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41st International Dental Show (IDS) 2025: Implantology needs implant after-care, but is actually also prophylaxis itself

Implantology as prophylaxis with a broad impact - safer through backward planning - freehand insertion vs. guided surgery - magnetic resonance imaging enhances X-rays - fiberglass post as dampening element with dentine-like characteristics - material alternatives: zirconium oxide and plastic

Digital methods have simplified dental implantology over the past years and made the chances of success higher. In future, they will guide implantology more strongly in this direction and underline its prophylactic potential even more clearly. The International Dental Show (IDS) in Cologne will demonstrate from 25 to 29 March 2025 how the dental surgeries of today are already gearing themselves up for the implantology therapies of tomorrow.

Implantology is currently gaining significance in a seemingly, but only seemingly, unrelated area: prophylaxis. Because if an implant is inserted to close an interdental gap, the neighbouring teeth don't have to be filed down for a bridge (preservation of healthy tooth structure) and at the same time the bone level is maintained in the years after the implantation (bone loss prophylaxis). With implantology solutions as the new treatment standard, bridge reconstructions, partial and hybrid dentures as well as full dentures will be carried out much more rarely.

At IDS 2025 the visitors will experience how this supposed vision can be realised. We can reveal this much already: The addition of the word "supposed" means that the path to the utopia outlined above is extremely short. This means the coming IDS serves as a guide into the near future of implantology.

Digitally-supported techniques, backward planning in particular, form an essential part of the future of dental implantology. To this end, 3D X-rays are matched with intra oral scans with an accuracy of typically ± 250 micrometres. This tolerance is displayed to the dentist in colour as well as the alveolar nerve and the distances to the neighbouring teeth. Finally, the pre-planned prosthetic restoration is displayed to enable the optimal alignment of the implants on the screen.

However, vice versa, especially for an immediate implant placement the prosthetic restoration can be depicted virtually on the finalised planning of implants (implant position, implant angle, straight or angled abutment). First of all, based on this a gingiva former is produced and then the subtractive manufacturing (milling/grinding method) or additive manufacturing is used to make the crowns or suprastructures.



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The implant can be inserted using the classic freehand method, but then essential advantages of the backward planning remain unexploited. Significantly smaller deviations to the planned position and the angle ensue in the course of computer-guided surgery. Here the bone drill is continually depicted on a screen in real-time and displayed in relation to an X-ray.

Alternatively, one can opt for static-guided surgery with a drilling template made in a laboratory. Once again here, there is a choice between subtractive manufacturing (milling/grinding method) or additive manufacturing (3D printing). Optionally, depending on the supplier, additional navigation tools are available in the form of drill sleeves, keys and further guiding tools. The drilling direction and angle are thereby determined.

Furthermore, in the case of static guided surgery, one can choose between drill templates supported on the bone, mucosa or teeth. They offer specific advantages, depending on whether for instance a toothless patient is to be treated, whether a flapless OP is planned, etc. The IDS offers an overview of all options possible today.

In future, recognising structures should become continually better thanks to software equipped with artificial intelligence and the dentist will even be able to independently make a suggestion regarding the implant position and angle. Magnetic resonance imaging (MRT), which is known as an accurate method from other areas of medicine (i.e. detecting breast cancer), could establish itself as a radiation exposure-free method alongside X-rays.

The trend is towards 3D printing for the production of implant prosthetic restorations and drill templates. One of its advantages lies in the sustainable material utilisation. Hardly any waste is produced by the additive method.

In addition to the established material titanium, further materials such as zirconium oxide (gingiva-friendly) or plastics (can partly be made by additive manufacturing) are available. A further option exists the overall design of which is more strongly nature-oriented - for example: A fibreglass post is inserted into an already placed zirconium oxide implant and acts as a damping element with dentine-like characteristics. Corresponding two-piece implants displayed good results in a long-term study (in particular no peri-implantitis and a high implant survival rate).

"In the light of the dynamic development I see hardly any limits in this area," said Mark Stephen, Pace, Chairman of the Executive Board of the Association of the German Dental Industry (VDDI), happily. "Combining different digital tools should simplify implant prosthetics and contribute towards raising its prophylactic potential - also on a broad basis! The International Dental Show (IDS) in Cologne from 25 to 29 March 2025 will show how dentists and their teams can already gear themselves up for this future today."

IDS takes place in Cologne every two years and is organised by the GFDI Gesellschaft zur Förderung der Dental-Industrie mbH, the commercial enterprise of the Association of the German Dental Industry (VDDI). It is staged by Koelnmesse GmbH,

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