



## This was IDS 2023

# A cornucopia of small innovations

The 40<sup>th</sup> International Dental Show (IDS) celebrated 100 years of IDS with a ceremony on the eve of the opening day and the obligatory ribbon-cutting by the Lord Mayor of Cologne, Henriette Reker. The general mood in Cologne was good. After five days of the fair, the organisers were satisfied with the number of exhibitors and visitors. Digital workflows and sustainability were the trending topics at IDS 2023.

This report describes some of the innovations presented at the show—although it is limited to a few, given the wealth of innovation in the dental field.

### New developments in direct restorative therapy

Direct restorative therapy plays a key role in many dental practices, which is why developments in this field featured prominently at IDS and attracted a great deal of interest. Current technological developments revolve around glass-ionomer cements, compomers and composites,

especially special bulk-filling and hybrid composites. How many different shades should a practice work with? The choice is immense and of particular interest because of the different pigmentation in the composite materials and the so-called chameleon effect.

An alternative to using pigments for colouring is to use the intrinsic structure of the material. The solution to a practical problem was presented at IDS 2023: bubbles that form in flowable composites. Newly designed syringes prevent bubble formation by allowing air to escape through the plunger.

### New products for oral prophylaxis

Nutritional aspects are figuring prominently in oral prophylaxis. Probiotics play a significant role and are supported by scientific results. A toothpaste and a mouthwash enriched with pre- and post-biotics were presented, which ensure that these active ingredients are administered “on the fly” during daily oral care.

A new type of hydrogel based on a mineral salt solution with low surface tension was designed to specifically combat periodontitis. The gel’s action is based on its

high redox potential; the physical charge of 850 mV has a membrane-destroying effect on pathogenic cells. Once applied and effective, the gel dissolves into its original components (water + salts) without leaving any residue.

### Endodontics: minimally invasive and regenerative

Endodontic files have become more flexible and fracture-resistant over the years, leading to changes in concepts and procedures. Less hard tissue is now removed in the coronal region during tooth preparation while still providing sufficient space in the apical region for effective irrigation. Reciprocating Instruments have made it possible to prepare many root canals with a single file. A new endo-motor has taken reciprocating technology to the next level. Treatment is simplified by combining patency, glide path creation and shaping using the same operating mode. The motor also features an improved OTR (Optimum Torque Reverse) mode, which also prevents file breakage.

### New intra-oral and image plate scanners

In all areas of dentistry, imaging systems—such as intra-oral scanners—are increasingly aiding treatments. They have



Board member lady power: Dr Nathalie Khasin, Dr Renate Tischer and Kerstin Salhoff (from left). The latter is in charge of the BDIZ EDI billing hotline.

been used for years as an alternative to physical impressions using elastomers—and now it is getting even better. Known challenges associated with this technology, such as those related to reflections, saliva, and translucency, can be overcome by solving the mathematical problem of generating three-dimensional shapes in a four-dimensional space.

In future, intra-oral scanners could also assist in the initial dental examination. For example, a working group at the University of Copenhagen is proposing a method for the automated detection of occlusal caries using a fluorescence-detecting intra-oral scanner.

Diagnostic radiographs are used as a complementary imaging source. Advanced image plate scanners already rely on artificial intelligence (AI) today. AI-based software makes the daily workflow more efficient for the entire team: automatic image rotation, AI-assisted tooth recognition, automatic dose calculation and automatic image plate quality checks save valuable time. And the unit is “made in Germany” using a CO<sub>2</sub>-neutral process.

Existing software could even be used as platform technology to integrate third-party imaging data or clinical information about the patient. In the long term, the aim is to move from diagnosis, to prognosis, to AI support in treatment decisions.

A new extra-oral scanner can scan two casts at once. This is three times faster than scanning two casts one after the other. It can scan impressions as well as casts, and each impression scan takes just 45 seconds.

The simultaneous scanner uses two optical light units and eight cameras. The scanning accuracy is specified as 5 µm (according to ISO 12836) and further processing takes place within the familiar digital workflows, both in terms of software and materials.

Dental 3D printing is also gaining in speed and efficiency, through the intelligent nesting of multiple components on a single build platform. Objects are automatically placed in their optimum positions. This feature is built in the software and does not require data export. A new



High-ranking visitor: Prof. Dr Ishane Ben Yahya (2<sup>nd</sup> from left) from Morocco, acting president of the Federation Dentaire Internationale (FDI) visited the BDIZ EDI with her colleague. Also in the photo: Dr Wolfgang Neumann and Anita Wuttke.



Revolutionary approach: In a live interview, Dr Tina Mandel presented her dental app. Christian Neumann, BDIZ EDI President Christian Berger, Dr Tina Mandel, interviewer Anita Wuttke, as well as the two board members Dr Stefan Liepe and Dr Wolfgang Neumann (from left).



BDIZ EDI says bye-bye to Brigitte Nötzel (middle), who has been with us for many years. Also in the picture: Helga Karanikas (right). She is in charge of the office in Munich.

printer with compatible post-processing units was also shown at IDS.

The delivery of prosthetic restorations could become easier after this IDS, as a self-adhesive luting composite reduces the number of components required. The original MDP monomer (10-methacryloyloxydecyl dihydrogen phosphate) and the original silane for a strong adhesive bond are already included. This means that only a single component is needed—and no separate primer. This makes clinical use extremely efficient and minimises the potential for errors when permanently cementing zirconia, lithium disilicate, hybrid ceramic or metal alloy crowns and bridges.

In implant prosthetics in particular, a thin (60 µm) single-use pressure sensor with a red colour coating now makes it possible to detect incorrect loading. The distribution of the patient's chewing forces is digitally recorded at 256 pressure levels and transmitted via Wi-Fi to an iPad app for further evaluation. As a result, complications associated with unbalanced occlusal pressure during chewing or due to bruxism can be prevented from the outset.

### Help is close where space is at a premium

Developments in orthodontics are largely driven by the integration of digital com-

ponents—right up to through to the use of bending robots. Many other details make treatments easier, such as new retainers for a customised, patient-specific fit. The digital design also takes into account space constraints. After approval, the retainer is milled 1:1 from a titanium blank. This ensures maximum wearing comfort due to the high accuracy of lingual fit and smaller adhesive surfaces, which in turn allows for improved and easier oral hygiene. The material (titanium grade 5) is also suitable for patients with nickel allergies.

For acute CMD symptoms, immediate relief is now available in the form of a temporary splint that can be directly inserted. They relieve mandibular movement restrictions or compensate for occlusal interferences, tackling the root causes of problems that originate in the jaw but can quickly spread through the rest of the body.

The splint also serves as an initial diagnostic tool. If symptoms are significantly reduced within 24 hours, a neuromuscular cause can usually be assumed.

In the field of aligner therapy, a new composite material with just the right amount of flowability facilitates the precise filling of templates—no excess, no voids, correct positioning. Fluorescence in UV-A light helps. Artefacts, excess material and residues are visualised and quickly removed without damaging the enamel.



“Making of”: The perfect technical support for the live interviews was provided by Christian Neumann and Dr Stefan Liepe.

In their final report, the organisers provided figures that do not quite reflect the fact that medical device manufacturers are facing major bureaucratic hurdles as a result of the EU's Medical Device Regulation (MDR). With 1,788 exhibitors from 60 countries and 120,000 trade visitors from 162 countries, IDS is returning to the “old” or pre-COVID days. According to the organisers, the “world's largest leading dental trade show” again covered the entire field of dentistry and dental technology in 2023.

So how do the organisers, the Association of the German Dental Industry, the Society for the Promotion of the Dental Industry and Koelnmesse, sum up the impact of IDS 2023? “This year's claim, ‘100 years of IDS—shaping the dental future’ is synonymous with the outstanding significance of the trade fair today and in the future,” said Mark Stephen Pace, Chair of the Association of the German Dental Industry (VDDI). Oliver Frese, COO of Koelnmesse, added: “For five days, we experienced an IDS that more than lived up to its claim as a leading international hub. [...] The outcome of the event is all the more remarkable given the current challenging geopolitical environment.”



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**3** Superb visibility thanks to the large, back-lit, high-contrast LCD panel. The display can be adjusted with 10 brightness levels and its intuitive icons allow for smooth operation.



**4** High-resolution color LED light to let you see blood and gums as if naturally-lit and therefore give you increased visibility during treatment, generating a minimal amount of heat.



**5** Silence and smoothness thanks to the irrigation pump, that provides consistent and steady flow while fitting seamlessly in the compact design.



**6** Highest torque accuracy made possible by the optimized torque calibrations system AHC: maximum safety against torque exceeding during implant setting.



**7** Predictability and control to enhance decisions about when to load the implant, especially when a shorter treatment time is given, thanks to the dialogue with Osseo 100+.



**8** Wireless extensibility with multiple devices such as VarioSurg3, Osseo 100+, wireless foot control and iPads, to significantly broaden the scope of implant treatments.