



# AESTHETIC UPDATE

Compiled by Geoffrey M. Knight

## The central incisor veneer

One of the many challenges in dentistry is the fabrication of a single laminate veneer on a central incisor. In fact it is often easier to veneer both centrals for a single fee than invest the time and energy that invariably occurs when trying to match adjacent central incisors.

This paper examines some of the parameters that need addressing in order to end up with a veneer that will satisfy all but the most fastidious of patients.

### Anatomic form

Symmetry about the midline is an essential component of aesthetics. Each central incisor should be a mirror image of the other to maximise the harmony of a smile. Apart from the obvious dimensions of height and width, it is important to consider the emergence profile of the distal and mesial borders and the emergence profile of the facial contours. Diagram 1 demonstrates the parameters around which symmetry should be achieved.

The gingival contour often presents a particular problem and the overall aesthetics of a complete set of veneers is easily compromised by failing to achieve symmetry in this region, as shown in Figure 1.

This disharmony was corrected by a little gingival recontouring on the left central and correcting the veneer to harmonise with the right central, see Figure 2. This is of particular importance for patients with a high lip line.

The facial emergence profile becomes particularly important when a minimum intervention technique is adopted and some masking is required to cover stained or hypoplastic enamel. The choice must be made either to remove enamel from the stained tooth or veneer both centrals in order to maintain facial harmony. Direct bonding techniques are well suited to enable dentists to place veneers on both centrals avoiding unnecessary tooth preparation and the laboratory costs of constructing an extra veneer.

Surface texturing is an essential component in achieving an aesthetic result when matching one central incisor with another.

For direct veneers it is useful to use the adjacent central incisor as a guide, particularly deep surface grooves, surface rippling and perikymata should be recreated for balance and harmony between the natural tooth and veneer.

Colour is a single word that can be broken down into several key components namely:

- **Hue** which is the actual wavelength of light that distinguishes parts of the visible spectrum;
- **Chroma** which is the intensity of hue present in a colour, as the chroma increases the colour becomes saturated similar to adding drops of dye into a glass of clear water. The more drops the higher the chroma becomes; and
- **Value** which is the degree of white or black (brightness) incorporated into a colour, the more ▶

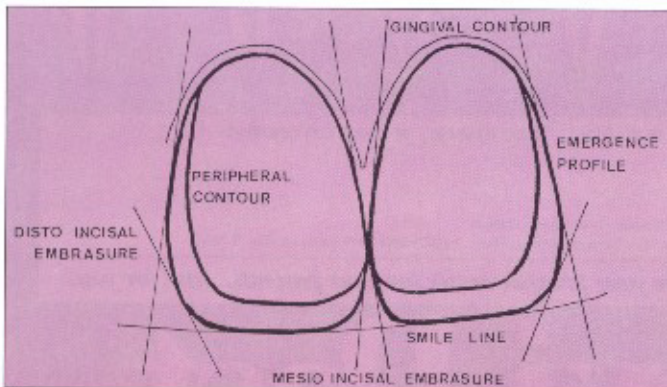


Diagram 1



Figure 1



Figure 2

*Continued from page 27*

white in a colour the higher the value. Many opaquers use intense white pigments that reduce the saturation (chroma) of a colour as the brightness increases.

As the enamel thins toward the cervical margin and dentine colours start to shine through, tooth shades in this region appear to become darker and more saturated than other areas of the tooth.

Similarly, as the enamel thickness increases towards the incisal third and proximal regions, the chroma tends to reduce to accommodate the opalescent effect of enamel.

Ageing makes the enamel more translucent, allowing the yellow shade of the dentine below to shine through. It is for this reason that lightly opaquing out – mature enamel – has a rejuvenating effect upon a veneer.

Tinting to create areas of enamel hypoplasia and craze lines become possible with experience. It is important to remember that there is often a tendency to overdo such aesthetic modifications that will detract from the completed result.

The following case is an example of placing a direct veneer upon a discoloured central incisor in order to match the adjacent tooth.

A young woman presented with a discoloured right central incisor, see Figure 3. Anatomically the left central was positioned slightly lingually and the gingival margin was a little below that of the right central. Otherwise both teeth exhibited similar anatomical form.

The surface texture of the right central did not appear difficult to reproduce, however the colour presented a major difficulty.

The cervical third was heavily stained and would require some ▶



Figure 9



Figure 10



Figure 3



Figure 6



Figure 11



Figure 4



Figure 7



Figure 12



Figure 5



Figure 8



Figure 13



*Continued from page 29*

tooth preparation in order to opague this area out.

The central third of the right central exhibited a lower value and possibly a browner hue than the left.

The incisal third had an unusual area of increased value similar to the left central and presenting an inherent problem for reproduction.

Internal bleaching is an alternative procedure to veneering, however it must be remembered that this is often unpredictable and discolouration may return. Secondly, it is often neither cost or time effective to involve a patient in multiple treatment procedures if there is a simpler alternative. Finally, there have been reports in the literature of internal resorption occurring after internal bleaching procedures.

Gingival recontouring was suggested, but the patient chose against this procedure.

The intensity of staining necessitated a little enamel removal in order to successfully mask it. Adjacent gingival tissues were treated with a small amount of Trichloroacetic acid to control crevicular exudate and about one millimetre of cervical enamel was removed, see Figure 4 page 29.

After etching and bonding a layer of opaque resin (P50 Y shade)\* was placed over the cervical area and cured, see Figure 5 page 29.

A layer of microfill resin, (Durafill VS Shade A10)† was placed over the cervical and middle sections of the tooth, see Figure 6 page 29. This was judged sufficient to mask the slight discolouration of the middle third.

In order to preserve the unusual enamel effects on the incisal third a thin layer of incisal resin (Silux Plus Incisal shade)\* was placed over this region, see Figure 7 page 29, and interproximally with the aid of mylar strips, see Figure 8 page 29. Silux Plus exhibits a unique opalescence that makes

it particularly useful in this situation.

Anatomical contouring was carried out and surface texturing applied prior to final polishing, see Figure 9 page 29.

A week later the patient returned for a final assessment and polish demonstrating the close approximation of the veneer to the adjacent natural tooth, see Figure 10 page 29.

The improvement is demonstrated by comparing the natural smile before veneering, see Figure 11 page 29, with the aesthetically enhanced lipstick smile afterwards, see Figure 12 page 29. Readers will note the close approximations of the unusual incisal shadings between the veneer and natural tooth, achieved by incorporating the tooth colours under a thin veneer of incisal shade resin.

There are some teeth that may be stained to the extent that even after veneering a shadow will remain through the gingival tissues. This problem is enhanced if a patient exhibits a high lip line and shows full crowns at every smile.

Internal bleaching may be used to reduce the severity of staining or alternatively a small apically directed groove can be prepared at the gingival margin, with a fine flat fissure bur, to mask sub gingival staining. This is shown diagrammatically in Diagram 2 and clinically in Figure 13 page 29, and is obviously only suitable for non vital teeth.



Diagram 2

The final word is "persistence". Direct veneering to match central incisors

## A note of thanks

**Further to our story in the July 1992 News Bulletin** about the cyclone wreckage of the dental clinic in Western Samoa, we have received a copy of a letter addressed to The President of the International College of Dentists from the Acting Chief Dental Officer in Samoa and we publish it here for members' information.

*"It was indeed a privilege to be able to talk to you over the phone the very day the X-ray was assembled and we were able to use it on patients.*

*It functions pretty well and it's the very type that is more feasible here. I understand that there have been numerous appeals around Australia for assistance in nearly every field, after Western Samoa was devastated by two cyclones - one after another - and as dental personnel here we are very grateful to having counterparts like the International College of Dentists who are very helpful to us. We certainly appreciate your generosity."* □

seldom happens at the first attempt. To accept the fact that each unsuccessful outcome is a learning experience, reduces the frustration and will eventually lead to a level of competence in this challenging field of dentistry.

The author wishes to advise that he has no affiliation with any of the companies or products named in this article. Products are identified as a guide to readers and it is acknowledged that there are other equally suitable materials available.

Information about the Society may be obtained from the following:

Dr Craig Erskins Smith, Suite 1, 2 Waters Road, Neutral Bay NSW 2089. Phone: (02) 906 2200.

Dr Tina Latham, 76 Tunbham Avenue, Rossmead Vic 3084. Phone: (03) 457 2736.

Dr Les Krassovitch, Floor 5, National Bank House, 22 King William Street, Adelaide SA 5000. Phone: (08) 212 3499.

Dr Andrew Rochemek, The Kings Hotel, 517 Hay Street, Perth WA 6000. Phone: (08) 221 5454.

Dr Kerry Eugene, 111 Smith Street, Darwin NT 0800. Phone: (089) 81 9149.

Dr Peter Elstallis, PO Box 342, Modjumbaha Qld 4213. Phone: (075) 29 9900. □

\*3M Dental Products Division, St. Paul, Minn., USA.

†Heraeus Kulzer GmbH, Friedrichsdorf, Germany.