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Predictable Esthetic Reconstruction

USING A SIMPLIFIED BILAMINAR TECHNIQUE WITH GC ESSENTIA



Aesthetic reconstruction of the 'Social Six' is difficult at best without a clear protocol for predictability. Predictability stems from a marriage between both materials and techniques. A modern treatment planning approach used Digital Smile Design (DSD) as a first step in aesthetic treatment planning, the planning result identifying salient dentofacial and dentogingival issues. This planning blueprint facilitates efficient clinician-patient and clinician-laboratory communication and engages the patient in the process. It is then up to the clinician to mix and match materials featuring varying opacities, translucencies and maverick effects to reproduce 'naturally' aesthetic restorations. Achievement of 'natural' aesthetics depends not only on flawless technique, but also on the use of 'smart' materials that work precisely to replicate the optical effects found in layers of nature.

Case Background

Bree presented to my service on referral from another dentist, as she was dissatisfied with her existing composite veneers placed only 16 months prior in Australia. She disliked the colour, lack of symmetry, lack of aesthetic detail, proportionality and progression form, midline cant and overall masculine look. She wanted her 'Social Six' fixed up so they looked good.

Digital Smile Design (Smile Designer Pro) revealed the following issues:

- Apparent incisal/occlusal sloped down on the patient's left side
- Midline slopes of the teeth
- Asymmetric central incisors
- Over-contoured tooth 12 with unnatural emergence profile
- Lateral incisors the same length as central incisors - lack of 'central dominance'
- Tooth 13 rotated mesially with a MIB fracture
- Teeth 13 and 23 are diminutive relative to their ideal size (over dominance of 12 and 22)
- Underdeveloped incisal embrasures, lending a masculine feel to the composition
- Monochromatic restorations with lack of detailing or internal characterisation
- Lack of line angle development



Technique

The diagnostic wax-up was guided by the DSD metrics to correct the issues described above striving to minimise any further reduction to already compromised tooth structure. Following rubber dam isolation, the shade was selected using the composite button technique (figure 1) (Hint: Typically, I don't need to use the ML unless the patient has a particularly dark area or particularly dark dentine to obscure. The ML is fantastic as it has the effect of blocking out without lifting value.)

After confirming solid enamel and dentine bases with caries detector dye (Kuraray), the teeth were micro air abraded using 27 micron aluminium oxide before a total-etch procedure using GC Premio.

The lingual enamel shelf was a 0.3-0.5mm layer generated from application of LE composite into the putty matrix before transfer to the mouth and curing. The dentine layer was the modelled using LD shade and cured. The incisal effects were enhanced using a worm of opalescent modifier which simultaneously provides both opalescence and translucence. White modifier was applied with a microbrush to mimic the hypoplasia seen in the other teeth (i.e. 14, 24). The final layer was sculpted in a single increment using LE composite. Finishing consisted of developing primary, secondary, and tertiary anatomy (some perikymata developed as seen) before polishing using slow-speed fine diamond burs under water spray. Final luster was provided courtesy of a 1 micron aluminium oxide polishing paste and Flexibuff discs.

I find GC Essentia to be an excellent material for this sort of restoration. The material is made to simply mimic the layers nature in its organic beauty with the least number of steps for the clinician producing stunning, predictable results.

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Clarence is originally from Toronto, Canada, where she completed her Doctor of Dental Surgery and General Practice Residency at the University of Western Ontario and the University of Toronto, respectively. Clarence's practice is mostly limited to cosmetic and restorative dentistry. She is well-published to both the local and international dental press, writing articles, reviewing and developing prototype products and techniques in clinical dentistry. She frequently and continually lectures throughout New Zealand and Australia.

Clarence is the Chairperson of the New Zealand Academy of Cosmetic Dentistry. She is an Accreditation Candidate and Sustaining Member of the American Academy of Cosmetic Dentistry and seeks to be the first in New Zealand and Australia to gain Accredited Status with them. Clarence is an Opinion Leader for Henry Schein Shalfoon, 3M ESPE, Kuraray-Morita, GC Australasia, SDI, Coltene-Whaledent, Dentsply/Triadent/Rhondium and a Voco Fellow in Australasia.

Clarence maintains a private practice limited to cosmetic and restorative dentistry in Newmarket, Auckland.



Figure /1 pre-operative situation with composite buttons used as shade tabs on the teeth of interest. Distoincisor corner of tooth 21 is light enamel, the mesioincisor corner is dark enamel, the distolingual button is light dentine, and the mesiolingual button is masking liner.

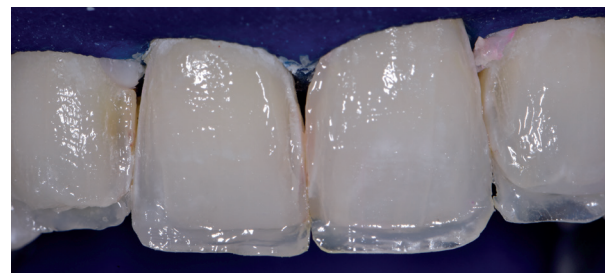


Figure /2 Lingual shelves shade light enamel placed with guidance from a putty stent derived from a diagnostic wax-up (Digital Smile Design (Smile Designer Pro, Toronto, Ontario, Canada).



Figure /3 Dentine mass placed using shade light dentine to anatomical form and incisal translucency and opalescence construction started using a thin thread of opalescent modifier.



Figure /4 Primary anatomy developed using a 3M Extra-thin Coarse Sof-Lex disc before marking of planned secondary anatomy. Note the mesial groove is longer incisogingivally relative to the distal groove.

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