



Luke S. Kahng, CDT

Creating a metal-free, full-arch zirconia restoration

Completing a full-mouth restoration case with esthetics and patient-pleasing results.

Byline Byline Byline

Technology keeps moving and changing with noticeably different and better results. In the author's career, he has been fortunate enough to be involved with several full mouth restoration cases. We have three laboratory options from which to choose for these types of cases:

- All-on-6 denture with acrylic teeth
- Porcelain fused to titanium bar

No metal zirconia block—the newest and most sophisticated technique
The material choice we as technicians make depends on the dentist's prescription and the patient's desires. Before we fabricate the final case, we will send a try-in provisional to the dentist for him to test it in the patient's mouth. We are always looking to confirm our guidelines

for: horizontal lines, occlusion and mid-line, size of teeth, shape, shade, color and most importantly, occlusion contact.
In our case study, the patient and the dentist demanded a metal free hybrid bridge, which we will discuss in this article.

KAHNG CREATES A FULL-MOUTH RESTORATION

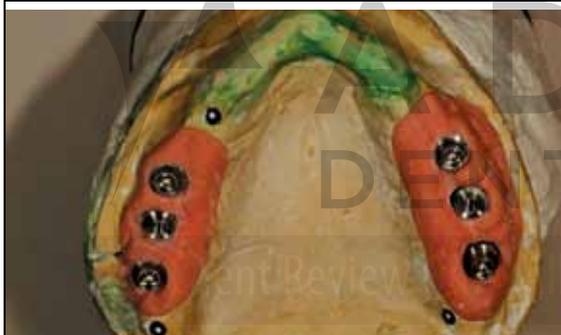


Fig. 1 Straumann tissue level implants



Fig. 2 Open anterior bite



Fig. 3 Contact added to close bite



Fig. 4 Side view/occlusion contact



Fig. 5 Acrylic denture duplicated



Fig. 6 exocad scanning and processing machine

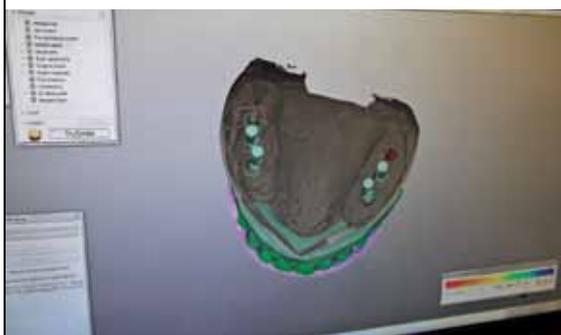


Fig. 7 Computer-generated scan

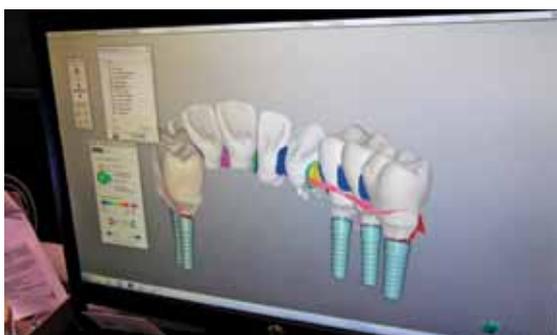


Fig. 8 Full-contour arch design



Fig. 9 Metal appearance



Fig. 10 Internal color



Fig. 11 Cut back facial area



Fig. 12 First bake



Fig. 13 Occlusion view



Fig. 14 Try-in



Fig. 15 Porcelain evaluation



Fig. 16 Side view on model



Fig. 17 Internal view



Fig. 18 Mirror image

CASE STUDY

01 Six Straumann tissue level implants were placed (Fig. 1) and, after being poured up, shown here on the model. An acrylic denture placed over the model shows the open anterior bite (Fig. 2).

02 Contact was added in order to close the bite and create a centric stop. It was duplicated with acrylic in order to copy the scan. After milling, it is too late for this stage. It must be done properly or the bite will be off (Fig. 3).

03 The side view image shows the occlusion contact after the inside has been filled in (Fig. 4). The acrylic denture was duplicated (Fig. 5). An in-lab exocad scanning and processing machine (Fig. 6) was used in our case. In the computer, we can see the scan and the processing using special software (Fig. 7).

04 Full contour arch design is next ready for the technician to cut back facially (Fig. 8). After milling, the

metal, 16 mm in size, had this appearance (Fig. 9).

05 An internal color of sand was utilized in the fabrication of the restoration (Fig. 10). Facially, the restoration was cut back 8/10 mm during the scan and before milling.

06 After milling, the shape was ground facially before sintering (Fig. 11). Figure 12 shows a photograph of the appearance after the first bake.

07 Next, note the occlusion view (Fig. 13). During try-in, adaptation to the model was decided (Fig. 14) and then the porcelain evaluated on the cast model—translucency gingival color was achieved all the way to the incisal (Fig. 15).

08 Note the molar to central side view on the model (Fig. 16) and internal view follows (Fig. 17) with a mirrored image next (Fig. 18).

CONCLUSION

This is a complicated procedure and for it to be successful, we have to understand occlusion and how to evaluate it properly. The laboratory's Removable Department has to be involved in order to have direction as to how to scan, design and mill the restoration. Without vast knowledge regarding occlusion contact and curve of Spee and Wilson, the technician will not produce a final prosthesis that has proper alignment because the patient is edentulous. There is no guidance, which can lead to cracking, slanting and fracturing in the final prosthesis. For this reason it's always best to provide a temporary flipper for evaluation of the fit. It also helps if we can fabricate both arches at the same time—but if not, we should always try to provide a treatment plan for the future. The ultimate goal is to have the patient be comfortable in the mastication process. The cosmetic side of the case is uncomplicated in comparison to the construction side. This requires intense study and planning and then strict adherence to procedure in order to provide the patient with the best possible long-term results. **lab**