

The Direct Approach

Creating aesthetic direct veneers with single-shade composites

by Dr. Sigal Jacobson

Dentist and inventor **Dr. Sigal Jacobson** is an internationally acclaimed lecturer with more than 22 years of experience in aesthetic dentistry. Jacobson, who has been named one of the “Top 25 Women in Dentistry,” enjoys teaching and advancing skills in conservative aesthetic dentistry. She strongly believes that dentists need to protect tooth vitality and respect its natural structure. Jacobson has contributed clinical case studies in leading dental magazines in the U.S. and lectures on minimally invasive aesthetic dentistry and simplifying anterior composite restorations using the Uvener system. In her lectures, she provides insightful tips and practical learning tools for everyday practice.



In everyday practice, composite restorations have become an integral part of contemporary restorative dental practice and can be called “star of minimal invasion” because of their conservative concept and affordable cost.

Recent developments in composite resin considerably improve physical and aesthetic properties, enabling practitioners to create restorations with excellent longevity and a higher patient satisfaction rate.¹

Many dentists consider direct composite placement in the anterior region, whether to enhance to the tooth shape or color, to be somewhat challenging. Some of these challenges include creating the final anatomical landmarks and contours and selecting the precise shade of composite that will blend and polish to perfection. The technique demands an artistic skill and considerable investment of time and effort.

In addition, many composite manufacturers propose a multilayer protocol, which requires placing an assortment of opacities and translucencies to create a natural, polychromatic effect. In clinical situations, layering techniques are complicated and time-consuming. As a result, many dentists give up on layering techniques and search for simpler methods and materials that involve creating restorations with only one or two shades of composite.

This article will outline a unique and efficient technique to create natural-looking direct veneers with a single composite shade using the Uvener composite template system.

The Uvener system is an assortment of templates that simulate the buccal shape and anatomical landmarks of anterior teeth. The kit consists of maxillary and mandibular teeth, from premolar to premolar, in two sizes based on the smile design rules and proportions and will fit most patients.² Each template is made from a transparent, fiberglass-based material, making the kit durable and autoclavable.

After applying composite on the facial surface of a prepped tooth and pressing the appropriate template, one round of light curing—after which the template is removed—produces a void-free restoration. Moreover, studies show that the oxygen inhibition layer (OIL) is softer and more susceptible to wear and stain.³ With light curing through the template, the formation of the OIL is prevented, forming a glossy and more durable restoration.

Shade selection in five steps

One challenge in creating natural-looking anterior restorations is matching the right composite shade to the tooth. This step is crucial and has a significant impact on the success of the restoration.

There are a few factors that affect the final restoration shade.

1. Appearance analyses indicate substantial variation between same shades from different brands. (Fig. 2). Different thickness of the same composite may present differently in shade and masking ability.
2. The underlying tooth reflects on the composite and will affect the final shade.
3. A gray appearance of the composite can be caused by the projection of darkness in the oral cavity.⁴
4. Light curing and polishing changes the final shade and lowers the value (varying by brand and shade).⁵⁻⁶

Here are five steps to overcome the challenge of creating a natural-looking restoration.

1: Keep it simple!

Spectrophotometry confirms that 90 percent of patients will present with an A hue. It is advised to reduce your composite inventory and avoid having too many shades in your armamentarium. The most common shades are A1, A2, A3, A3.5, A4, B1, bleach white and translucent.

2: Divide your composites into roughly three groups.

Low-value composites (e.g., Clearfil Majesty Esthetic from Kuraray; Gae-nial Universal Flow from GC America) exhibit a light-diffusion property similar to natural tooth structure, with excellent tooth-blending properties. These composites

are recommended for small enamel fixes, Class V, and cases when maximum blending with no masking is required. Using low-value composites in thick layers may appear grayer in appearance.

Medium-value composites (e.g., Venus from Kulzer; Vit-I-escence from Ultradent) are used in many aesthetic cases. When applied in approx. 0.5mm thickness or more, they can mask, and at the same time incorporate, a “chameleon effect.”

High-value composites (e.g., Amaris from Voco; Gradia from GC America) are used in a thin layer, present with high opacity and masking capabilities, like in cases where changing the underlying tooth color is required with minimal composite thickness, and without having to use opaques. These are only suggestions, because one brand can also incorporate all three groups in its range.

3: Be familiar with your composites' shade capabilities.

It's advisable not to change composite brands too often, as it takes time to get familiar with each one's composite shade and value characteristics.

4: Prepare individual shade guides.

When selecting a composite shade to match a tooth, a common mistake is using a ceramic shade guide that's fabricated from materials that differ entirely from the composites. Therefore, it is advised to create an individual, custom-made composite shade guide that will generate an accurate and realistic representation of the composites on



Fig. 1



Fig. 2: The same B1 shade of composite from different manufacturers will appear different in shade and value.

hand. The composite shade guide should look as close as possible to the contours and gloss of the final result. The case that follows, the individual shade guides were created from the Uveneer template (Figs. 3–6).

5: Create direct mock-ups.

Having the end result in mind before starting any case plays a significant role in the success of any aesthetic work. In

that respect, a simulated direct composite mock-up without bonding it to the tooth is highly recommended. Direct mock-up allows the dentist to effectively view the final restoration regarding shape and final shade and take the guesswork out of shade selection. It is also a great communication tool with the patient on the final aesthetic result.

Shade selection mock-up should be performed on the same tooth you plan to work on, under a natural humidity (as dehydration brightens the tooth). It is also recommended to build the mock-up to the same thickness of the finished restoration. Once accurately polished and made into a realistic representation of the final result, remove it with the help of an instrument.

One-shade polychromatic composite veneer

It is a fact that teeth have a polychromatic appearance with a great variety of shades and nuances perceived and interpreted by the human eye. To mimic the natural gradient effect, dentists learn to apply multiple composite shades in different areas of the tooth.

In reality, enamel does not present with different shades and is somewhat translucent and colorless. It's perceived as polychromatic because of the reflection of the dentin through different thickness of enamel in different areas of the tooth.

By using a single shade of composite of varying thickness, a significant difference in chroma, value and masking capability will be created.⁷⁻⁸

It is recommended to use the advanced nanocomposites with a chameleon effect, in which the composite “picks up” colors from the underlying teeth.

Another reason for the natural looking results of using a template are the embedded surface morphology reflections, which have a significant influence on appearance. By pressing a tooth-shaped template upon



Fig. 3: Composite is applied into the template.



Fig. 4: Light cured for 30 seconds.



Fig. 5: Composite shell is removed from the template and glued to a handle.



Fig. 6: Individual shade tab of the corresponding composite.

a composite resin, a 3D restoration with contours and anatomical landmarks of a natural tooth is formed. This affects how the light reflects back and is perceived by the eye.

Remember the “perceived” shape, length, and width of an anterior tooth is significantly influenced by the specular reflections coming from the surface morphology, heights of contour and line angles of the buccal surface.⁹

Creating an incisal edge translucency

In some cases, more pronounced incisal translucency is required. In such scenarios, it is recommended to apply dentin shade on the tooth, and before curing, create lobes using an IPC or a cone-shaped instrument. (Figs. 7-13)

Conclusion

Dentists need to be open-minded to new techniques while preserving the tooth structure, use common sense and rely on evidence-based dentistry. With new product developments and advanced contemporary composites, it’s possible to create predictable natural results every time while only using one or two shades of composite. ■



Figs. 7-9: Apply dentin shade composite (here, Mosaic B1 from Ultradent) onto the template and cut into the incisal uncured material to create a pattern of slices to simulate dentinal lobes. Apply a translucent composite shade (here, Gaenial Universal Flow from GC America) into the Uveneer template.



Figs. 10-12: Press the template with the translucent composite in it with the uncured composite that is on the tooth, then cure. Natural result with incisal translucency.



Fig. 13: Two central incisors completed.

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