

5th Group & Experts Meeting at IDS 2023

Discussing the traceable connection between packaging and implant contamination



“We’re so happy for the positive reactions and feedback for our global initiative at this year’s IDS,” summarises Dr Dirk U. Duddeck, founder and head of research of the non-profit CleanImplant Foundation (CIF), and continues: “The interactions at the world’s leading exhibition for the dental industry have proven that more and more dentists and implant manufacturers are increasingly sensitised towards the problem of factory-contaminated implants”. For its 5th iteration, this year’s CleanImplant Group & Experts Meeting was the largest to date, with over 50 guests attending, from manufacturers’ representatives to project partners.

Partner of industry and science

“With more than 135,000 subscriptions from dental professionals on Social Media, we understand the CleanImplant Foundation’s role as a partner of industry and

science,” Dr Duddeck further states. The invited speakers, including physicist Dr Birgit Hagenhoff, Managing Director of Tascon GmbH and visiting professor at the University of Münster, and Prof. Dr Patrick R. Schmidlin, Head Division of Periodontology at the University of Zurich (Switzerland), along with Dr Duddeck emphasised the worrisome lack of binding industry standards for implant surface cleanliness. Providing a reference for patients and practitioners, the consensus-based quality guideline for implant surface cleanliness was established in 2017 by the scientific advisory board of the non-profit organisation, as the industry faces increasing backlash over lacking quality levels.

An expert in surface analysis, Dr Hagenhoff outlined the various kinds of detectable contaminations. Using ToF-SIMS analysis, a direct correlation between packaging and surface contamination could be confirmed, most

recently even on a sterile-packaged ceramic implant revealing cell-toxic residues on the implants' surface. Joining online from Zurich, Prof. Schmidlin in his lecture criticised the fact that only the osseointegration rates are considered as a success parameter of implantation, an incomplete standard overdue for reconsideration. The far more relevant indicator of success is the attachment of the soft tissue to the implant. However, this process can be affected by impurities on the implant's surface. Unveiling the causal effects of the matter, a recently initiated *in-vitro* study by the University of Zurich in cooperation with the CleanImplant Foundation investigates the

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effects of different chemically identified factory-related implant contaminants on bone and soft tissue. “This study will provide answers to the question of a connection between implant surface contaminants on the one hand and previously unexplained early implant failures and poor osseointegration on the other”, adds Dr Duddeck.

On-site SEM analyses of implant surfaces

A high-resolution scanning electron microscope (SEM), provided by Thermo Fisher Scientific, was installed at the CleanImplant booth to demonstrate the analysis process of implant surfaces to the numerous spectators live at this year's IDS. Dentists brought sterile packaged implants from their practices to have them analysed directly. As expected, the revelations from the SEM analyses' visualisations caused either relief or shock, as

dentists found their implants intended for use on patients to carry significant contaminations. Dr Duddeck and his team continued to educate and inform about the extent and potential consequences of factory-related contamination of dental implants. At the same time, implant types that have proven batch-spanning particle-free implant surfaces have been awarded the foundation's “Trusted Quality” seal and received praise and mention by the quality initiative for guidance and trust for practitioners.

contact

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