

A Guide to Great Impressions

Retraction:

Good impressions start with good retraction, but often the process is rushed and the impression is as a result compromised. Most trained prosthodontist agree that two to three minutes is insufficient to achieve good tissue deflection. Consequently, most prosthodontists pack retraction cord for five minutes or longer to achieve good tissue memory. This is one of the main secrets in achieving a good impression. Let's discuss two alternative methods.

Single Cord Technique:

[Frame1] **This technique is most common, but often insufficient.** The single cord retraction technique is best used when preparing margins at, or above tissue. As you can see in figure 2, when cord is placed below the tissue it will simply train the upper tissue to curl, defeating the process of tissue deflection. If gingival tissues are healthy and no bleeding occurs when the cord is packed, this is usually an accepted method.

Double Cord Technique:

[Frame2] **The double cord retraction technique is best used when sub-gingival margins are required, and/or if the tissue health is less than ideal. The technique sequence listed below will provide the best result.** It is advisable to leave the bottom cord in place during the impression process as bleeding may occur when the cord is removed causing the final impression to become distorted.

> **Remove enough coronal structure to gain easy access to the interproximal areas.** Try to avoid preparing areas close to the gingival tissue. Gently insert an extra thin cord such as Deknatel suture or #1 retraction cord (impregnated with an astringent of your choice) into the sulcus.

> **The #1 cord will provide a slight tissue deflection allowing more access**, but more importantly, it will serve as a depth gauge to help avoid cutting epithelial tissue making moisture/blood management much easier during the impression process. However, for subgingival impressions it is important to use cord large enough so the tissue doesn't slump toward the prep during the impression. Where soft tissue may tend to slump, the use of an 0 cord may be preferred. In addition, braided cord has less tendency to pull out of the sulcus if nicked with the burr.

> **Finish the rest of the impression including the gingival margins** with the Deknatel in place. Then pack the #2 cord... this cord should be of sufficient size to adequately reflect the tissue and is usually impregnated with astringent. **If the sulcus is deep and the #1 cord goes below the tissue and is not clearly visible, place another layer of cord.** Cord placed below the tissue will simply train the upper tissue to curl, defeating the process of tissue deflection.

> **After five minutes or more, remove the upper cord**, (leaving the suture cord in place) and proceed with the preparation.

Impressioning Tray/Injection Sequence:

Impression material working time defects are extremely common. Regardless of which impression system is used, it is advisable to load the tray material, prior to

beginning the injection process. Tray materials loaded at room temperature will have substantially more working time than materials used in the mouth at 98 degrees. The incident that we want to avoid is waiting for the tray to be completed while material is setting on the preparation.

Syringe Technique:

Most dentists were taught to start the injection process on the lingual/distal aspect of the preparation and circle the preparation up to the occlusal/incisal aspect. Often "V" shaped voids develop at the start point. To reduce all voids, a slightly modified syringe technique is as follows:

With the syringe tip resting against the preparation begin the syringing process. While syringing, use a **slight stirring motion** by gently wiggling the tip back and forth and up and down while expressing material. Use this stirring movement in the interproximal areas as well. This process will help the impression material relax, better wetting the tooth surface and helping the material to blend with itself. This stirring method is much preferred to using the air syringe to blow the first layer and then reapplying material. Using the air method robs the operator of valuable working time.

Tray Insertion:

Why is it that trays are inserted at the speed of light? Fewer defects occur if additional time is taken to properly align the tray and slowly seat to place. This will prevent drags, pulls and distortions caused by tray realignment once the tray has been seated.

Additional Tips:

> **Most impression materials allow only one minute of intra-oral working time.** We advise that a cartridge of injectable material be stored in a refrigerator and be reserved for cases involving three or more units. The lower temperature will extend the working time by as much as 50 percent. Consequently, set time is also retarded, thus extending the normal intra-oral set time by at least 50 percent. This refrigerated material is also useful on hot summer days when the office is warmer than normal.

> **It is one of those days where we are on our second or third impression and the schedule is in chaos.** If an impression is removed too soon it may look perfect, but distortion has undoubtedly occurred because the material did not achieve full physical properties and it did not rebound to natural position. This is the primary reason for tight-fitting crowns.

> **If tooth to tray contact occurs, it is almost certain that distortion will occur.**

> **Never exceed two units when using a double bite tray.** When two or more units are involved, a full arch impression is advised.

> **A bite registration including the preparation site and at least two of the adjacent teeth are invaluable for proper model articulation.** This separate registration is advised even with double bite impressions.

4 STAGE ADHESIVE BONDING

This Checklist is designed to serve as a road map for the adhesive bonding of

single and multiple units, regardless of the bonding system utilized.

Stage 1: Try-in Restoration

- Remove the temporary and CLEAN the tooth (chlorohexidene wash.)
- CHECK for the etch (on the internal surfaces of the restoration.)
- TRY-IN DRY to check for fit and contour.
- STOP! DO NOT Check the occlusion at this time, nor allow the patient to bite- the restoration must be bonded first.

Stage 2: Treat the Restoration

- CLEAN with water, etchant and more water.
- Apply a coat of SILANE and let air dry.
- Apply the UNFILLED RESIN and thin it with a brush.
- STORE the restoration in a light protective box.

Stage 3: Treat the Tooth

- Place the RUBBER DAM
- ETCH the tooth (enamel for 15-seconds; dentin for 10-seconds.)
- Apply a WETTING AGENT (Chloroexidene wash) to the tooth.
- Apply multiple coats of PRIMER and air dry.
- Apply the BONDING AGENT and thin it with a brush.
- Apply the UNFILLED RESIN and thin it with a brush.

Stage 4: Lute Together

MIX the catalyst and base of the luting cement.

- SEAT the restoration.
- SPOT CURE (for 20 seconds) and thoroughly CLEAN away the excess.
- Apply GLYCERIN gel to the margins.
- Completely LIGHT CURE the restoration (2 minutes on each aspect).
- Occlusal adjustments and FINISHING.