

Naturally Blended Tissue

Creates a

Chameleon

Effect

by Luke Kahng, CDT



Fig. 1



Fig. 2



Fig. 3

Fig. 1: The three-unit Nobel Biocare Replace Select implant bridge was designed using a CAD/CAM system.

Fig. 2: The patient was not happy with the unappealing gray line at her gum line but was happy with the texture and colorization of the bridge.

Fig. 3: For retention purposes, the clinician preferred a metal bridge.

In spite of the CAD/CAM technology which we have all been successfully using (labs and dentists alike), there are certain technical aspects we still cannot accomplish with complete satisfaction, for reasons like the positioning of implants, patient bone level and our implant supply company's limitations. This means that we, as technicians, sometimes have to rely on our own hands to create an aesthetic appearance.

For total beauty in a restoration it is sometimes necessary to use pink porcelain in order to mimic the specific tissue color. Tooth color can vary drastically due to distinguishing features such as patient sex and race. Even denture teeth tissue color will not provide a perfect cosmetic gum line. There are a multitude of possible shading combinations, including:

- Light pink with clear color
- Red with subtle clear tone
- Light coral
- Dark red overlay with enamel – pink characterization
- Dark rose – clear mixture
- Brownish pink
- Dark pink with enamel

In order to match color with this large number of possibilities, excellent porcelain products and communication tools are a must.

This article's study involves a three-unit titanium implant bridge in which the lab was able to closely match the color and shape of the patient's teeth. However, she was not satisfied with her grayish gum line when the case was finished. The final aesthetics needed improvement in that area which is what our discussion will revolve around.

Case Study

Figure 1 is a view of the Nobel Biocare Replace Select titanium implants with CAD/CAM design before placement of the bridge. Figure 2 provides a glimpse of the problem the patient encountered with her case. Upon examination of the fit of the bridge, she noted an unappealing gray gum line due to bone loss. While the porcelain texture and colorization is an excellent match, the gum area was not acceptable to the patient because it did not look natural or aesthetically pleasing.

The clinician preferred a metal bridge because of retention and the porcelain enamel color provided a good match with the patient's natural teeth (Fig. 3).

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The next step was to achieve tissue color match in order to hide the gray line at the gingiva.

Using the Chairside Shade Guide (LSK121 Oral Prosthetics), the author noted that STC 3 (Soft Tissue Color 3) provided a decent match with the patient's tissue color (Fig. 4), as did STC 5. Three GC Initial Zr Gum color shade tabs were also a close match (Fig. 6). GM-23 is base light and can be used to regulate the final color. GM-24 is base dark for application to the bottom first layer and GM-36 is called intensive red for intensification of the area between the tooth and roots. The three tabs in (Fig. 7) were also used for another gum color check to ensure a near perfect match.

Nine standard shade tabs do not necessarily tell the whole story when it comes to this patient's color (Fig. 8). For appropriate cervical tissue line matching, the author drew a pencil line on the teeth (Fig. 9). By mixing 50 percent GC Initial GM-24 and 50 percent GM-36 together, (Fig. 10) the author was able to achieve a close match to be applied as a first body build-up. After the first body build-up, he applied the 50-50 mix to the restorations (Fig. 11) and GC Initial CLF clear fluorescence on top of that (Fig. 12). A 0.5mm application of GC Initial CLF (Fig. 13)

Fig. 4 & 5: The Chairside Shade Guide soft tissue color numbers 3 and 5 were a good match.

Fig. 6: Three GC gum colors were a decent match with the soft tissue color, as well.

Fig. 7: Another adjacent teeth gum color check was performed.

Fig. 8: Natural tooth color is not adequately described with regular shade tabs.

Fig. 9: A pencil line was drawn for appropriate cervical line matching.

Fig. 10: For initial build-up, the author mixed GC Initial GM-24 and GM-36.

Fig. 11: After the first build-up, the 50-50 mix was applied.

Fig. 12: On top of that, an application of CLF was next.

Fig. 13: 0.5mm application of CLF produced an aesthetic result.

Fig. 14: The patient suffered from significant bone loss effectively masked with pink porcelain.



Fig. 4



Fig. 5

Fig. 15: A “before” image shows the deep bone loss.

Fig. 16: UCLA abutment in the mouth.

Fig. 17: Immediately after insertion, the tissue response was good and the color was noted to cover the gray line with a smooth transition to the crown.



completed the process. Figure 14 is a view of the significant bone loss the author covered with pink porcelain. The gum line before the restorations were completed is in figure 15. This particular area’s gum line was noticeably different than that of teeth #7 and #8, but the color was effectively imitated using gingival tissue-colored porcelain. Figure 16 is the UCLA abutment in the mouth. Immediately after insertion of the restorations, the tissue color and response appeared to be very good (Fig. 17). There is sufficient coverage of the gray line and the transition from tissue to bridge is smooth. The patient’s complaint had been appropriately resolved.

Doctor/Technician Viewpoint

Obviously, a doctor’s viewpoint and that of a technician might be different when it comes to fabricating a case, even if the end result is the same. It follows that, logically, there will be plenty of times when it’s not necessary to use pink porcelain. It depends on the patient and the situation. But when treatment planning, everything must be evaluated in order to get a better color match. Not only is it our responsibility to order correct implant parts, abutment milling and frame design, but we must also consider how the restoration will blend in the patient’s mouth. The better the match, the more the patient will like the results because the color and harmony will physically intermingle with her natural dentition.

The demand for aesthetic implant-supported superstructures has been growing continuously. This has logically led to a growing desire among dental technicians for soft tissue zones made of ceramic that can be individually characterized. Enabling technicians to create a life-like transition from the crown margin to the gingiva, the new gingival-colored materials are specially suited to indications in the areas of implant superstructures, crown and bridgework techniques.

There are several possible materials on the market to help match color and create excellent tissue likeness. For our case study, the author found GC Initial Zr gum shade color to be a unique material, working well with all metal, ceramic, composite and zirconium resources. The sheer variety of tissue color choices means better results because no two patients’ gum color will ever be a perfect match with each other.

The patient in our case study was much happier with her final outcome after the tissue line was improved. She could smile again with confidence knowing that the gray margin she disliked was effectively masked. ■

Author’s Bio

Luke S. Kahng, CDT, is the owner of LSK121 Oral Prosthetics, a dental laboratory. He has published more than 45 articles in major dental publications. He is the author of three books, *Anatomy From Nature*, *Esthetic Guide Book* and *Smile Selection Plus CS Clinical Cases*, in addition to inventing the *Chairside Shade Selection Guide* (patent pending). For more information about LSK121 Oral Prosthetics, please visit www.lsk121resources.com.

