Impression Techniques in Implant Dentistry

Khaldoon G. Abu Afifeh, B.D.S, M. Sc in Prosthodontics
Implantology Is a Prosthetically Driven Entity.

Information Before Treatment is Diagnosis...

Information after Treatment is an excuse
“The Lost Syndrome”
Impression posts or coping

Materials Used: Titanium, plastic, and anodized aluminum.
Implant Analogue or Replica
Abutment Replica or Analogue
Analogue or Implant Replica

Materials Used: Stainless steel (sometimes brass)
## IMPRESSION TAKING COMPONENTS

### RN TISSUE LEVEL IMPLANT
Restorative platform Ø 4.8 mm

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>040.740</td>
<td>RN Solid all-in-one set, 4.0 mm, for crown</td>
</tr>
<tr>
<td>040.741</td>
<td>RN Solid all-in-one set, 5.5 mm, for crown</td>
</tr>
<tr>
<td>040.742</td>
<td>RN Solid all-in-one set, 7.0 mm, for crown</td>
</tr>
<tr>
<td>040.840</td>
<td>RN Solid all-in-one set, 4.0 mm, for bridge</td>
</tr>
<tr>
<td>040.841</td>
<td>RN Solid all-in-one set, 5.5 mm, for bridge</td>
</tr>
<tr>
<td>040.842</td>
<td>RN Solid all-in-one set, 7.0 mm, for bridge</td>
</tr>
</tbody>
</table>

### WN TISSUE LEVEL IMPLANT
Restorative platform Ø 6.5 mm

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>040.745</td>
<td>WN Solid all-in-one set, 4.0 mm, for crown</td>
</tr>
<tr>
<td>040.746</td>
<td>WN Solid all-in-one set, 5.5 mm, for crown</td>
</tr>
<tr>
<td>040.845</td>
<td>WN Solid all-in-one set, 4.0 mm, for bridge</td>
</tr>
<tr>
<td>040.846</td>
<td>WN Solid all-in-one set, 5.5 mm, for bridge</td>
</tr>
</tbody>
</table>

**Each WN all-in-one set contains:**
- Abutment, analog, impression cap, positioning cylinder, protective cap, burnout coping for crown or bridge.

### synOcta, closed tray impression taking

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<tbody>
<tr>
<td>048.013</td>
<td>RN Impression cap</td>
</tr>
<tr>
<td>048.095</td>
<td>WN synOcta positioning cylinder, white</td>
</tr>
<tr>
<td>048.171</td>
<td>WN synOcta analog, grey</td>
</tr>
</tbody>
</table>

### synOcta, open tray impression taking

<table>
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<tr>
<th>Item Code</th>
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<tbody>
<tr>
<td>048.091</td>
<td>RN synOcta impression cap, with integral guide screw</td>
</tr>
<tr>
<td>048.171</td>
<td>WN synOcta analog, grey</td>
</tr>
</tbody>
</table>

### NC BONE LEVEL IMPLANT
Restorative platform Ø 3.3 mm

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>025.2201</td>
<td>NC Impression post, with guide screw and cap</td>
</tr>
<tr>
<td>025.2101</td>
<td>NC implant analog</td>
</tr>
</tbody>
</table>

### Implant-level impressions, open tray technique

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
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</thead>
<tbody>
<tr>
<td>025.2202</td>
<td>NC Impression post, with guide screw</td>
</tr>
<tr>
<td>025.2101</td>
<td>NC implant analog</td>
</tr>
</tbody>
</table>

### Temporary option for provisionalization, open or closed tray

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>024.2370</td>
<td>NC Temporary meso abutment D 5.0 mm</td>
</tr>
</tbody>
</table>

### RC BONE LEVEL IMPLANT
Restorative platform Ø 4.1 mm and Ø 4.8 mm

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>025.4201</td>
<td>RC Impression post, with guide screw and cap</td>
</tr>
<tr>
<td>025.4101</td>
<td>RC implant analog</td>
</tr>
</tbody>
</table>

### Implant-level impressions, open tray technique

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<th>Component Description</th>
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<tr>
<td>025.4202</td>
<td>RC Impression post, with guide screw</td>
</tr>
<tr>
<td>025.4101</td>
<td>RC implant analog</td>
</tr>
</tbody>
</table>

### Temporary option for provisionalization, open or closed tray

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<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>024.4370</td>
<td>RC Temporary meso abutment D 7.0 mm</td>
</tr>
</tbody>
</table>

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Additional components may be available. For more information or to place an order, please contact our Customer Service Department at 800/448 8168.
Non-Shouldered Abutments and Prosthetic Components

Notes:
- Snap-on sleeves are only specific for abutment diameter.
- Abutment height is not a criterion for proper selection of snap-on sleeves.
- Transfer disk corresponds to exact diameter and height of abutment placed.

Indirect Abutment Level Impression:
1. Collect and quantify all abutment information, ensuring it corresponds with the corresponding abutments.
2. Impression material is injected around the impression shown for the transfer of abutment level impression.
3. Acrylic impression sleeves are shown with injection of impression material into impression shown, transferring the information to the laboratory.
4. Soft tissue material is injected around the abutment, sleeves, and abutment transfer disk.

Direct Abutment Level Impression:
1. Non-shouldered abutment being prepared with a RTV silicone.
2. Two prepared non-shouldered abutments.
3. Impression material being injected around non-shouldered abutments.
4. Full arch impression.
Outline Of Implant Treatments

- SURGERY
- IMPRESSION
- PROSTHETIC RESTORATION
Impressions for Implants Versus Crown and Bridge
Impressions Are Negative Reproductions Of Dental Structures
Implant Impressions

Accurate recording of spatial implant position is required to obtain a proper support to definitive restoration with passive fitting.

Conrad et al., 2007

Spatial Implant Position
What is the benefits of Impression in implant dentistry?

1. Position.
2. Depth.
3. Axis/Angulation.
4. Rotation–Hex position
5. Soft Tissue Contour (Emergence Profile)
Implants VS Cr. & Bridges

1–It is **more critical** to record **3-dimensional** position of the implants as they occur intraorally.

2–Natural teeth have a **PDL** to compensate for minor inaccuracies while implants have not.

*Pesun IJ.* 1997
Check List Before The Impression Appointments

- Implant labels are ready. Diameter Not Length!!!!
- What if implant labels are missing????
- Ensure all implant impression posts and analogues are ready.
- Short and long keys are ready.
Impression Techniques for Implant Dentistry
Impression Techniques

Implant Level

Abutment Level
Impression Techniques

- **Implant Level Impressions**
  - Pick Up (Open Tray).
  - Transfer Type (Close Tray).
- **Abutment Level Impressions**
  - Direct Technique
  - Indirect Technique
Implant Level Impression Techniques
Impression Techniques

- Implant Level Impressions
  - Pick Up (Open Tray).
  - Transfer Type (Close Tray).
- Abutment Level Impressions
  - Direct Technique
  - Indirect Technique.
Pick Up/Open Tray
Open Tray
DIAPERS & POLITICIANS SHOULD BE CHANGED OFTEN BOTH FOR THE SAME REASON
Case
Terminology

- Pick Up Tray
- Custom Tray
- Square Impression coping
- Direct Technique
- Transfer
- Stock Tray impression
- Tapered impression coping
- Indirect Technique
Indication For Closed Tray

- Limited inter arch space.
- Tendency to gag.
- Difficult access in the posterior region of the mouth.

Liou Ad 1993
Advantages of Closed Tray

- Easier
- Suitable for short inter arch distance.
- Visual fastening of the analog to the coping is more accurate

Conrad H. 2007
Disadvantages of Closed Tray

- Inaccuracies with recovery and subsequent deformation of impression material may be encountered with nonparallel implants.
- Not Suitable for deeply placed implants.
Advantages of Open Tray

- Reduces the effect of the implant angulation
- Reduces the deformation of the impression material.
- Removes the concern for replacing the coping back into its respective space in the impression.

Heather J
Disadvantage of Open Tray

- The **movement of impression copings** inside the impression material during clinical and laboratory phases may cause inaccuracy in transferring the spatial position of implants from the oral cavity to the master cast.

Vigolo et al. (2003)
Disadvantages of Open Tray

- some rotational movement of the impression coping when securing the implant analog may occur.
- Blind attachment of the implant analog to the impression coping may result in a misfit of components.
Impression tips

You can play with impression posts, but you can’t play with implant analogues.
Shortened impression coping secured with autopolymerizing PMMA resin to unmodified coping.
Abutment Level Impression
Impression Techniques

- **Implant Level Impressions**
  - Pick Up (Open Tray).
  - Transfer Type (Close Tray).

- **Abutment Level Impressions**
  - Direct Technique

- **Indirect Technique**
Abutment Level Impression

Healing Abutment

Removal Of Healing Abutment
Impression Techniques

- **Implant Level Impressions**
  - Pick Up (Open Tray).
  - Transfer Type (Close Tray).

- **Abutment Level Impressions**
  - **Direct Technique**
  - Indirect Technique.
Movie
Direct Abutment Level Impression

Remove Healing Abutment

Place Transfer Coping
Direct Abutment Level Impression

Block out hex hole

Make full-arch impression
Direct Abutment Level Impression

Assemble coping and analog

Index coping into impression
Direct Abutment Level Impression

Create soft tissue model

Fabricate working cast
Advantages of Implant level impressions

- Simple provisional restoration fabrication
- Selecting abutments in the laboratory
- For custom-made abutments
Implant Level VS Abutment Level

- Prefabricated vs. Custom made abutments
- Implant Level (generally *screw–retained*)
- Abutment level (generally *cement–retained*)
Splinting

The materials used to splint copings are composite resin, plaster, or acrylic resin.

*Cabral LM 2 2007*
هذي عشان Google Earth مايشفون حريماً؟
وشي هركة يا بود حجين مغطي بيتلك كي؟
Comparison between Impression Techniques for Implants
14 Articles

- Pick up: 5
- Transfer: 2
- No difference: 7
11 Articles

- Less than 3 implants: No Difference
- More than 4 implants: Pick Up Technique
17 Articles

- Splinting: 7
- Not to splint: 3
- No difference: 7
11 Articles

- Polyether: 1
- No difference Polyether and PVS: 10
Conclusion

- No patient-related data were found, hence the clinical implications of the dimensional discrepancies between impression-taking methods is unknown.

- While laboratory studies offer insight into the capabilities of a system, they do not guarantee clinical outcomes.

Prosthodontic considerations designed to optimize outcomes for single-tooth implants. A review of the literature

MB Lewis, * I Klineberg
Trouble Shooting for Dental Implants
Errors

- It is important to take a periapical X-ray to verify the fit between the transfer coping and the implant.
- Verify the seating of components
Errors

- Improper interface, note small gap between impression post and implant analogue.

- Ensure that impression pin and model analog are securely screwed together and fully seated in impression.
Errors

- Inhibition of the polymerization of vinyl polysiloxane (VPS) impression materials has been reported to occur with the use of latex protective barriers such as gloves.
Trays

- Metal not plastic
- Perforated or not
- Use tray adhesive
- Rim lock tray
Errors

models obtained from impressions with **special trays** present higher accuracy with respect to the impressions obtained with **stock trays**
“Precise impression methodology would decrease the failures experienced related to the supra structure fabrication”
Imprecise superstructure fit results in mechanical and biologic consequences that disrupt the function of dental implants.

Heather J. et al, 2007
“passive fit of the supra structures onto the abutments and/or implants are of great importance”
**Tips**

- If Implant is placed so deep and you need to take transfer type: use small Diameter impression post.
- Always remove healing abutment and immediately place the impression post. Put them in order.
Respect Impression Material
Impression Materials
Future Trends
Say Goodbye To Impression Copings

Prepare the scan – without scan spray

Prepare the scan – with scan spray
Thank You