By Rafael Santrich, CDT

Using the Scoop Technique

to Achieve Ideal Incisal Edge Translucency

Planning different types of restorations in the anterior region when treating patients with esthetic and shade disharmonies presents an interesting challenge for dentists and their ceramists. In particular, varying preparation depths and different restorative material thicknesses require careful consideration of the material (i.e., ingot) shade, as well as staining and glazing techniques, in order to control the value, translucency, and characterization of incisal edges to create a harmonious esthetic result.

Figure 1 *(above)*
Preoperative front view of a female patient dissatisfied with the color and esthetics of her teeth.

Fortunately, lithium disilicate ingots and blocks (e.g., IPS e.max Impulse, Ivoclar Vivadent) enable ceramists to create life-like and harmonious restorations using the scoop technique when a reduction in opacity and achieving the desired translucency is essential.[1-3] In such cases, the traditional cut-back of the buccal surface of the restoration, followed by successive applications of layering ceramic, may not be appropriate. Instead, by creating a small concavity in the palatal or lingual incisal area, ceramists can exercise greater control over the value, translucency and incisal edge effects.[2,3] This characterization technique is ideal for easily matching veneer and full-coverage crown restorations for central incisors, and is suitable for both press and CAD/CAM fabrication options.

The scoop technique involves two types of characterization:

1. External staining to create surface details.
2. Internal staining from the cut-back (or scooped out) lingual/palatal aspect to create intrinsic effects.

Final staining and glazing of the restorations can then be performed using a variety of ceramic (IPS e.max Ceram, Ivoclar Vivadent) materials.[2,3]

However, of paramount importance to successfully performing the scoop technique is analyzing the shade and characteristics of the patient's natural teeth from various angles and in different light. This inherently requires ceramists to consider the stump shade, ingot selection and final color.

Case Presentation

A 44-year-old woman presented with chief complaints regarding the color and esthetics of her teeth (**Figures 1-3**). After a thorough clinical evaluation, it was determined that a combination of lithium disilicate veneers and full-coverage crowns would be placed to establish esthetics and color harmony throughout the patient's smile.

However, after removal of previously placed restorations and preparation of the patient's teeth, several esthetic and fabrication challenges were revealed (**Figures 4-6**). First, the stump shades of the preparation were different, and the extent of tooth reduction varied across the affected teeth. Additionally, different types of restorations (e.g., crowns/veneers) were planned for different teeth.

The laboratory ceramist was provided with the pre-operative and preparation photographs, study models, and shade requirements for evaluation and use in fabricating the proposed restorations. Upon review, the ceramist determined that the scoop technique would be appropriate in this case in order to control the value, chroma and incisal translucency among all of the different types of restorations.

Figure 2 *(above)*
Preoperative right lateral view of the patient in natural smile.

Figure 3 *(below)*
Preoperative left lateral view of the patient's natural smile.

Figure 4 *(above)*
Frontal view of the preparations that revealed challenges associated with differences in the stump shades, preparation depths/thickness, and type of planned restorations (e.g., veneers, crowns).

Figure 5 *(above)*
Right lateral view of the preparations emphasizing the discolored stump of tooth No. 8.

Figure 6 *(left)*
Left lateral view of the preparations illustrating varying preparation depths.

An ideal wax-up of the restorations was created to full contour on the model, and a matrix was made. The wax-up was sprued, invested, burned out, and pressed using a new Value 2 ingot from the Impulse Kit (IPS e.max) to control and compensate for the anticipated thickness and shade of the final restorations (**Figure 7**), since the final color selected was 1m1-0m3. It's important to note that ingot selection and material calibration are significant to achieving restorations that blend harmoniously with each other and surrounding dentition.[4]

The sprues were removed and the restorations divested, after which they were placed in IPS e.max Press Invex Liquid and blasted to remove the surface reaction layer. The restorations were then placed on the model.

The scoop technique was performed by systematically grinding the lingual/palatal incisal edge (**Figure 7**). When more translucency is desired in the incisal edge, less material thickness is required. Then, a variety of Essence stains (i.e.,

Figure 7 *(above)*
View of the pressed restorations on the model, with the palatal incisal cavities that would undergo the scoop technique.

Figure 8 *(above)*
Buccal view of the crown restorations after finishing, with incisal effects placed from the palatal aspect.

Figure 9 *(above)*
Left lateral view of the characterized and finished crowns.

Figure 10 *(above)*
Right lateral view of the characterized and finished crowns.

Figure 11 *(above)*
View of the left quadrant monolithic crowns after staining and glazing.

Figure 12 *(above)*
View of the right quadrant monolithic crowns after staining and glazing

Figure 13 *(above)*
The veneers and crowns were first tried in with shade B .5 try-in paste to determine how to best mask the stump shade of the preparations.

Figure 15 *(above)*
Right lateral view of the restorations during try-in.

Ocean, White, Cream, Produndo) were applied to fill the lingual aspects of the restorations to create internal modifications that would resemble the patient's natural teeth. The restorations were then fired at 770˚C (**Figures 8-10**).

To characterize the outer surface of the restorations, stains (i.e., Mamelons, Enamel Opals, Transpa) were applied wherever needed. The restorations were then glazed and baked at 810 C with one minute hold (Figures 11 and 12). If additional stains were needed, the procedure could have been redone, or the color intensified with ceramic. To achieve a natural and mechanical polish, diamond paste and pumice were used to create the desired surface texture.

The restorations were sent to the dentist's office, where the veneers and crowns were first tried in with shade B 0.5 try-in paste to determine how to best mask the stumpfshade of the preparations (**Figures 13-17**).

Figure 14 *(above)*
Facial view of the restorations during try-in.

Figure 16 *(above)*
Left lateral view of the restorations during try-in.

Figure 17 *(left)*
Right anterior postoperative view of the patient's restored smile.

Figure 18 *(above)*
Left anterior postoperative view of the patient's restored smile.

Figure 19 *(below)*
Right lateral postoperative view of the patient's full smile.

By performing the scoop technique, ceramists can better control the value, chroma, and incisal translucency of crown and veneer restorations. The two different stain and glaze techniques (i.e., internal stains for the lingual/palatal scoop part; regular stain and glaze for the buccal part) ultimate produce a more lifelike characterization (**Figures 18-22**).

Figure 20 *(above)*
Left lateral postoperative view of the patient's full smile.

Figure 21 *(below)*
Close-up frontal view of the patient's natural smile showing the completed restorations.

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Interested? Contact *focus* Editor Cassandra Corcoran at cassie@thewritemessage.net for more information or to submit your article.

Figure 22 *(above)*
Close-up retracted view of the patient's completed restorations.

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About the Author:

Specializing in all fixed restorations and custom cosmetics, Rafael Santrich, CDT, is a native of Cali, Colombia, who operates a private dental laboratory in Aventura, Fla. A graduate of the Press Technology Certification Programs for IPS e.max and IPS Empress at the Las Vegas Institute (LVI), along with the Nobel Rondo program by Nobel Biocare, Santrich has become an expert in CAD/CAM scanners, including the Procera Piccolo and Procera Forte by Nobel Biocare, as well as the Cerec inLab and milling unit by Sirona. He also has completed courses on Nobel Guide, a technique to design surgical guides for implants, and digital photography courses taught by Dr. Ed McLaren and Dr. Claude Sieber. His cases and techniques have been featured in a variety of publications. He is a key opinion leader for GC America, a trainer for Nobel Biocare, and a member of the American College of Prosthodontics and the International Association of Dental Research.

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