VITAPAN EXCELL: For predictable, aesthetic and functional results

By VITA Zahnfabrik

For predictable and functional aesthetic results in restorations, in addition to dental technology experience, we need a denture tooth designed on the basis of the aesthetic and functional standards set by nature. VITAPAN EXCELL (VITA Zahnfabrik, Bad Säckingen, Germany) is an example of this kind of anterior tooth, which is characterized by vibrant shapes with "golden proportions." Tooth axes, the length/width ratio and angle characteristics are consistently patterned after nature. In addition, its special layered structure enables a natural play of shade. In the following case report, Darius Northey, Dental Technician (Buderim, Australia) shows how he was able to successfully use the new denture tooth for an implant-supported restoration.

Fig. 1: Initial situation: The insufficient restorations showed a midline displacement and functional disharmonies
Fig. 2: Two implants were inserted in the incisal region to functionally stabilize the restoration in the mandibular
Fig. 3: A custom-made tray was used in the mandibular for a mucodynamic fixation impression
Fig. 4: A simple bar construction was poured and fixed with synthetic material to the abutments
Fig. 5: The centric and temporomandibular movements were recorded with the gothic arch
Fig. 6: First, the aesthetic zone of the maxillary duplicate was reduced, then replaced with VITAPAN EXCELL, and finally tried in
Fig. 7: The final wax setup in the articulator with molded gingival anatomy before the try-in
Fig. 8: After the try-in, a mucodynamic impression with setup was taken in the maxilla
Fig. 9: The final occlusion-adjusted, mucodynamic impression in the duplicated denture base
Fig. 10: Based on the bite registration of the setups, the maxilla could be accurately rearticulated
Fig. 11: VITAPAN EXCELL and LINGOFORM were conditioned with VITACOLL to ensure good adhesion to the base
Fig. 12: The vestibular plate was customized with several synthetic material layers in different gingival shades
Fig. 13: The bridge and attachments were integrated by polymerization of the synthetic material base
Fig. 14: The finished restorations after elaboration and polishing in static occlusion
Fig. 15: Result: The patient was very happy with the naturalness of the new restoration

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Initial clinical situation

A 78-year-old female patient was dissatisfied with the positional stability of her mandibular prosthesis. The acrylic teeth appeared abraded, stained and very dull. After a healing period of three months, the implants were reassimilated in the incisal region of the mandible. First, the patient did not want a new total prosthesis in the maxilla, although the midline was shifted extremely to the right and functional disadvantages due to the well-worn and irregular occlusion were to be expected. She feared that her usual appearance would be altered by a new restoration. However, following a comprehensive consultation, she finally opted for a new restoration.

First steps towards restoration

The restoration in the mandible began with an anatomical alginic impression. So it could be oriented to the old mandibular prosthesis using the copy denture technique, this was duplicated with putty and reproduced with a cold polymer for denture bases. For the mandible, a custom-made impression tray was made, a musiodynamically impression was taken in several steps and the impression cap was affixed. Using the model, a simple bar construction was fabricated and affixed with synthetic material to the attachment. A wax rim was created over the bar in the mandible, and plates for the imaging of the Gothic arch positioned on this and the mandibular duplicate, lateral protrusion, protrusion and centric were recorded and affixed. The duplicate was subsequently reduced in the setup area in order to first position and try in the VITAPAN EXCELL anterior tooth and then the VITAPAN LINGIFORM posterior tooth.

Prostheses fabrication and finalisation

After a complete functional and aesthetic try-in, a mucodynamics impression with wax setup on a duplicate base was taken in the maxilla. The bite was registered with silicon. In the maxilla, a final master model was produced and articulated according to the vertical dimension. The maxilla and mandibular setups were embedded in cyanoacrylate, boiled out and pressed with heat-curing polymer into different gingival shades. After polymerisation, both works were rearticulated and an occlusion check was done. The prostheses were processed with fine-cut carbide milling tools and rubber polishers. The final polishing was done with pumice and polishing paste, as well as a buffing wheel. The patient was very satisfied with the functional and aesthetic result. Thanks to the lifelike shapes with "golden proportions," the three-dimensional anatomically layered construction and the multifaceted surface texture, the prosthetic restoration with VITAPAN EXCELL appears very natural.

Darius Northey, CDT, Australia

Graduated as a Dental Technician after working in the family business for many years. 1997 Established his own dental laboratory in Sydney, Australia. 2004-2006 Completed the Advanced Diploma of Dental Prosthetics.

All-ceramics for every need

By Dentsply Sirona

Zirconia and Zirconia-Reinforced Lithium Silicate (ZLS) complement each other when it comes to all-ceramic oral rehabilitation with excellent performance. The aesthetic appearance is further perfected either by providing a uniform type of veneering or by using a ceramic material to the attachments. A wax rim was created over the bar in the mandible, and plates for the imaging of the Gothic arch positioned on this and the mandibular duplicate, lateral protrusion, protrusion and centric were recorded and affixed. The duplicate was subsequently reduced in the setup area in order to first position and try in the VITAPAN EXCELL anterior tooth and then the VITAPAN LINGIFORM posterior tooth.

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Example 2: Extra-translucent zirconia, cut-back technique

Pressable ZLS can be individualised in a very similar manner. The light-optical properties of the framework material (Celtra® Press) already ensure a high level of aesthetics — close to that of veneering ceramics.

To reproduce an A2 shade on a crown framework made of extra-transparent zirconia, the most closely matching ingot is again chosen (as in the first example; Figs. 8 and 9). Mamelon structures are included at the time of designing the framework. The labial and palatal aspects of the enamel layer are built up with Celtra Ceram Enamel E1 while at the same time giving the restoration its final shape in a finishing step that includes creating desired surface texture after ceramic firing (Fig. 11).

The restoration is finalised with stain and glaze in a single step. A fine line of Crème is painted onto the incisal edges (Fig. 12). The final step is the application of Universal Stain i1 in the incisal region (Fig. 13).

The desired shade has been achieved, and the restoration looks “live” with just one enamel material and some stain (Fig. 14). A ZLS framework (Celtra® Press) can be customised in a similar way. Achieving the desired result requires only a single incisal modification is finished and prepared for the second layer. The interdental spaces are closed both labially and palatally with Dentin D1 (Fig. 28). A mixture of Effect Enamel Sunset EE3 and Enamel Opal Transparent EO4 is used on the cervical aspect (Fig. 22). The mesial and distal ridges are supported with Celtra Ceram Dentin DA2, creating delicate mamelon structures in the process (Fig. 17). The incisal edge and the areas between the mamelons and on the incisal ridges strips are emphasised with Enamel Opal Transparent EO4 (Figs. 18 and 19). Enamel E1 completes the build-up (Fig. 20). After the ceramic firing, the restoration is finalised and prepared for the second layer. The interdental spaces are closed both labially and palatally with Dentin D1 (Fig. 28). A mixture of Effect Enamel Sunset EE3 and Enamel Opal Transparent EO4 is used on the cervical aspect (Fig. 22). The mesial and distal ridges are supported with Celtra Ceram Enamel Effect Sky EE3. A thin layer of the neutral Enamel Opal Extra Light EO5 is added in the central labial area (Fig. 24). The incisal edges are finalised with Enamel Effect Ivory EE6. After the ceramic firing, the shape is finalised and the desired surface texture is created. This is followed by applying the glaze (High Flu), with some Universal Stain Crème applied on the cervical aspect for the most delicate individual features (Figs. 26 and 27).

The target shade has been matched exactly with the opalescence of the incisal edge supporting the natural appearance of the restoration. In addition, an excellent depth effect is achieved between the mamelons and on the incisal edges, thanks to the Enamel Opal Transparent EO4 used (Fig. 28).

High-translucency zirconia framework can be veneered in a similar manner, yielding highly aesthetic restorations with a perfectly match-
Due to its higher strength, this framework material is also suitable for posterior bridges.

Outcomes for the dental laboratory ZLS frameworks and also zirconia frameworks (with different translucencies) can be aesthetically refined in several ways. One method includes finalisation by staining — achieving pleasing basic aesthetics safely and easily with a monolithic restoration.

At a higher level of aesthetic sophistication, the framework can be veneered with ceramics. The innovative Celtra® Ceram material presented here provides an aesthetic link between ZLS and zirconia. This veneering ceramic allows the dental technician to individualise frameworks made of both materials using the same standardised technique. This is possible using the cut-back technique or by full veneering for premium aesthetics without limitations. This variability gives dental technicians a comprehensive all-ceramic treatment and performance concept.

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Makes you smile

Cercon with True Colour Technology sets new standards for zirconia when it comes to reproducing the classic 16 VITA® shades.

Cercon xt – extra translucent zirconia:
• Demonstrates extra high translucency and unparalleled shade accuracy with a life-like aesthetics especially for the anterior region (bending strength: 750 MPa) and complements the Cercon product portfolio
• Saves processing time and increases productivity (no need to dip, to stain or to veneer)

Cercon ht – high translucent zirconia:
• Offers a wide range of indications in the anterior and posterior region (bending strength: 1200 MPa). With Cercon ht as a high translucent material you can choose different performance levels out of one disk

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The Dental Technician International Meeting (DTIM) is the continuation and growth of CAPP’s Dental Technician Sessions during the last 12 years. These Dental Technician Sessions were accomplishments not only for dental laboratory owners and dental technicians but for the entire dental technology profession.

The DTIM will be held on the 12 April 2019 at the Madinat Jumeirah Conference Centre. Over 200 dental technicians, clinical dental technicians (CDTs), lab owners, trade visitors and more are expected to attend.

During the event, delegates will be able to attend free of charge hands-on trainings that will be organised by the companies. During the sessions dental technicians will be able to work with the product provided and learn new techniques.

The DTIM takes place in conjunction with the 14th CAD/CAM & Digital Dentistry Conference & Exhibition which will be attended by over 2,000 dental professionals.

Who Should Attend?
– Dental technicians
– Clinical Dental Technicians (CDTs)
– Dental lab owners

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