

# The Aesthetic Edge

## A New Approach to Smile Design

By Laine Berland, DDS; David Young, DMD; Annela Williams, DDS

**D**entists who are experienced with cosmetic treatment of teeth that exhibit variations in the shape of the teeth can mean the difference between successful treatment and hours of retreating, reworking, reworking, or worse of all, retreating it again. To minimize unwanted or failed delivery visits with removable or fixed prosthetics because of patient dissatisfaction with the smile design, several smile guides have been developed over the years. These guides have attempted to serve as a communication tool to help the doctor understand what the patient wants, and for the doctor to communicate those desires to the laboratory.

The first smile guides were printed numerical showing various smile designs. Some authors used generally preferred shaped teeth to demonstrate various designs, while others categorized the designs based on essentially changing the facial line angle of the anterior teeth. To demonstrate three designs, some authors retraced each design on a single patient, while others selected different individual natural smiles to show each design. These printed smile designs in various shades showing only straight views of the smiles, while other manuals were printed with only portrait views of each design.

As the popularity of cosmetic imaging programs increased, some of these guides evolved into digital form to act as digital smile libraries. However, until now, no smile guide had been developed specifically to show the aesthetic effects of the smile variations in facial line angle while simultaneously demonstrating the implications of cosmetic imaging programs.

### DESIGNING SMILES

Lately first concern the dimensions of the smile. The lower lip teeth in the aesthetic zone have only one good option: straight, even, and white. Of the lip teeth in the upper aesthetic zone, the four lipside can be considered to have one universal aesthetic shape: a rounded point. This leaves the variations for aesthetic smile design strictly to the six upper anterior teeth.

There are three shapes of central and lateral incisors based on the shape of the facial line angles: square, square-rounder, and round. There are also three shapes of the cuspid

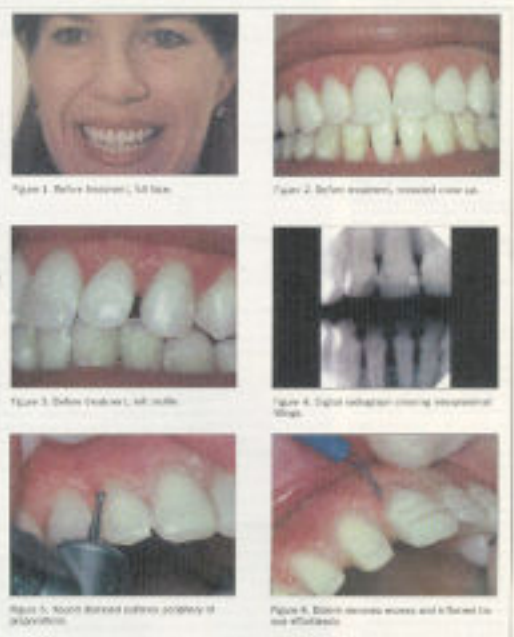


Figure 1. Before treatment, full face. Figure 2. Before treatment, retraced smile on patient. Figure 3. Before treatment, left smile. Figure 4. Digital labration showing mesopituitary shape. Figure 5. Short bonded incisal porosity of incisives. Figure 6. Short incisal edges and a forced lip-out effect.

that these designs simply do not look good. The remaining anterior mandibular teeth in the esthetic zone have smile designs. There can be variations of these basic designs such as shorter or longer central or lateral, and narrower or greater angles of the nasal

apexes. Variation in the facial contour (the shape of the facial edge of each tooth) such as flat, round, or (most favored) oval can also be considered.<sup>1</sup> Each variation of a basic smile design can be easily discussed with the patient, drawn onto copies of the basic design, or computer imaged. The final choice can either be the "aesthetic facial edge."

### CLINICAL TECHNIQUE

The perception of a beautiful smile is created by the com-

position of the teeth. Another is addressed. The teeth were prepared for evenly positioned veneers using the Shofu Contemporary Cutting Kit. The peripheral margin was defined using the round diamond (Figure 3). A depth-cutting bur was used to score the facial to facilitate final removal of old composite and resin cement. The entire rounded tapered diamond did the bulk reduction. The preparation walls and margins were simultaneously finished using the superfine,

5. These gingival tissue was easily removed on the facial. Inflamed gingival tissue was treated for clean margins and improvement. Upon completion of tooth preparation, final impressions and lab construction were taken. The facial smile margins were flat with extra care low-angle and sealed over the prepared teeth to ensure the temporaries (Figure 7). After the water table was removed first, the soft matrix was removed to reveal a smooth, polished surface. The margins of the temporaries were finished with fine finishing diamonds from the Shofu Contemporary Finishing Kit. Gentle Gel (Duxton), a wetting agent containing silver ions, was used to seal the soft matrix to further provide bonding (Figure 8). The resulting preparation was beautiful and durable (Figure 9).

### COMBINATION AND PHOTOGRAPHY

The laboratory constructed eight sets of veneers corresponding to the basic smile designs determined by our earlier analysis. The veneers were organized according to both shape, creating the blueprint for placing each cement for each design with as few steps as possible.

Digital photography was done because of its inherent ease of use for the layout design of our included print of Smile Style Guide, and to facilitate the digital guidelines needed to use the photos in cosmetic imaging programs.

The temporaries were used and prepared off with a space excavator. Each set of veneers were placed with try-in paste, cement, and photography. Seven views were completed for each design before moving on to the next. These included portrait, close-up smile, lateral smile, and four anterior retracted views.

The patient began to choose her preferred smile design from the remaining eight sets of veneers. The patient rarely sees herself from this angle (Figure 10). As we faced with our model, this is a very important step.<sup>2</sup> Step 2 is the selection of the shape of the final incisors



Figure 7. Final smile with good facial line angle. Figure 8. Sealing Gentle Gel to veneers. Figure 9. Smooth and durable preparation. Figure 10. Before smile with short incisal edges. Figure 11. Smiles and mandible temporaries. Figure 12. Before smile with short incisal edges. Figure 13. Smile from close-up view on LED.

based appearance of the face, lips, gums, and teeth. Because we want our patients to consider only the effects of the shape of the teeth on aesthetics, all other variables

preparative impressions we did a wax-up of her anticipated treatment, duplicated this in stone, and made prep guide and hand-laid wax-out for temporaries.

### The Aesthetic Edge

(continued from page 71)



Figures 12 through 15. LED with four varying incisal height options.



Figure 16. Patient; Low Library smile SD L123 (000) selection. See each digital image.



Figure 28. L123 closer occlusion, coated with 0.5mm seal margin.

from the close-up smile view (Figure 11). Step 3 is the selection of the reference incisal edge length from the four variations presented

because it shows all designs as a single line (maintaining aesthetic variables) and includes lateral smile views.

Because the model for the smile was a young attractive woman, many of our patients who do not share these qualities (different gender, age, or ethnicity) may have difficulty imagining how the chosen smile might look on them. This is where the power of imaging comes into play.<sup>3</sup>

Once the smile design is selected from the printed guide, the corresponding digital smile can be used for cosmetic imaging. The digital smile library enables images to be simply drag-and-drop a new smile into the patient's portrait image. The digital smile library only provides a single retracted version of each smile design, to use these images effectively it is important that the initial portrait photo be captured at precisely the same angle as the library image. This is highly unlikely and often results in a poor simulation.

The key to successful "smile transfer" imaging with library smiles is to have the library images include the smile from the photo area taken (Figures 17 and 18).

**DISCUSSION**  
A Smile Style Shape Guide offers major benefits, with or without imaging. The most straightforward use of a smile library is simply to guide the patient in choosing their favorite smile. If they request modifications of an existing library smile, a black and white photograph of the design that is the closest to the patient's desire can be made. Dynamic changes can act as a crude simulation showing variations in incisal edge length, incisal edge rotation, and pulsed depth of incisal embrasure shape.<sup>4</sup> This smile guide can confirm

the corresponding full portrait, which is printed on the adjacent page to the side and close-up views (Figure 10). This smile guide is unique

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(continued from page 71)



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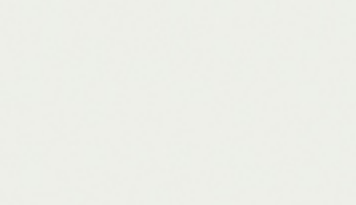


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### RESULTS

The case selection, laboratory specifications, digital photography, and photo-composition were all carefully planned to fulfill the needs of both a printed smile guide and a digital smile library. The printed smile guide worked to be capable of helping the patient see herself towards making the preferred smile choice. The smile needed to show the entire aesthetic complex, and was therefore printed in full color with each of the 18 angles being shown in portrait, close-up smile, and lateral views. The guide was arranged to create a three-step smile selection process, beginning with selection of the cuspid shape from the lateral view. This lateral view is how patients often view the patient's smile, yet the patient rarely sees herself from this angle (Figure 10). As we faced with our model, this is a very important step.<sup>2</sup> Step 2 is the selection of the shape of the final incisors

continued on page 72

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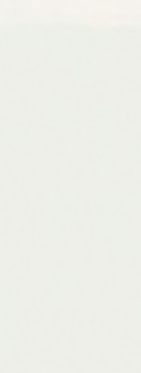
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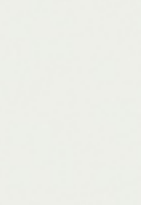


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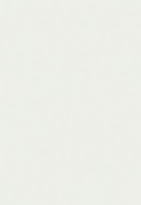


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continued on page 72