Press release

No. 9 / September 2022, Cologne
#idscologne

IDS 2023: The new products awaited at the International Dental Show in Cologne

IDS
14.03. - 18.03.2023
www.english.ids-cologne.de

Your contact:
Volker de Cloedt
Tel.
+49 221 821-2960
e-mail
v.decloedt@koelnmesse.de

Koelnmesse GmbH
Messeplatz 1
50679 Köln
P.O. Box 21 07 60
50532 Köln
Germany
Tel. +49 221 821-0
Fax +49 221 821-2574
www.koelnmesse.com

Executive Board:
Gerald Böse (President and Chief Executive Officer)
Oliver Frese

Chairwoman of the Supervisory Board:
Mayor of the City of Cologne
Henriette Reker

Headquarters and place of jurisdiction:
Cologne
District Court Cologne, HRB 952

Ia. Digital production options

Practices and laboratories are working intensively in **digital workflows**. They have significantly extended the collaboration options. Distances play an increasingly minor role in the digital world:
- The practice can seek the suitable laboratory over a large radius depending on the specific case at hand.
- Vice versa, the laboratory can supply prosthetic work to practices over a large radius - a global market has arisen!

- Digital scan data opens up manifold production options in a to a large extent or fully digitalised workflow.
- The restorations and three-unit bridges can be optionally produced chairside or labside as desired.
- Larger and particularly aesthetically demanding restorations will be produced in the laboratory of the dental technician.

- Alternatively to own productions, different order services are available in wide sections. For example, a laboratory can send the digital records made in the practice and its model documents straight on to the dental industry or to a centralised manufacturer and is sent back ceramic frameworks for further individual processing, for instance. Laboratories that have their own machine also partly offer free production capacities to other dental laboratories.

More and more users are rigorously digitalising their working methods. Impressions made using the **intraoral scanner and the extended indication section** are gaining momentum.

Ib. Intraoral scanners with extended indications

The indication section of intraoral scanners is currently expanding.
- Whole jaw scans or scans of individual jaw sections, mucous scans and the matching of several separate scans - all of this is becoming possible.
- The borders between extremely subgingival treatment and between the direct translation of an intraoral scan into functional movements as needed for example for the "digital total protheses" are merging.
- The trend is moving towards a second scanner: Two devices with differing strengths for the optimal exploitation of the entire spectrum of applications.
- Intraoral images are also being used more and more often for the communication

with the patient.
- As of recently, in combination with artificial intelligent intraoral scanners are being used to support the initial examination, for example for recognising tooth decay.

Parallel to this **elastomers** remain to be indispensable and are being consequently further developed – in this direction:
- higher tear-resistance
- truer to dimension
- higher hydrophilia

These three to an extent contradictory aims can be brought into better harmony with each other than years ago thanks to the current technologies.

II. The right filling material for the individual case

The substance options in the filling therapy have expanded over the past years - the current state of technology is as follows:
- Glass ionomer cement is classically considered to be top bio-compatible, but has a limited shelf life. Current further developments in the direction of the glass hybrid technology and the combination with protective composite varnishes extend the shelf life of the respective fillings.
- Compomer is equally established and remarkable, because it has progressed from being a "young wild" development into a classic over a period of many years.
- The composite field proves to be particularly wide-reaching: Classics for the increment technique are enhanced by bulk filling materials for a "filling in one go".
- There are large, finely differentiated colour ranges for the nuanced "Almost like ceramic" colouring as well as five colour variants with a chameleon effect for the faster placed and aesthetically pleasing filling.
- A filling is inserted particularly fast using modern filling material: For example totally without light curing in the case of certain primer/filling material combinations or totally without adhesive in the case of hybrid composites.

III. Trends in special disciplines

In endodontics one is constantly faced with objectives that seem to contradict each other:
- a wide open access cavity for a perfect view inside the canal
- a wide shaping in the apical region to allow an efficient rinsing
- a conservative preparation to preserve the tooth as far as possible

Specially formed endodontic files are now establishing a new balance. The dentist uses them for the gentle preparation of the coronal area and at the same time transports debris from the apical part of the roots very effectively to create sufficient volume for the chemical disinfection and where necessary sonar and/or ultrasound activation.

Different heat treatments to temper the nickel/titanium files or the respective alloys lead to a stronger differentiation between the instruments, for example
- between files for general application

- and files especially for revisions

The choice between different motion characteristics has established itself over the past years.
- In the case of simple endodontological treatment, one can decide between continual and reciprocal rotation.
- In difficult cases the specialists combine both.

In implantology the question "Autologous or allogenic or xenogeneic bone replacement material?" loses significance slightly because they can also be implemented together expediently. There are a number of different options
- from pig and cattle bones through to
- complete inorganic alternatives.
- Hybrid forms are also tried and tested (i.e. a mixture between xenohybrid bone matrix, copolymers and collagen fragments).

Furthermore, prior to this optimal wound healing is decisive.
- In this field, among others at present the conditions under which PRF (platelet-rich fibrin) can be successfully implemented for the socket preservation or ridge preservation are currently being clarified.
- Suitable devices and centrifuge tubes in different executions are available for the centrifugation of the patient's autologous blood extracted from the peripheral vessels.
- Among others, mixtures of PRF or also of blood from the surgery site together with bone replacement material can be placed in extraction vials and used to help improve the wound healing.

The digital technologies are evolving rapidly:
- The DVT or CT is still considered to be essential in the aesthetic section.
- The backward-planning and further digital elements of a modern workflow (CAD Design, CAD/CAM production, 3D printing) also promise success.

Different units are being more strongly integrated digitally.
- The primary stability can be determined by measuring magnetic impulse-induced vibrations of a measuring adapter that is screwed into the implant.
- As of recently, a measuring device connected to a surgical motor via Bluetooth enables the ISQ value to be determined using the data from the aforesaid motor.

The scan of scanbodies is taking over a major role.
- This is why dentists and dental technicians ensure that their "favourite implant systems" are stored in the software.
- Custom-fit frameworks can be milled and for example screwed onto four or six implants for a full jaw treatment.
- Navigated implantology is possible if a 3D X-ray (DVT) is used simultaneously with a digitalised wax-up.
- Not customary, but within arm's reach is the permanent implant-retained restoration produced in advance - which can be screwed together as soon as the

implant has been inserted.

There are also mechanical innovations:
- The correct fit of a titanium scan abutment is secured using a fixing screw with a short thread. If it doesn't sit properly, it has to be readjusted!
- New, wedge-shaped implants are offered especially for implantation in narrow interdental spaces in the lower jaw posterior region. The dentist hammers them in after flap formation and bone spreading.

In turn, "biologisation" is also an implant after-care option - using hyaluronic acid for example. It serves
- as a barrier against pathogens
- as a stimulant for the tissue
- to save implants that are affected by periimplantitis.

Furthermore, progress is also expected in the documentation possibilities for inserted implants. The facts:
- A prototype for an electronic implant passport is developed.
- It could also be part of the electronic patient file (ePA) as a medical information object (MIO).

As a result of the digital technology, the focus in orthodontics lies on speed and aesthetics.

As in the field of prosthetics, digital or a mixture between analogue/digital methods can be implemented. Retainers as an example:
- The "totally digitalised" variant begins with an intraoral scan and a specification (i. e. "Retainer, OK, from 3 to 3"); the corresponding STL data set is sent to the laboratory, centralised manufacturer or industrial service provider.
- As an alternative to the intraoral scan, a plaster cast can be digitalised using one's own laboratory scanner or by the laboratory or another external service provider. Around two days after presenting the electronic data, the practice receives a virtual retainer draft. The orthodontist then approves this draft for production, if necessary after alterations.
- After receipt of the approval, the external service provider sends the retainer to the practice within a few days.
- The spectrum ranges from a "Blackbox " with a defined input and a defined output channel through to transparent and flexible workflows. In the latter case, the user keeps many options open for the inward and outward transfer of data. Otherwise, he sticks to a strict, clearly laid down, reliably functioning workflow.
- Robots are more and more frequently responsible for the bending processes.
- In the field of substances used in the orthodontics section, cobalt chrome alloys without nickel are a more recent option for braces with a flat and round design and high wearing comfort.

The indication area for transparent aligners is expanding thanks to the digital

integration of cone beam computer tomography. Because this means both intraoral recordings as well as 3D X-ray images (DVT) can be taken into account in the digital treatment planning. This allows
- more predictable results
- particularly in the most common cases of aligner therapies (i.e. deep overbite)
- observation on the screen from different angles, a better recognition of impacted or not yet broken teeth
- better therapy planning

IV. Dental technology

The new training regulations constitute a visible sign for the pioneering role of the dental technician regarding digitalisation. Digital contents are increasedly being used for curricula and examinations. This is the current position of the laboratories:
- In Germany 75 percent of the laboratories already use extraoral scanners.
- However, there are also individual laboratories that receive 90 percent of their moulds in the form of digital data sets.

Laboratories have been using CAD/CAM methods for the production of prostheses for many years for the production of a wide range of objects:
- Individual tooth restorations
- Bridges
- Individual abutments

and the likes.

The laboratory also uses 3D printing to produce among others:
- Models
- Occlusal splints
- Veneers
- Gingival masks
- Denture bases and teeth
- Full-jaw or total prostheses
- Mock-ups from try-in plastic fixed restorations and long-term temporary dentures such as final prosthesis.

Among the dental substances, the ceramics are developing into "all-rounders" in many aspects.
- Structural ceramic is classically very strong (i.e. zirconium oxide) and can be made more translucent through additives.
- Vice versa, the strength of translucent glass ceramic can be increased.
- And one can namely assume that the production process of high-strength glass ceramic will be speeded up further.

In this way, the master laboratory will in future provide even more differentiated **substance offers**. Because the application spectrums of translucent zirconium

oxides and stronger glass ceramics are overlapping more and more often. Different plastics are also becoming an alternative thanks to 3D printing. Hence, there is almost always a choice between several substances for one and the same indication.

As such, the application spectrums of different substances overlap. Those companies that provide the most aesthetic and economic results are at an advantage here.

In the near future, **Artificial Intelligence** will no doubt open up new chances to different sections of the dental laboratory:
- CAM production allows the optimisation of nesting, the avoidance of material waste and work to be carried out in a resource-saving manner.
- As far as aesthetics is concerned, one is already familiar with AI-supported digital colour identification devices.
- Automatically, perfectly mixed stains are also available thanks to AI support.
- Top results can be obtained for printed teeth for the anterior region using tailor-made mixtures of different colour components.

These demanding AI applications require the close collaboration between experienced dental technicians and companies from the dental industry. That is why the professional and personal (!) exchange of ideas is all the more important in this section.

Status as of 23.09.2022

Note for editorial offices:
IDS photos are available in our image database on the Internet at www.english.ids-cologne.de/imagedatabase
Press information is available at www.english.ids-cologne.de/pressinformation

Your contact:

For details and information on the dental industry:
VDDI/GFDI - Press Office
Burkhard Sticklies Agnes Plümer
sticklies@vddi.de / pluemer@vddi.de

Your contact for IDS:
Volker de Cloedt
Communications Manager

Koelnmesse GmbH
Messeplatz 1
50679 Köln
Germany
Tel. +49 221 821-2960
Fax +49 221 821-3544
Email: v.decloedt@koelnmesse.de
Internet: www.koelnmesse.com