Spear Perspective

The art and science of exceptional esthetic and restorative dentistry

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The Art of Temporization Part II

by Frank Spear, DDS, MSD

In the last installment, I discussed the rationale for making excellent temporaries, the materials available and the concerns about having an adequate amount of time to do it right. In this installment, I will discuss the techniques I use in practice to fabricate different types of temporaries.

The techniques I use are largely dependent upon where in the mouth I am working (anterior vs. posterior), the type of restoration (full vs. partial coverage), how many teeth are being restored, whether significant occlusal changes are being planned, and the esthetic requirements of the temporary.

The most common restorations done today are simple posterior restorations on one to four teeth in a quadrant. I virtually always make these temporaries directly in the mouth inside some type of matrix. If the current tooth form and occlusion are acceptable, I create the matrix one of two ways. The easiest method is to simply make the matrix out of bite registration paste inside a check bite tray. Load the tray with the bite registration paste and then quickly syringe the material around the unprepared teeth. Place the tray and let the patient close into occlusion. When the material is hard, remove the tray and set it aside until after the tooth preparation is completed. Be sure to include enough teeth anteriorly so that once the posterior teeth are prepared, you are able to reorient the matrix in the mouth.

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When using chemically cured resins, i.e., Luxatemp, you can use any bite registration paste, although I prefer to use Isotemp by 3M, a dual cure temporary resin that achieves its final cure with light. For this reason, I use a clear bite registration paste in the check bite tray so I can cure through the occlusal and harden just this area before removing the tray. Since the margins and interproximal are not completely cured they will not lock on, but because the occlusal has been cured, the temporary does not distort upon removal. When removing the check bite, if the temporary stays in the impression, light cure it for 30 seconds prior to removing it from the impression and trimming. If the temporary stays on the tooth, lightly lift it off with curved hemostats by grabbing the sides of the occlusal surface that has been already cured and then completely cure off the tooth and trim.

I often hear dentists complaining about two issues when making posterior temporaries: occlusion and margins. This technique eliminates much of the occlusal adjustment since the matrix is made with the opposing teeth in occlusion. Make sure that after the matrix is loaded with material and placed on the prepared teeth, the patient closes completely back into the check bite until the material achieves its initial set.

There are several tricks to help with margins. The first is tissue

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management at the time of temporary fabrication. I personally use a double cord technique where the bottom cord stays in during the final impression. I leave this cord in until after the temporary is fabricated. It is critical that the tissue be retracted prior to temporary fabrication to obtain excellent margins. If you do not use cord, laser or electrosurgery may be used to achieve tissue retraction. The final impression can then be taken and the temporary made after the tissue retraction.

The second critical factor concerning margins is moisture. All of today's Bis-GMA based temporary materials are very hydrophobic, so it is imperative that there is minimal moisture on the margins at the time of fabrication to achieve an excellent fit. If after the initial fabrication the margins are less than ideal, I completely trim the temporary prior to attempting to reline the margin, air abrade the temporary internally and at the margin, and paint in a layer of any one-step dentin adhesive, but do not cure it yet.

Dry the tooth and syringe a very thin layer of Isotemp just on the margin of the preparation and then immediately reseat the temporary over it. Light cure the facial and lingual each for 10 seconds, lift off the temporary, cure additional seconds and then re-trim and polish. This technique of using Isotemp in the bite registration paste yields minimal occlusal adjustment and excellent margins if adequate retraction and moisture control are maintained throughout the temporary fabrication.

The technique described above is excellent whenever tooth form is acceptable. However, I often desire a change in tooth morphology for esthetic or occlusal reasons. In these instances, I take an alginate impression prior to administering anesthesia and pour it in Whip Mix mounting stone, which sets in about five minutes. On this model I use Ultradent blockout material (a light cured resin) to make the change in tooth morphology by adding, curing, and trimming with burs or discs. To make the material stick, paint a layer of unfilled resin on the model prior to applying the blockout material. I prefer using blockout resin instead of wax because I can do a 1 mm copyplast pressing using the MiniSTAR® directly over this model without having to first duplicate a waxed up model. I also prefer not to use my original mounted diagnostic casts to do this mock-up in simple cases so that the original models are not altered.

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If the complexity of the case requires the mounted models to do the mock-up, then I recommend doing a duplicate mounting rather than altering the originals. Once the copyplast pressing is complete and trimmed, it is used as a matrix just as the bite registration paste was previously used. In my own practice, 90% of my temporaries are done this way because I am usually altering tooth form. For simple posteriors and many anteriors, I use Isotemp inside the copyplast, cure the occlusal through the matrix and complete the Isotemp temporaries as previously described.

For both long term and light shade anterior temporaries, I prefer Triad Ivory Light from Dentsply. Triad does require some modification in fabrication technique. Because the Triad is light cure only, a clear matrix must be used. Copyplast works fine. However, because Triad is quite viscous, it often distorts the copyplast when the matrix is loaded directly on the teeth in the mouth. There are two things I do to prevent this. First, after the copyplast pressing is done, I press a layer of 1 mm stent material over it to create a more rigid matrix. Second, after the matrix is loaded, I place it in a bowl of very hot water for 10-15 seconds to make the Triad less viscous. I immediately take it to the mouth and seat the matrix to place. Cure each tooth facially and lingually for five seconds, lift the matrix up slightly, reseat it and repeat the curing cycle of five seconds each.

After three to four curing cycles, remove the temporary, final cure for one minute and trim. Triad almost always needs the margins relined and I do it by using Isotemp exactly as earlier described. The advantages of using Triad are its durability and excellent esthetics, although they are achieved with some loss of convenience. In my practice, I use Triad on posterior teeth only if the temporaries will be in several months or more, other-

wise I have found that Isotemp holds up fine and is more convenient. On anterior teeth, however, I use Triad 90% of the time, using Isotemp only when the patient will tolerate a darker, more translucent temporary.

If the anterior temporaries are for full crowns, I usually make them directly on the tooth in the mouth using the copyplast and Triad. However, for anterior veneer temporaries, I prefer to make them indirectly on a model. I have found that I have far more control over these thinner temporaries that way.

Again, the two most common materials I use are Isotemp and Triad, with shade and translucence being the critical factors in choosing between the two. Triad is typically much lighter and less translucent and, therefore, I use it more often. For a matrix, I use the techniques described earlier to modify the model and create the copyplast matrix. What varies is the type of model I use for these materials.

When using Triad, I make two final impressions of the veneers out of silicone. I send the best one to the lab and pour the other one in Whip Mix mounting stone. After the stone has set and the model separated, I lubricate the model with Vaseline and make the Triad temporary on the model using the exact steps described for fabricating it in the mouth for full crowns. I even reline the margins in the mouth after trimming with Isotemp just as for full crowns.

When using Isotemp for veneer temporaries, a stone model such as the Whip Mix mounting stone can be used. However, it is very nice to work off a flexible model whenever possible. To do this, rather than making two silicone impressions, I make one Duoloid alginate impression of the tooth preparations for the temporary model and one silicone impression to send to the lab for veneer fabrication. I use alginate rather than silicone because the flexible model I make is out of a silicone material that would stick to the silicone final impression material.

Take the Duoloid impression and inject Mach II die silicone from Parkell into it. Next, inject a base of heavier bite registration paste, and in two minutes, you have a model on which to fabricate the temporary. Load the copyplast with Isotemp, inject a thin layer around the margins and seat the loaded matrix onto the silicone model. It can then be cured, removed and trimmed. The big advantage of this technique is the ability to completely cure the temporary knowing that it can be removed because of the model's flexibility. It is then finished and relined if necessary as previously described. The reason I do not use this technique with Triad is because the viscosity of Triad distorts the silicone model.

In the last segment on temporization, I will cover the use of methylmethacrylate shells in complex reconstruction, as well as trimming, polishing and cementing temporaries.

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