CEREC & GALILEOS – 3D WORKFLOW

CEREC & Implants: Part II

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In the previous issue of CERECDoctors.com The Magazine, we took a look at a current restorative modality for dental implants using CEREC and gave you a sneak peek into the CEREC & GALILEOS integration. At this time I would like to take a more in depth look at the 3D workflow for planning implant placement using the CEREC & GALILEOS integration.

HOW IT WORKS

In order to use the integration, it is necessary to have access to two items – CEREC and GALILEOS CBCT (Figures 1 & 2). For the integration you are provided with a special version of CEREC software that will allow export of CEREC data directly into GALILEOS Implant software.

You begin by capturing an optical impression of your patient’s quadrant – including missing tooth, soft tissue information, and adjacent teeth (Figure 3). At a minimum you are required to capture one tooth on each side of the missing tooth. Additionally, you can acquire a bite registration to assist in restoration design (Figure 4), but it is not necessary.

After you capture the optical images, you green arrow forward and design your restoration as usual. Simply outline a close approximation of your margin (Figure 5) and choose the appropriate tooth morphology. Now you have your proposal and can make any adjustments you desire (Figure 6). Green (CONTINUED ON PAGE 8)
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Instead of clicking the ‘mill’ icon, export the restoration using the .SSI extension. This .SSI is a proprietary export format that can only be read by GALILEOS Implant software. Once you have your exported restoration design, you are ready to import the CEREC data into the GALILEOS Implant software. This is accomplished by opening a 3D image and selecting the tooth you would like to plan and the .SSI file to use. The software works by registering the CEREC data onto the 3D GALILEOS data. You assist the software by marking the teeth for registration in each software. For example, in this case we marked #11 with a green dot and #13 with red dot on both the CEREC and GALILEOS images (Figures 7a & 7b). The integration then runs through a complex, proprietary registration algorithm to align the images. It is imperative that you verify the registration by viewing the outlines through multiple slices. A proper registration will have a tight outline of the CEREC data (orange lines) over the GALILEOS image (Figures 8a, 8b & 8c).

Once you have approved the registration you can plan the implant position knowing your final restorative outcome (Figures 9 & 10)!
WHAT ARE THE BENEFITS?

Having planned the restoration utilizing the integration provides numerous benefits.

The first benefit is quite obvious; knowing your final tooth position is invaluable in implant planning. Using this combination of data you can visualize the location and amount of bone for implant placement along with tooth position. Here you can decide if the bone will allow for ideal implant placement along the long axis of the restoration. If this is not possible, you can make an educated decision regarding compromising and using a custom abutment or choosing a bone graft to keep ideal implant position.

What about cost savings? Cost savings is realized from integration in a number of ways. First, by having all the knowledge of implant and restorative position, you can typically plan an implant to utilize stock abutments and often avoid the costly use of custom abutments. Additionally, you can minimize your inventory. The integration allows you to know in advance exactly what size and length of implant is necessary for each case. This allows you to order each implant specifically for the patient and not keep numerous implants in inventory.

Perhaps the most important benefit is making implant placement more predictable, comfortable, and achievable for general dentists. Dr. Gordon Christensen says that single tooth implant placement is a procedure easily accomplished by the general dentist. Yet, the vast majority of GPs don’t place implants.

The integration further allows you to have a surgical placement guide to assist in placement of the dental implant (Figure 11). This guide will help control the angulation and depth of the implant and provide precise implant placement positioning (Figures 12 & 13).

I can tell you from personal experience that since investing in the GALILEOS for my practice, I have seen a dramatic increase in the number and quality of implant procedures. The CEREC & GALILEOS integration provides the comfort and confidence needed.

Technology around us is rapidly advancing and the combination of these technologies will reap many rewards for those who choose to invest and integrate these technologies at the highest level. As CEREC doctors, you are fortunate to be on the forefront of these advancements.

WHAT'S NEXT

Just when you think you’ve seen it all, CEREC is enhanced with another patient and practice benefit! In the next issue of CERECDoctors.com The Magazine, I will showcase the use of CEREC to completely place and restore an implant with digital impressions. This includes surgical guided placement, implant level digital impression, custom zirconia abutment, and final restoration!