synergy (ˈsɪnjərɪ)—the interaction or cooperation of two or more organisations, substances, or other agents to produce a combined effect greater than the sum of their separate effects.

The explosion of ‘digital dentistry’ has expanded the clinician’s ability to treat patients with an array of different protocols, devices, materials, and software applications. It is an exciting time to practise dentistry no matter where in the world you happen to be. However, just because we are now embracing the term ‘digital’ does not mean that we truly understand the power that this technology represents. In my opinion that power rests not on the technology itself, but the synergy between various component of both the analog and digital world.

When a patient presents needing dental implants, we may rush to take a panoramic radiograph or even a 3-D cone beam CT scan. While a panoramic radiograph is an adequate screening modality, it has inherent limitations making definitive diagnosis for implant receptor sites potentially inaccurate. While a CBCT scan can provide excellent information regarding the individual patient’s anatomy, alone, it may not be entirely adequate to treatment plan with the highest degree of accuracy.

In the ideal world the diagnostic process should begin with an understanding of the desired restorative outcome. Therefore it may be advisable to fabricate a diagnostic wax-up, or a complete denture set-up to determine the functional and aesthetic needs prior to the CBCT scan. A scanographic template can be fabricated to help relate the restorative plan to the existing underlying bone. Additionally, an optical scan or intraoral scan can be completed to create a digitised version of the tooth set-up, along with the opposing occlusion. These digital files can then be combined with the CBCT data creating a total diagnostic foundation to create one or more treatment options for the patient requiring dental implants and/or grafting procedures.

These steps are especially critical when an immediate implant-supported transitional restoration is planned. Immediate loading protocols whether for a single tooth or full arch restoration require excellent pre-surgical prosthetic planning and the fabrication of an accurate transitional restoration. While the temporary restoration can be constructed by either analogue or digital means, it is clear that direct CAD/CAM modalities are the preferred path. CAD/CAM applications are also becoming the preferred method to fabricate the definitive restorative outcome, often based on the morphology of the temporary.

Therefore, the new digital workflow requires synergy between various components, including pre-surgical prosthetic planning, diagnostic wax-ups, complete denture set-ups, intraoral and/or optical scanners, interactive treatment planning, and CAD/CAM software applications. As the digital universe continues to expand, it will be more and more important to manage these resources with an open platform to maximise potential synergies. Within the publications of Dental Tribune International, it is our goal to provide guidance for clinicians wishing to learn more about these exciting new protocols.

Respectfully

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