

# Spear Perspective

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The art and science of exceptional  
esthetic and restorative dentistry

## The Art of Temporization

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The fabrication of temporary restorations is one of the most important, and yet often neglected, elements of restorative dentistry. Temporary restorations eliminate tooth sensitivity by achieving an excellent fit and seal, which is of paramount importance for patient comfort. They maintain tooth position through proper occlusal and interproximal contacts, ensuring an efficient delivery of the final restoration with minimal adjustments. They also play a significant role in the maintenance of gingival health and contour.

Ill-fitting temporaries result in significant tissue inflammation, making proper isolation of the tooth from hemorrhage and fluid very difficult whether seating the final restoration with cements or bonding systems. Undercontoured temporaries allow the soft tissue to close in over the margins of the preparation, causing the tissue to become trapped under the final restoration at the time of seating unless some method of retraction is used.

In short, there may be nothing as important following the tooth preparation and impression as the temporary in ensuring that the final restoration will be seated completely without sensitivity and with minimal



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chair time. The hallmarks of an ideal temporary restoration that can accomplish these results are an excellent fit, proper contour and correct occlusal and interproximal contacts. Inadequacies in any of these areas will result in potential difficulties when inserting the final restoration.

What does it take to create temporary restorations that adequately meet all of these needs? The three factors that are crucial for achieving a quality temporary restoration are time, the proper materials and the proper technique. The issue of time is a challenging one.

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# The Art of Temporization

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Many dentists find that having a well trained assistant fabricate the temporary following the final impression frees them up to move on to a different patient in another operatory. This also provides the assistant with the ability to fabricate the temporary without as much time pressure as there would be if another patient had to be moved into that chair immediately. However, many offices do not have the operatories or the personnel to delegate temporary fabrication to. In these instances, the dentists must either allow themselves adequate time to properly fabricate the temporary or recognize that they will need to spend more time the day of seating because of the temporary's deficiencies. It truly becomes a "pay me now" or "pay me later" experience with regard to chair time and temporaries. In addition, there are simply some patients whose temporaries will require the dentist's input during fabrication. These may include patients with significant occlusal problems, difficult esthetic management or complex reconstruction involving a significant number of teeth. In these complex patients, charging a separate provisional fee of approximately 30% of the per unit crown fee is encouraged so that the dentist feels adequately compensated to take the necessary time to fabricate an excellent set of temporaries.

Today there are many choices of materials available for the fabrication of temporary restorations. Historically, methyl methacrylates such as Temporary Bridge Resin by Caulk and Jet by Lang have been used for years. The physical properties of these materials are typically quite acceptable with regard to strength and wear resistance.

However, their long-term color stability is poor and their fabrication techniques are somewhat frustrating due to shrinkage, one of the methyl methacrylates' biggest drawbacks. It necessitates that significant care must be used to avoid locking the material in the mouth during fabrication and to ensure good marginal fidelity. In addition to shrinkage, these materials generate significant heat during their setting reaction. Great care must be taken to avoid overheating the tooth during setting if they are used directly in the mouth. One of the advantages of using methyl methacrylates, however, is the ease of adding to them during fabrication, which helps to alleviate the problem of marginal fidelity due to shrinkage. Methyl methacrylates are certainly appropriate materials to use today in fabricating temporaries if you have mastered the techniques necessary to work with them. However, there are many newer materials available that are much easier to use.

Ethyl methacrylates, such as Snap and Trim, are another class of materials that have been available for a long period of time. These

materials countered some of the problems the methyl methacrylates had, such as shrinkage and heat upon setting, but added some additional problems of their own. They have very poor color stability and wear resistance and are difficult to add to. Nevertheless, many dentists used them because of their lack of shrinkage compared to the methyl methacrylates.

The next significant class of materials is the chemical cure composite resins, including products such as ProTemp, Luxatemp and Integrity. These products overcome many of the shortcomings of the acrylics. They have very little shrinkage, minimal heat upon setting and good color stability and wear resistance. In addition, many are dispensed in cartridges, making mixing very easy, and they do not have the odor associated with acrylics. They are also very easy to add to by following the same steps used for any composite addition. Of their few disadvantages, their ability to lock into undercuts or onto teeth may be the most significant. This is easily remedied by paying attention to the setting time. Otherwise, the only complaints from practitioners seem to be a somewhat brittle nature and occasional bubbles from the mixing systems. Suffice it to say they are one of the most popular temporary materials on the market today.

Composite resin technology is responsible for the last two classes of materials as well: light cure only and dual cure products. Light cure only products, including Triad or flowable composites, give the operator the advantage of being in total control of the curing. This eliminates the need to time

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the set. However, they can still lock on since they become very hard when cured. Therefore, rather than timing the setting, the operator must learn how much light application is necessary to harden the material without locking it on. It can then be removed and the curing completed off the tooth. If it is undercured, however, some of the material may be left on the tooth when it is removed for final curing, resulting in an open margin. In spite of these shortcomings, when used properly these products can make excellent temporary restorations with excellent physical properties and esthetics. Ivory light-colored Triad is one of my favorite materials for anterior temporaries.

The final class of materials is the dual cure products, such as Isotemp and Unifast. Isotemp is a composite resin based product similar to Luxatemp, except that its polymerization is not completed until a light is applied. Unifast is an acrylic based material with similar characteristics, i.e., partial setting from a chemical reaction but dependant upon light for complete setting. Following final curing, each of these materials then behave with the same physical properties of other materials in their class, so that Isotemp will act like a composite and Unifast will act like an acrylic. The major rationale for using both of these products is that neither will set completely until the light is applied, which minimizes the risk of locking the restoration in place. Yet, because there is an initial chemical cure occurring, it is possible to remove them with minimal distortion. They can then be either cured out of the mouth or placed back on the teeth after removing any excess material

from undercuts and final cured. This can be a tremendous advantage over chemical cure only products.

In my practice, I use Temporary Bridge Resin by Caulk, a methyl methacrylate, for complex full arch reconstructions; and Triad by Dentsply, a light cured product, for many of the anterior restorations. I have found Isotemp by 3M, a dual cure resin, to be a good material for everything else.

In the next installment, I'll describe the fabrication techniques I use with these materials directly in the mouth, indirectly on a model and a combination of the two, where the temporary is fabricated indirectly on a model, but lined directly in the mouth.

## Featured Products



### Duoloid Hydrocolloid System

Duoloid is a syringable hydrocolloid occlusal impression material that, when used in conjunction with Prep Wet and Duoloid Alginate, assures an impression with excellent definition and no nodules on the model when poured.

This ensures that the restoration or appliance fits properly on the occlusal surfaces. The DryProcessor II heats the Duoloid Hydrocolloid so it can be syringed onto the occlusal surfaces of the teeth.



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