First published in pip 06/2020

The first Digital Implant in the world

The Swiss manufacturer TRI® Dental Implants presented its new matrix implant at the IDS 2019.In his interview, Prof. Dr. Constantin von See confirmed the revolutionary new concept without abutment and its clinical benefits. Now pip wants to know how the prosthetic workflow looks like.

Interview with Falko Noack and Sandro Venanzoni

Head of Research and Development at Amann Girrbach, CTO TRI Dental Implants

At Amann Girrbach you produce also abutments - why cooperate with a manufacturer who wants to shoot parts of your business model into pieces?

Actually, we see this as a beneficial addition to our product portfolio. The advantages of the direct production of the abutment geometry are obvious. The cooperation with TRI Dental Implants was the perfect choice for us as a dental CAD/CAM technology company and made sense since we have found a cooperation partner who consistently follows the CAD/CAM philosophy in the implant sector especially with its matrix system.

You have to realize that most of the existing implant connections are 30 to 40 years old. During that time the digital workflow processes were still ages away. For the first time at TRI Dental Implants, we have developed the interface from a CAD/CAM productions' point of view, in regards to the precision of today's milling technology. It was the most logical step to cooperate with the manufacturers of these technologies.

What advantages do you see as a CAD/CAM company with the new concept?

From our point of view, matrix represents, for the first time a one hundred percent CAD/CAM compatible implant system. The elimination of the titanium abutment brings advantages for all parties involved in the process. The patient's benefits are high esthetics and biocompatibility since there is no longer a cement gap close to the bone, and maximum freedom in the shaping for the abutment design and thus the later restoration. The dental laboratory's advantages are a simplified production process, mainly due to the omission of bonding, the excellent repetition of the results, and the universal applicability even in reduced space conditions. For the dentist, the easy integration of the restorations in the patient's mouth and cement-free working is beneficial. All in all, it results in an extremely efficient and safe workflow for implant-supported restorations.

Can the new matrix improve the precision of implant prosthetic restorations for the laboratory according to today's patient demands?

Definitely. The, especially for CAM production, developed connection geometry makes a fit between implant and abutment simple, safe, and above all, it can be produced very precisely. The milling tools, the geometry fitting surface that needs to be created for the implant and the screw connection are ideally matched to each other. Therefore, the reproduction of the results is given, which is impressively confirmed by internal and external research results. The significantly lower number of components results in a measurable gain in efficiency for the laboratory.

And as a dentist, what can I gain from all this?

The discussion about the disadvantages of cemented restorations, both in handling and biologically, is well known – now, for the first time, a digital workflow without any bonding is possible. Esthetically you have the clear advantage that no titanium rim will be visible in case of gingival recessions. Even if the restoration may functionally not be restricted, this situation is usually very unsettling and stressful for the patient. Just like the already mentioned flexibility and freedom in the design - since you don't have a titanium base with a given emergence profile that needs to be followed, this naturally means an enormous esthetic advantage. As Chief Technology Officer at TRI Implants, I have been working for the past twelve years intensively with digital implantology. Incredibly often it is talked about the 'full digital workflow,' but it still consists of many manual steps like bonding and cementing. With the matrix concept, for the first time, you have a 100% digital chairside workflow with full-anatomic CAD/CAM crowns while your patient is still in the chair. The gain in time, efficiency, and precision is obvious.

pip: Thank you very much.