is formed into a 1- to 2-mm sheet and pressed firmly to form a base plate of uniform thickness.

Constructing the mandibular base plate

Fig 5-105 A patient with severe mandibular ridge resorption may have an extremely narrow alveolar ridge. Adjust the thickness with the thumb and finger while pressing the material against the cast.

Standard values for custom trays with wax rims

Fig 5-106 The numbers shown in the figure are standard values used for custom trays with wax rims in patients with OVD of 40 mm.
Fig 5-107 Wax rims and wax parts for poles are made with wax rim formers.

Fig 5-108 Place the anterior edge of the wax rim 7 mm for males and 9 mm for females from the anteroposterior midpoint of the incisive papilla. In the posterior area, position the wax rim so that its center matches the ridge crest line. A hole drilled into the base plate in the incisive papilla will make it easier to identify its midpoint. The hole is closed with wax at the completion of the wax rim.

Fig 5-109(a and b) The height of the maxillary wax rim should be set 22 mm from the mucobuccal fold around the labial frenum in the anterior area, and 5 mm from the hamular notch in the posterior area.

Fig 5-110(a and b) The width of the maxillary wax rim should be 3 mm in the anterior area and 7 mm in the posterior area. Extra thickness or prominence is not needed, because these wax rims are used to take impressions and bite registrations.

Chapter 5    Step 1: Examination to Preliminary Impressions and Bite Registration
Setting the mandibular posterior teeth
(setup sequence: 34, 44→35, 45→36, 46→37, 47)

Two lines of SR Phonares teeth are available, one for a normal bite situation with a one-tooth-to-two-teeth relationship and the other for the one-tooth-to-one-tooth lingualized occlusion (Fig 6-80). In this section, tooth setup for lingualized occlusion using SR Phonares Lingual NHC is illustrated step by step.

The template used here was developed for setting prosthetic teeth along the curve of Spee (in the sagittal plane) and the curve of Wilson (in the transverse plane). 2D and three-dimensional (3D) templates are available. When the casts are mounted on the Stratos articulator using the Universal Transferbow System Transferbow (facebow), a 3D template is used to set the posterior teeth. A 2D template is used to mount the casts without the facebow.

There are two objectives in setting the mandibular posterior teeth: to facilitate formation of the BTC Point and to establish balanced occlusion. For these objectives, the lingual cusps of the four posterior teeth must touch the anteroposterior curvature of the 3D template. However, the buccal cusps of the mandibular posterior teeth except the first premolar are kept out of contact with the template. The buccal cusp of the first premolar only may be brought into contact with the template (optional for esthetics). It is important to ensure that the buccal and lingual cusp tips are set at the same height as the occlusal plane (Figs 6-81 to 6-87).

**Fig 6-80**
(a) One-tooth-to-two-teeth (cusp-to-ridge) occlusion.
(b) One-tooth-to-one-tooth (cusp-to-fossa) occlusion.

**Laboratory procedure:**

Fig 6-81. Attach a 2D or 3D template to the upper member of the Stratos articulator. The 3D template, in particular, must be secured by tightening a fixation screw with a screwdriver (the 3D template is shown).
Fig 6-82  Set the 3D template at the distal one-third of the retromolar pads and the cusp tips of the canines.

Fig 6-83  The buccal cusp of the first premolar only is brought into contact with the template. The buccal cusps of the other posterior teeth do not touch the template.

Fig 6-84  The tooth axes of all four posterior teeth are set perpendicular to the template. There should be a clearance between the template and the buccal cusp tips of the posterior teeth except for the first premolar. Set the buccal and lingual cusps on the same plane at the height of the occlusal plane.

Fig 6-85  Align the central grooves of the posterior teeth with the center line of the alveolar ridge.

Fig 6-86  The Pound line connects the lingual of the retromolar pad and the mesial of the canine. Denture teeth should never be set lingual to the Pound line.

Fig 6-87  Frontal view of the posterior teeth arranged with the 3D template.

Fig 6-88  Occlusal view of the completed set-up of the posterior teeth.
PART 3

Proper form of the maxillary palatal polished surface for speech and swallowing functions

The palate of a healthy dentate person consists of the alveolar process with teeth, the middle area unaffected by tooth loss, and posterior area. The alveolar process is necessary for production of speech sounds with the tongue touching or rubbing against the palatal mucosa. The middle and posterior areas of the palate play a critical role in swallowing as the tongue pushes food against the palate and to the back of the throat (Fig 7-6).

Speech and swallowing are essential functions for humans, and it is therefore necessary to copy the shape of the palate of dentate individuals. It is said that the palatine rugae fade away as ridge resorption progresses (Fig 7-7).

Waxing of the palatine rugae according to the degree of ridge resorption

Fig 7-6(a) The palatine rugae are well defined in patients with a good ridge form.

Fig 7-6(b) The palatine rugae become less well defined with advancing ridge resorption.

Fig 7-7 Those with severe ridge resorption are not provided with the palatine rugae.
Shape of the mandibular lingual polished surface to guide the tongue into natural posture (Figs 7-8 to 7-10)

The tongue is in light contact with the maxillary and mandibular anterior teeth at rest. The most important reason for creating an adequate space for the tongue is to keep the tongue in natural position. If tongue space is inadvertently reduced, tongue movement will be disturbed and the tongue will recede. This will result in a gap between the tongue and the anterior denture border, and loss of border seal. The mandibular denture will lift easily only with a small mouth opening. It is possible to increase denture stability further by making the tongue-root areas of the denture base concave.

Fig 7-8(a and b) Waxing of the tongue-root areas (into a concave shape) will facilitate achievement of suction by compensatory closure.

Fig 7-9(a and b) Waxing to provide a wide space for the tongue.

Fig 7-10 The completed wax-up of the lingual polished surfaces.
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