

# Aesthetic rehabilitation of the maxillary teeth with **VITABLOCS RealLife**

The following patient case demonstrates how VITABLOCS RealLife (VITA Zahnfabrik) replicates the structure of natural teeth.



Fig.1: VITABLOCS RealLife have a 3-dimensional block structure.

## Preliminary treatment

The patient was suffering from pronounced bulimia-related abrasion defects and a decreased vertical dimension of occlusion (Figs. 2 – 4). The latter led to acute symptoms, such as (among other things), severe muscular pain, tension and headaches. For this reason, the patient was first treated for pain relief with a temporary bite splint (Aqualizer, Dentrade). The splint was also used to determine the occlusal height at which the patient became free of symptoms; this was subsequently recorded and transferred to scannable models via a two-step bite registration procedure.

After mounting the models in the articulator, occlusal onlay bridges for the posterior area of the upper and lower jaw were fabricated from the provisional restoration material VITA CAD-Temp (VITA Zahnfabrik) with the aid of the CEREC CAD/CAM system (Sirona Dental Systems). After adhesive cementation (priming with

Rocatec, 3M ESPE / cementation with Multilink Automix, Ivoclar Vivadent), these bridges took on the function of a splint, and thus served the purpose of adjusting the vertical dimension of the occlusion (Figs. 5 and 6). Specific adjustment of the occlusal function by grinding was made with the aid of the T-Scan software (Cumdente) for the purpose of three-dimensional occlusal analysis.

## Product details

The next step was the rehabilitation of the maxillary anteriors with six single crowns made of VITABLOCS RealLife. This was made possible by increasing the vertical height of occlusion, so that sufficient space was also available at the palatal surfaces of the anterior teeth.

VITABLOCS RealLife are recommended by the manufacturer for the fabrication of anterior crowns and veneers, and are supplied in size RL-14/14 (14 x 14 x 18 mm). The block is available in shades 0M1C, 1M1C, 1M2C, 2M1C, 2M2C and 3M2C, and are made of VITABLOCS fine-structure feldspathic ceramic material that has been clinically proven a million times over.

## Rehabilitation of the anteriors

A wax-up was made on the anatomical models and transferred to the mouth by means of a silicone impression and provisional restoration material (Prototemp 4 temporary crown and bridge material, 3M ESPE) (Fig. 7). Corrections can be made as required in this intraoral mock-up until the expected functional and aesthetic results are achieved to the patient's satisfaction.

In the next step the mock-up was scanned (Fig. 8a) and stored in the occlusion database. This can be retrieved as a master copy in the "Correlation Mode" for designing the restoration. The design method chosen here, however,



Fig.2: The situation before treatment



Fig.3 and Fig.4: As a result of bulimia the patient exhibited pronounced abrasion defects and a decreased vertical dimension of occlusion

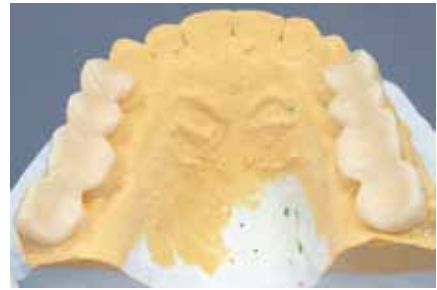


Fig.5: Occlusal onlay bridges made of VITA CAD-Temp



Figs.6a and 6b: to raise the vertical dimension of occlusion in the posterior area.

Fig.7: The mock-up



Fig.8: The mock-up and the preparation are scanned.

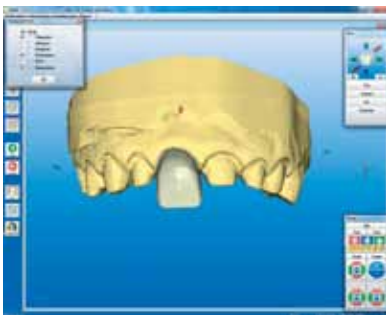


Fig.9: Designing the restoration by means of biogenic tooth reconstruction.

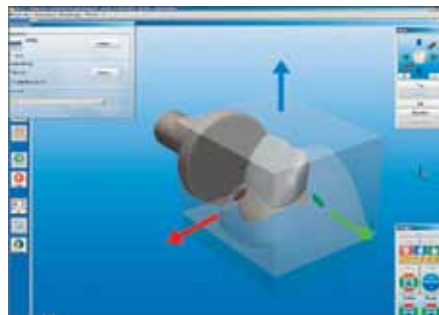
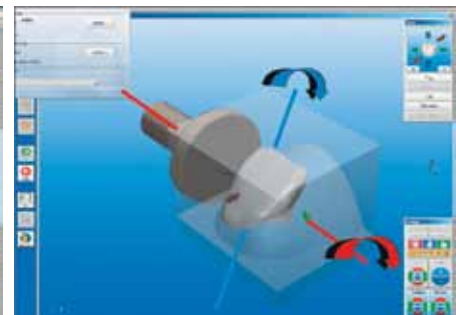


Fig.11 and Fig.12: The restoration can be shifted in all three spatial dimensions and rotated around the block holder axis as well as the cervical / incisal axis.



was a biogenic reconstruction, since the suggestions generated by the software demonstrate a better surface structure in comparison to the correlation based on digital mock-ups (Fig. 9). The digitized mock-up was used for the fine-tuning of the software suggestions by considering the tooth positioning and shape, etc. For this purpose, the mock-up is superimposed semi-transparently on the model image (Fig. 10). The teeth were ground to adjust the occlusion while the mock-up was in situ. The preparation in the mock-up resulted in very little loss of hard tooth structure. (Fig.8).

### Milling preview

After designing in the "Quadrant Design" mode, the crowns were each positioned in the virtual RealLife block.

This requires the CEREC / inLab 3D software (version 3.80 and greater). The initial position of the restoration is automatically set, located on the enamel-dentine border of the virtual block, where the labial / vestibular surface is completely covered by enamel coating. Various software tools can be used to alter the positioning of the planned restoration in the block. For instance, the restoration can be moved in all three spatial dimensions (Fig. 11) and rotated around the block holder axis or the cervical / incisal axis (Fig. 12). In this way, the individual shade effect of the patient's remaining natural dentition can be optimally reproduced in regard to translucency, shade intensity and lightness. VITABLOCS RealLife restorations may contain a greater proportion of cervical or enamel corresponding



Fig.10: The mock-up can be superimposed semi-transparently on the model



Fig.14 and Fig.15: The VITABLOCS RealLife restorations are processed on the model and then polished to a high glaze



Fig.13: Crowns milled from VITABLOCS RealLife



Fig.17 and Fig.18: The patient received a total of six single tooth restorations in the anterior area and 16 partial crowns / onlays in the anterior area



Fig.19: This results in a natural appearance with individual aesthetics



Fig.16: The anterior crowns made of VITABLOCS RealLife in situ

to the natural shade nuances of the patient's remaining natural tooth structure.

## Finishing

The crowns were milled (Sirona CEREC/inLab milling unit type MC XL required) (Fig. 13) and finished on the model (Figs. 14 and 15). Fine morphological adjustments can be made with diamond instruments prior to polishing. The restorations can be characterized if required with VITA AKZENT or VITA SHADING PASTE (VITA Zahnfabrik) using the staining technique. Excellent aesthetic results can be achieved without shade characterization by using the intelligent and time-saving combination of block and software adjustments. The finished single crowns were then seated with adhesive cementation (Fig. 16).



The temporary restorations in the posterior area were replaced with all-ceramic restorations. The patient received a total of 16 partial crowns / onlays in the posterior area and six single tooth restorations in the anterior area (Figs. 17 and 18).

### Conclusion

VITABLOCS RealLife enable the particularly efficient reproduction of the finest, most natural shade nuances since the three-dimensional block structure with dentine core and enamel coating replicates the arch-shaped color

gradient between enamel and dentine according to the structure of natural tooth substance. The software solution for the use of this innovative block concept at the click of a mouse has proven relatively simple to use, and at the same time offers maximum freedom of design. The patient was delighted with the result – not only because of the restored function, but above all due to the natural aesthetics (Fig. 19). Her positive reaction means all the more, since as a bulimia sufferer, she is a particularly critical patient with an unstable self worth. **DA**

### About the author



Dr. Gerhard Werling

**Dr. Gerhard Werling** – Since 1993, he is the national and international lecturer for Implantology and established a special laboratory for CAD/CAM technology in 2005. He finished his formal education in dentistry in Frankfurt Main, Germany and in 1992 established a group practice with his sister Ursula Werling in Bellheim, Germany. Currently, he is the scientific consultant for dental companies and medical faculties in Germany.

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