

Enter

Stage 2 | Surgical procedures

# Step 2

## Post-operative review and suture removal

# Surgical procedures

Step 2 | Post-operative review and suture removal

Overview



## Assessment and treatment planning

-  Step 1 | Patient's expectations, history and examination
-  Step 2 | Treatment planning
-  Step 3 | Consultation and consent
-  Step 4 | Fabrication of the surgical drill template

## Surgical procedures

-  Step 1 | Implant surgery
  -  Step 2 | Post-operative review and suture removal
- 7-10 days

## Prosthetic procedures

-  Step 1 | Abutment insertion, modification and relining of a lower complete denture
  -  Step 2 | Lab-side relining of a lower complete denture
  -  Step 3 | Insertion of the final overdenture and patient instructions
- 6-8 weeks

## Aftercare and maintenance

-  Step 1 | Review visit
  -  Step 2 | Maintenance visit
- 1 week
- 3-6 months (or as necessary)

 In clinic with patient     Office / Lab work

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Introduction



## Introduction

This visit should take place about **7-10 days after** the implant surgery. Depending on the patient and any complications during or after surgery, a second follow-up visit may be required in another 3 weeks' time. Review with the patient whether their normal oral hygiene procedures can be resumed. Cleaning directly on the surgical site should have been discouraged at the last visit, in order not to disturb the healing sites after surgery. Check that the patient has maintained adequate plaque control by using regular antiseptic mouthwashes during the first 2 weeks after surgery.

**Review the patient 7-10 days after surgery to check on:**

- post-operative recovery
- healing
- ability to maintain good oral hygiene





## Learning objectives

-  Know how to assess the healing sites.
-  Be able to recognize and treat compromised wound-healing situations.
-  Know what to do in case of other post-operative complications.



The following steps should be performed during this visit:

- Assessment of the healing surgical sites
- Suture removal and oral hygiene instructions
- Handling of complications (if necessary)



# 1. Assessment of the healing surgical sites

## 1.1 Patient's feedback

Obtain the patient's feedback on any symptoms experienced during the post-operative and healing period.

Ask the patient about any symptoms.

## 1.2 Examining the patient

Examine and assess the healing surgical sites and the peri-implant soft tissues, and check for signs of:



- Infection (pain, bleeding, swelling, suppuration).
- Tissue dehiscence.
- Soft tissue overgrowth over the Healing Caps or Healing Abutments.
- Loosening of the Healing Caps or Healing Abutments.
- Nerve paresthesia: Record any altered or loss of sensation reported by the patient.
- Traumatized gingiva caused by pressure from the denture.

Important surgical site and peri-implant soft tissue checks required.



**⚠** If the soft tissue is overgrowing a Healing Cap or Healing Abutment, fix another appointment in 7-10 days to review the situation. If the situation remains, insert a higher healing component in order to avoid potential problems during the recommended 6-8 week healing period. If you change the Healing Cap or Healing Abutment, ensure that the denture base is not touching it by sufficiently hollowing the denture base.

If the Healing Cap or Healing Abutment needs to be changed, hollow out the denture base sufficiently to ensure there is a gap between them.



## 2. Suture removal and oral hygiene instructions

 [Video: Post-operative review and suture removal](#)



### Step-by-step procedure



- Identify the sutures. Gently lift each suture from the wound with forceps and cut one side of the loop with scissors. Then pull the entire suture out.
- Rinse the area thoroughly with saline or chlorhexidine solution.
- Assess the wound closure again.
- Reinforce oral hygiene instructions with the patient.
- Check for the accumulation of plaque around the Healing Caps or Healing Abutments. If necessary clean the area with chlorhexidine solution or saline soaked gauze.

Step-by-step for suture removal.



- Check that all the sutures have been accounted for and removed. In the last visit, you should have documented how many sutures were placed after surgery.
- If tissue dehiscence is seen, prescribe a local disinfectant such as chlorhexidine gel to be applied twice a day by the patient and review the patient again after 1 week.

Account for the removal of all sutures. Consider application of topical chlorhexidine gel if there is any sign of tissue dehiscence.



## 3. Handling of complications

Implant-specific complications in the mandible include implant loss, infections, recurring inflammation or damage to nerves.

You may refer to the intra-operative surgical complications discussed in [🔗 Implant surgery](#), and some factors which influence and affect possible post-operative complications.

### Example of complications:

- Implant loss
- Infection
- Recurring inflammation
- Nerve damage

### Management of post-operative complications

#### 3.1 Tissue dehiscence:

##### If tissue dehiscence is present:

- Irrigate thoroughly with 0.2 % chlorhexidine mouthwash, and apply topical chlorhexidine gel or spray over the healing site(s).
- The patient can use the 0.2 % chlorhexidine mouthwash and gel or spray daily.
- Review the patient after 1 week.

Rinse with 0.2 % chlorhexidine solution and apply the same in gel/spray over the site(s). Prescribe the same for the patient's daily home-care and review after 1 week.

#### 3.2 Infection:

If an abscess or suppuration is present, the patient should be referred to a specialist for further management.

Refer the patient to a specialist if an abscess or suppuration is present.



### 3.3 Bleeding and hematomas:



Bleeding and hematoma formation can be a consequence of any surgery. Secondary bleeding can be caused by deficient vasoconstriction, damaged blood vessels, systemic bleeding tendencies, or the use of anticoagulation therapy.

In order to reduce the risk of post-operative bleeding, hemostasis must be achieved at the end of surgery, before discharging the patient from your practice. The patient must be given clear post-operative instructions,

including the use of appropriate pressure with gauze, avoidance of sports and other strenuous physical activity for at least 3 days after surgery.



If hemostasis is not achieved as expected after surgery, continue to monitor the patient closely while the patient is applying pressure with gauze on the surgical site(s).

Bleeding and bruising is a possible side-effect of any surgery.

#### Some causes of secondary bleeding:

- deficient vasoconstriction
- damaged blood vessels
- systemic bleeding tendencies
- anticoagulation therapy

Achieve hemostasis before discharging the patient. Provide clear instructions to prevent post-operative bleeding.

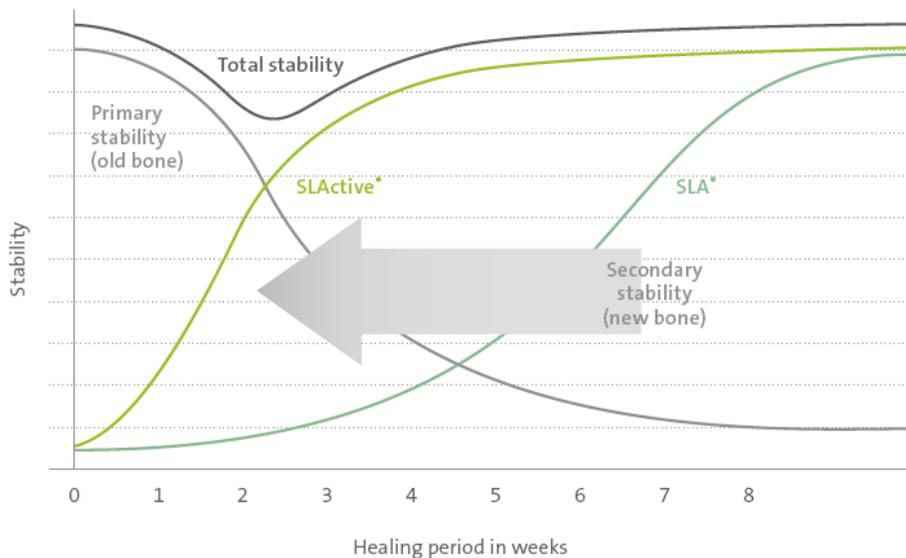
#### Also consider doing the following:

- Try to identify the cause of bleeding related to the surrounding anatomical structures.
- Inject local anesthetic with vasoconstrictor in the area.
- Place additional sutures for tighter wound closure.
- If bleeding is uncontrolled (e.g. appears to be pulsating), call the emergency services immediately.



## 4. Healing phase with Straumann® SLActive® and Straumann® SLA® Implants

The critical period of osseointegration is the first 2-4 weeks after surgery. Primary stability of bone achieved at the time of implant placement changes to secondary stability as new bone is deposited. This process of osseointegration is shown in the following graph, depending on the type of surface of the implants<sup>1</sup>:



The critical period of osseointegration is the first 2-4 weeks after implantation.

Primary stability at the time of implantation needs to progress to secondary stability with deposition of new bone around the implants.



The dentist should be aware that a stability decrease can occur at around **2 weeks** (if [SLActive®](#) is used) or at around **4 weeks** (if [SLA®](#) is used). Therefore avoid manipulation of the [Healing Caps or Healing Abutments](#) during this time as the implants' total stability is the weakest at this time point. If the healing components are loose, tighten them only gently by hand.

### Total stability decreases at:

- 2 weeks for SLActive® Implants
- 4 weeks for SLA® Implants

Avoid any unnecessary manipulation of the Healing Caps or Healing Abutments during this critical period, to achieve good osseointegration.



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Healing phase  
with SLActive®  
and SLA® Implants



## 4.1 Healing phase duration

Depending on the type of implant surface used and the quality of bone, the guidelines for the healing phase (osseointegration) are summarized in this chart:

Situation	Healing phase	
	SLActive®	SLA®
<ul style="list-style-type: none"> <li>• Good bone quality and adequate bone quantity</li> <li>• Implants with a diameter of 4.1 mm or 4.8 mm and a Straumann® SLActive®/SLA® surface length of <math>\geq 8</math> mm</li> </ul>	At least 3–4 weeks	At least 6 weeks
<ul style="list-style-type: none"> <li>• Cancellous bone quality</li> <li>• Implants with a diameter of 3.3 mm</li> <li>• Implants with a Straumann® SLActive®/SLA® surface length of 6 mm</li> </ul>	At least 8 weeks	At least 12 weeks

Reference chart for healing times depending on implant diameter, length, surface and bone quality.

**⚠ Caution:** You must now wait for this recommended healing phase to be completed. In general, it is recommended to wait **at least 6-8 weeks** before seeing the patient to insert the  **LOCATOR®** or  **Novaloc®** Abutments respectively.

Plan to see the patient for final abutment insertion after the implants are osseointegrated.



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## REFERENCE

- 1 Oates TW et al. Enhanced implant stability with a chemically modified SLA surface: A randomized pilot study. *Int J Oral Maxillofac Implants* 2007;22(5):755-60.



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## **International Headquarters**

Institut Straumann AG

Peter Merian-Weg 12

CH-4002 Basel, Switzerland

Phone +41 (0)61 965 11 11

Fax +41 (0)61 965 11 01

[www.straumann.com](http://www.straumann.com)

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