

# Lew™ MDI

The Global Leader in Mini Dental Implants



SURGICAL PROTOCOLS **2021**

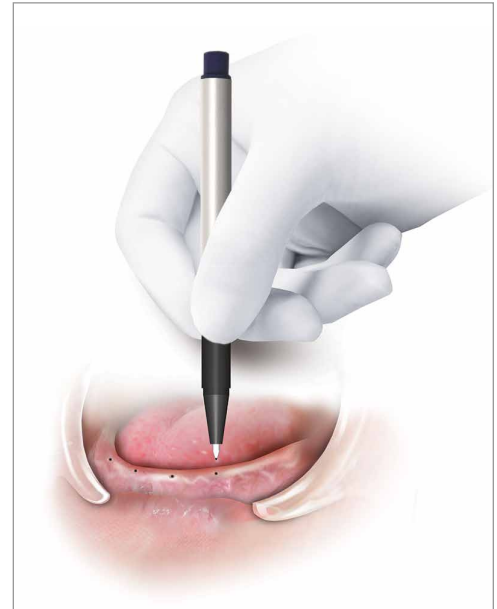
 **PARK DENTAL**  
RESEARCH

## O-BALL SURGICAL PROCEDURE

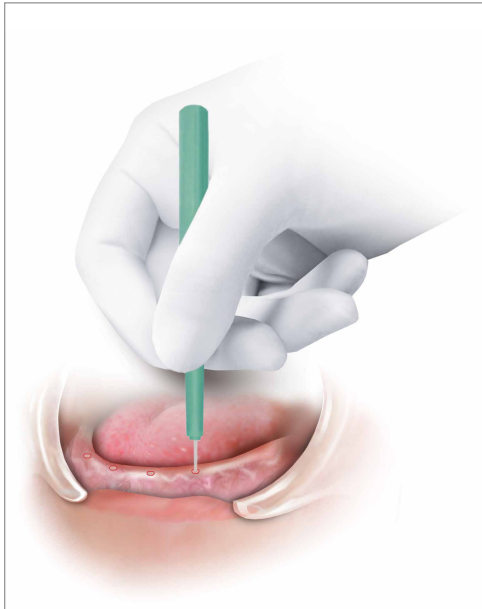
### 1 Surgical Planning

- Implant length and diameter should be selected according to radiological examination prior to surgery.
- 6 MDI implants are recommended to stabilize a full maxillary denture.
- 4 MDI implants are recommended to stabilize a full mandibular denture.
- Place implants at least 7 mm mesial from the mental foramen with a minimum of 5 mm between each implant to allow for metal housings. Consideration of sinuses should be made for maxillary cases.
- The entire implant should be surrounded by at least 1 mm of bone and implant threads should be engaged in bone for the whole length of the implant.

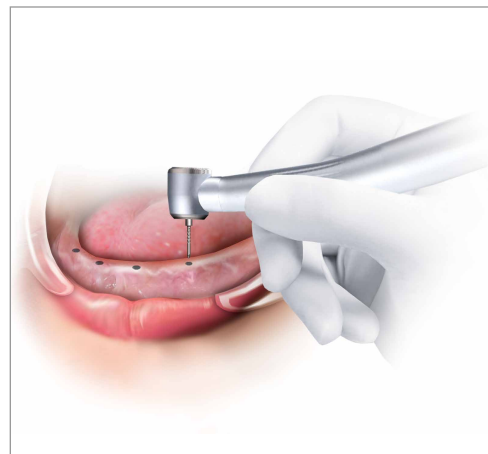
**Note:** Take an occlusal bite registration prior to anesthetic.



**FIG. 1.** Surgical Marker



**FIG. 2.** Tissue Punch



**FIG. 3.** 1.2 mm Drill

## 2 Site Preparation

- Entry points for each implant are marked on the patient's tissue with a Surgical Marker (**FIG. 1**).
- Follow standard aseptic guidelines to prepare the patient. Infiltrate each entry site buccal/lingual with appropriate anesthetic.
- Use a Tissue Punch to remove gingiva to the cortical bone. For recommended punch diameter, see Tables 1 & 2 (**FIG. 2**).
- Using a 1.2 mm Surgical Drill, lightly pump up and down over the entry point until the cortical plate is penetrated (**FIG. 3**).

**Caution:** Recommended drill speed = 1200-1500 rpm with external irrigation using sterile saline.

- Proceed with the appropriate drill according to the "Recommended Drilling Sequence" (**TABLES 1 & 2**) to create a pilot hole for implant placement.
- As a general rule, the depth should not exceed one-third to one-half of the threaded length of the chosen MDI.
- The desired depth is the minimal amount that allows one to begin the auto-advancement of the implant into bone.

### 3 Use of MDI O-Ball Implant Driver

- Holding the implant carrier securely, open the implant packaging and transfer the implant directly from the packaging into the pilot hole using the implant carrier.
- Applying light pressure, turn the implant carrier clockwise until the implant is securely seated in the pilot hole. Remove implant carrier.
- Using the MDI O-Ball Driver, rotate the implant clockwise until noticeable bony resistance is encountered (FIG. 4).

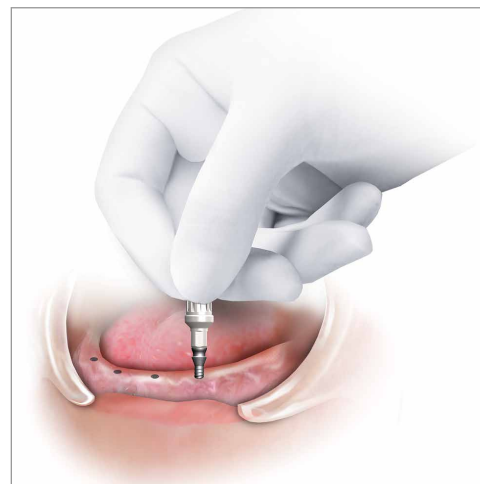


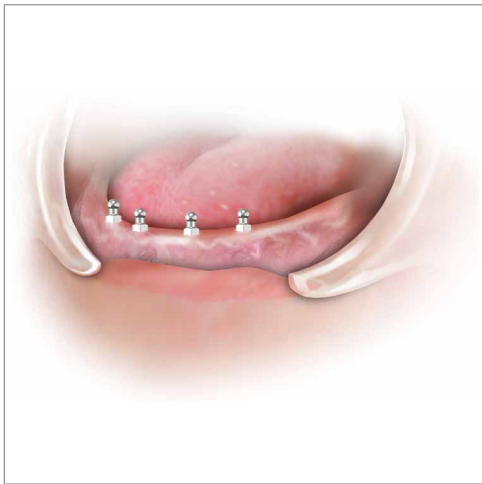
FIG. 4. MDI O-Ball Driver

TABLE 1. RECOMMENDED DRILLING SEQUENCE FOR 2.0 & 2.5 MM MDI

| BONE TYPE          | IMPLANT | TISSUE PUNCH | DRILL 1.2 MM | DRILL 1.5 MM | DRILL 2.0 MM   |
|--------------------|---------|--------------|--------------|--------------|----------------|
| Type - I - Hard    | 2.0 mm  | 2.0 mm       |              | ●            |                |
| Type - II - Medium | 2.0 mm  | 2.0 mm       | ●            |              |                |
| Type - II- Medium  | 2.5 mm  | 2.0 mm       | ●            |              | ●<br>If needed |
| Type - III - Soft  | 2.5 mm  | 2.0 mm       |              | ●            |                |

TABLE 2. RECOMMENDED DRILLING SEQUENCE FOR 3.0 MM MDI

| BONE TYPE  | TISSUE PUNCH | DRILL 1.2 MM | DRILL 1.5 MM    | DRILL 2.0 MM    |
|------------|--------------|--------------|-----------------|-----------------|
| Type - I   | 2.5 mm       | ●            | ●<br>Full Depth | ●<br>Half Depth |
| Type - II  | 2.5 mm       | ●            | ●               |                 |
| Type - III | 2.5 mm       | ●            |                 |                 |



**FIG. 5.** Final Placement



**FIG. 6.** Continuous Feedback Torque Wrench

## 4 Use of the Continuous Feedback Torque Wrench

- To finalize the implant insertion, insert the MDI implant driver directly into the Continuous Feedback Torque Wrench and connect the implant driver to the top of the MDI implant.
- Position fingers supportively under the patient's jaw with the thumb over the top of the Continuous Feedback Torque Wrench while applying downward force over the axis of the implant.
- Using  $\frac{1}{4}$  turn rotations with a 2-3 second pause between rotations, will reduce the frictional heat that may be detrimental to the health of the bone.
- At final depth, the MDI should meet a resistance of **at least 35 Ncm, but not more than 45 Ncm (FIG. 5).**
- The ideal placement allows the abutment head to protrude from the gingival soft tissue at its full height. The smooth collar should be embedded in the gingiva with no threaded portions visible. **(FIG. 6).**

**MDI Torque Recommendations:** Clinical trials, various studies and clinician feedback when using mini dental implants 1.8 mm – 3.0 mm in diameter have demonstrated that the optimal resistance for final seating of an MDI implant is 35 Ncm. Resistance beyond 45 Ncm could result in a fracture of the implant and over compression of surrounding bone.

- Repeat procedure for each implant.

## Lew™ MDI O-Ball Prosthetic Procedure

Retrofitting of a lower denture using the Pink Metal Housings.

- Use an acrylic bur to relieve the denture so that there is sufficient clearance for the selected Pink Metal Housings.
- Cut appropriate sized Blockout Shims and place over the o-ball heads of implants. Continue to slide shims down over the square portions of the implants.

**Important:** The Pink Metal Housings must not interfere with the denture when patient bites firmly. Test the denture intraorally to confirm seating of the denture while in centric relation. (FIG. 7).

- The Pink Metal Housings must snap onto the O-Ball heads and still easily rotate with the Blockout Shim attached. (FIG. 8).
- Apply petroleum jelly to all areas of the denture to be protected from bonding of JUELL™ CURE material.
- Fill the relieved area of the denture with JUELL™ CURE HARD reline material. If no metal housing is used, then reline the denture with JUELL™ CURE SOFT over the implants.

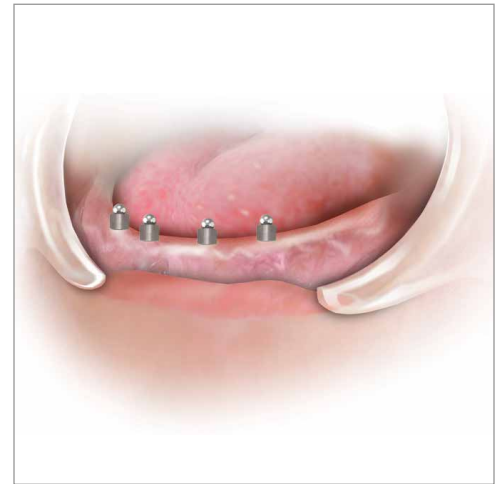


FIG. 7. Blockout Shims

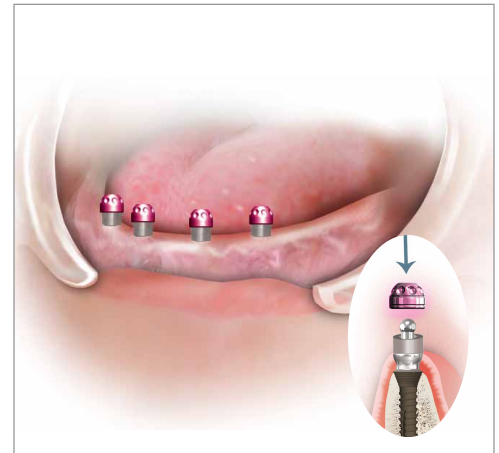
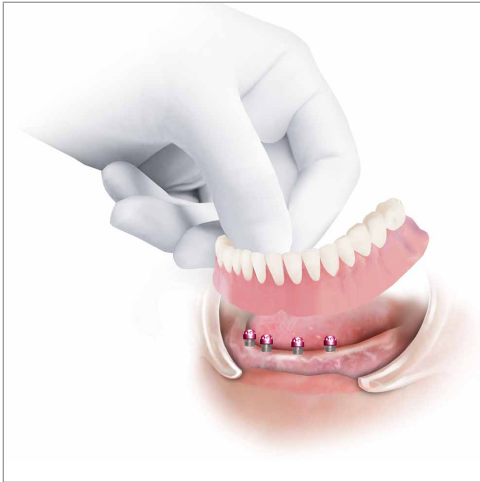


FIG. 8. Pink Metal Housing



**FIG. 9.** Denture Placement

- Place the denture back in the patient's mouth and instruct patient to close bite gently (**FIG. 9**).

**Important:** If Blockout Shims are not in place, the denture may be more difficult to remove or lock-on completely.

- Allow 7 to 9 minutes for JUELL™ CURE material to fully cure.
- Remove, clean, trim flash, and then fill any acrylic voids that may be present with reline material.
- Finish denture borders, remove flash material, and then polish to a high luster. (**FIG. 10**)



**FIG. 10.** Finished Denture

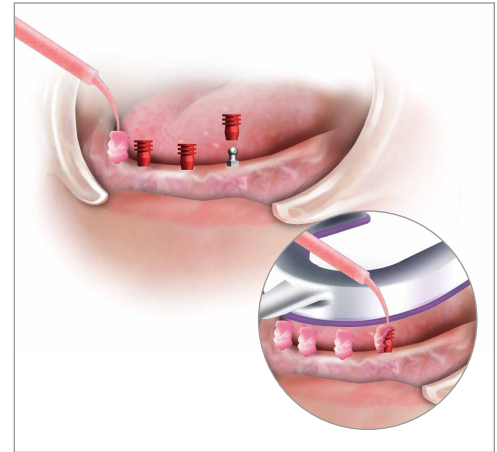
## Replacing O-Rings

- Use a dental explorer to remove worn o-rings from metal housings.
- Insert o-rings into the metal housings and push into place with a ball burnisher.

## MDI INDIRECT RESTORATIVE PROTOCOL

### Placement of Coping & Impression

- Place the Impression Copings directly onto each MDI implant.
- Using a standard crown and bridge impression technique, pick up the Impression Coping, assuring the implants are positioned accurately.
- When impression material has set, gently remove the impression tray from the patient's mouth.
- Verify that all the Impression Copings are in the impression.



Impression Copings

### Insertion of Lab Analogs

- Completed by practitioners or by dental lab.
- Select the Analog that coordinates with the implant placed.
- Carefully align square portion of the Analog with the opening of the Impression Coping.
- Place the Analog into the Impression Coping.



Lab Analogs



## Model Fabrication

- Use a standard stone fabrication technique to form model.
- Once set, gently remove impression from stone.

## Lew™ MDI Temporization

- Place petroleum jelly on adjacent teeth.
- Seat Temporization Cap on implant.
- Using temporization material, follow manufacture's directions.
- Remove when material is set.
- Adjust and polish accordingly.
- Keep out of occlusion until osseointegration is achieved.



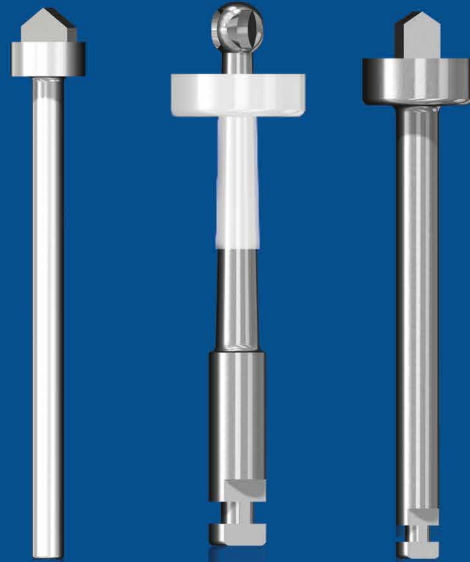
Model Fabrication



MDI Temporization

# Lew™ MDI

Mucosal Inserts



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## MUCOSAL INSERTS

Intramucosal inserts are mushroom-shaped components that are attached to the intaglio surface of a removable prosthesis in soft tissue reception sites. The adaptation of attached gingiva around the insert heads result in mechanical retention of the prosthesis, and the divergent paths of insertion lead to a secondary mode of retention and stability.



### MUC-002

Titanium Mucosal Inserts  
2 pack

### MUC-002-10

10 pack



### MUC008

Submerged Trial  
Mucosal Inserts  
(2 pack)



### MUC-003

Titanium Site  
Preparation Bur



### MUC-004

Titanium Tissue  
Channel Bur



### MUC005

Tissue Undercut  
Bur

## Mucosal Insert Technique

This mucosal insert procedure can be performed with or without the application of the trial mucosal technique.

- 1 Inserts are used for additional security and retention with properly fitting and well constructed dentures which have already been worn and adjusted. Patients should have a complete opposing occlusion. Tissues should be firm and healthy.
- 2 Once site selection for each insert is determined, an acrylic bur is used to prepare sites for placement and fixation of the insert bases. One row is placed on the crest of the ridge, from the canine to the tuberosity region. Another is placed in a staggered fashion toward the palate. The intaglio surface of the prosthesis around each prepared insert base location is coated with dye from a transfer stick. The dye around each base site provides exact transfer of crest and palatal slope sites (FIG. 2).
- 3 The patient is then instructed to close hard for 10 to 15 minutes. A surgical marker can be used to mark the center of each tissue site that should appear on the palate (FIG. 3).

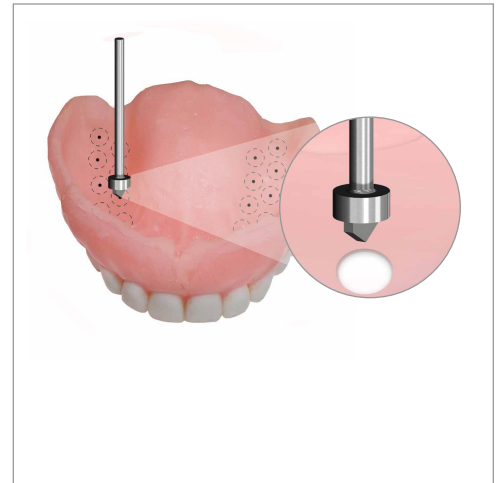


FIG. 2. Acrylic Bur

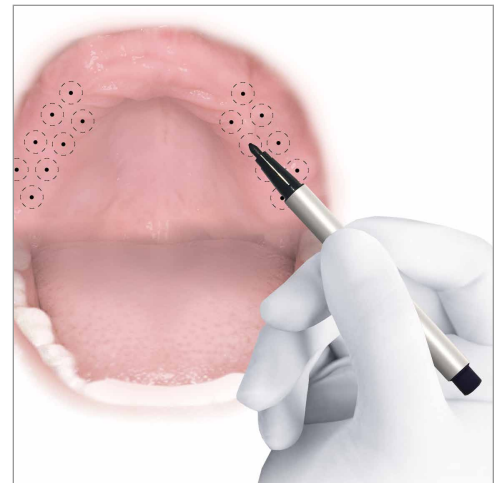


FIG. 3. Surgical Marker

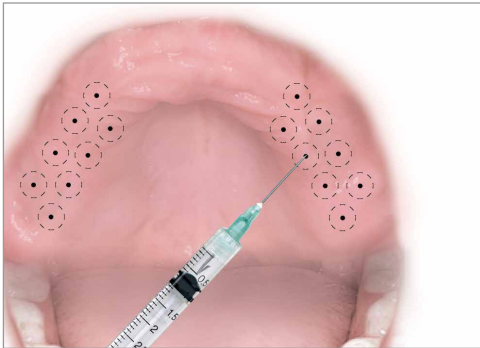


FIG. 4. Local Anesthetic

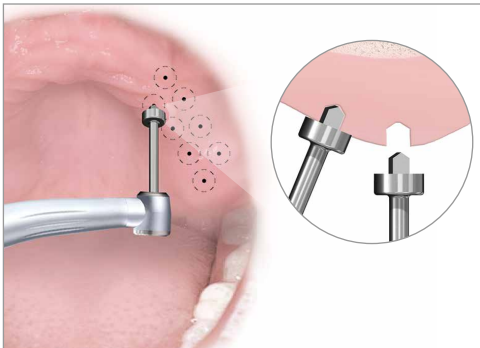


FIG. 5. Diamond Bur

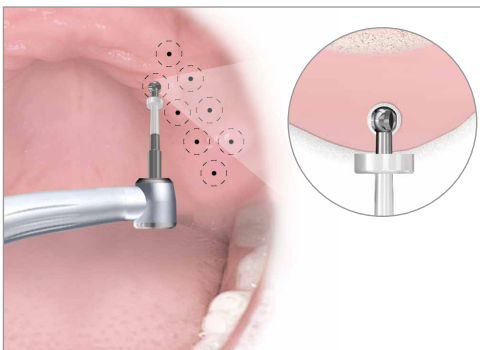
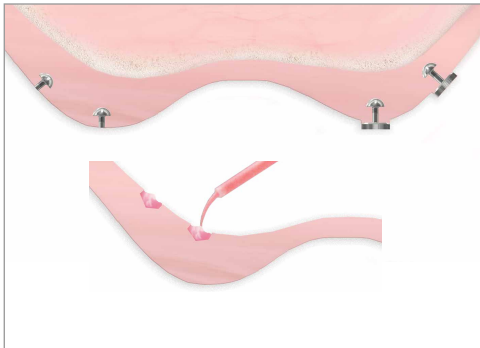
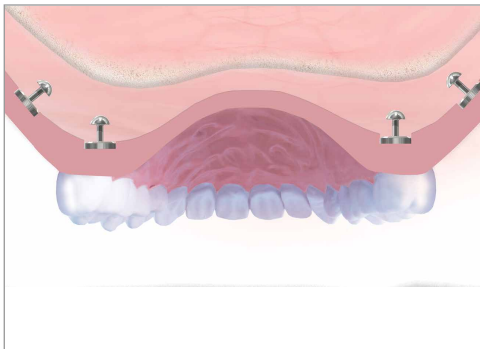


FIG. 6. Tissue Undercut Bur

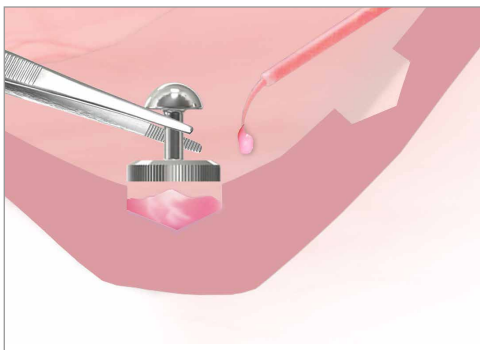
- 4 A local anesthetic can be injected into each site. Anterior and posterior palatal injections can also be used. When each site is injected, good hemostasis should result. When palatal injections are used, there is no edema at the individual insert sites (FIG. 4).
- 5 A number 2 or 558 sterilized diamond bur is used at right angles to prepare a tissue channel in the center of each tissue site. A broad flange prevents over penetration. Where the tissue is thin, bone will automatically be removed and recontoured at this site (FIG. 5).
- 6 A number 6 bur is used to create an undercut in the tissues at the top of each channel. This undercut corresponds to the head of each insert channel. A broad flange again prevents over penetration. This number 6 bur is rotated only **AFTER** it is submerged into the tissue to prepare the cul-de-sac, which will house the head and the neck of the insert (Fig. 6).
- 7 The trial or submerged mucosal inserts, with the very thin bases, are now placed into the prepared tissue sites. The thin base should be flush with the tissue. The prepared base receptor sites in the prosthesis are then filled in with a soft tissue conditioner so that the tissue interface of the



**FIG. 7.** Submerged Trial Mucosal Insert



**FIG. 8.** Trial healing time, 7 to 10 days



**FIG. 9.** Final Mucosal Inserts Placed

prosthesis is similar in contour and function to the original intaglio surface. A denture adhesive is applied to the maxillary prosthesis and inserted over the submerged trial inserts. **(FIG. 7)**

- 8** The patient is instructed to leave the maxillary prosthesis in place for 7 to 10 days. The receptor sites will heal around the submerged trial inserts. Since the prosthesis is not connected in any way to the trial inserts, occasional removal or mobility of the prosthesis will cause little discomfort. During the first five to seven days, 50% diluted mouthwash and cold water rinse may be used four times a day. The denture is brushed in the mouth with a soft toothbrush and dentifrice. Analgesics are usually prescribed as well. If the patient is slow healing, an antibiotic may be prescribed. **(FIG. 8)**
- 9** The base sites are cleansed, and the final mucosal insert is fixed to the previously prepared base site locations using cold-cure acrylic resin. **(FIG. 9)**

- 10 The patient returns in 7 to 10 days. Usually with the submerged inserts there will be very little discomfort compared to previous techniques. Local anesthetic is often not needed during this second appointment. Each trial submerged insert is removed from the tissue with a hemostat. The prosthesis is then placed in the mouth, and the final inserts go into the healed sites. The occlusion and periphery is checked to make sure that the prosthesis is completely seated and stable. (FIG. 10)

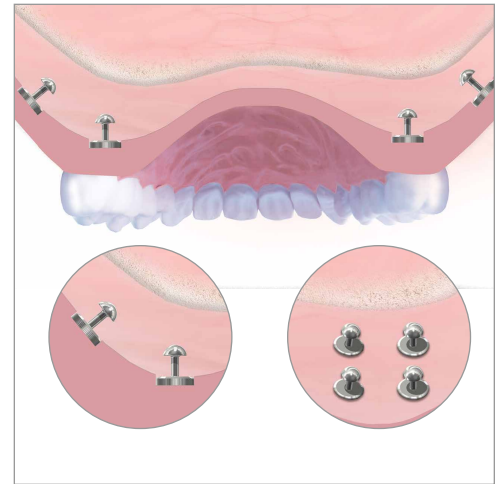


FIG. 10. Seat prosthesis

The patient is instructed to leave the maxillary prosthesis in place as much as possible for approximately one week. The patient may continue mouthwash rinses and brushing the denture while in the mouth on a daily basis. After one week, the patient may remove the prosthesis as often as they desire. However, they should be reminded that the more often it is removed, the more enlarged the receptor sites will become. This will result in less retention. The patient should not remove the denture for more than six hours at a time. If, for any reason, the prosthesis is left out for an extended period of time, receptor sites will begin to close and may need to be prepared once again. If the patient so desires, the palate of the denture may be incrementally removed at the end of one month. Since the denture will become more retentive the longer it is in place between removals, the palateless denture may need to remain in the patient's mouth for longer periods. Wearing time is governed by the needs and desires of the patient.

**Conclusion:** Success of an individual maxillary removable prosthesis depends upon several factors. Many of these are strictly mechanical in nature and usually within our control— e.g, the individual steps of proper denture construction. Some factors are anatomical such as cleft palates, completely resorbed tuberosities and/or concern, awareness and attention. The mucosal insert denture with the submerged trial insert concept can satisfy the expectations of many of these individuals, if they are properly informed and managed.



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