



VITABLOCS® TriLuxe forte: An effective choice for functional and esthetic restorations

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Before the advent of the digital workflow in laboratories and practice, the functional and esthetic rehabilitation of dentition damaged by abrasion with a collapsed bite was a massive undertaking. A separate individual restoration had to be fabricated manually for each tooth, which automatically became time-consuming and expensive. Total reconstruction of this

kind can be a lengthy process; great care must be taken during initial diagnosis and any occlusal interference identified. If habitual occlusion deviates from centric occlusion, nothing should be rushed. Instead, a balanced occlusal situation should first be restored using splint therapy, then combined with physiotherapy if necessary, and then stored centrally.

Proven and clever

On the material side at least, the digital workflow now enables quick restoration of abraded dentition following diagnosis and pre-treatment. Even as a blank, esthetic materials such as the fine-structure feldspar ceramic VITABLOCS TriLuxe forte, offer an appearance that is similar to natural dentition,¹ as well as a lifelike shade gradient.² As a result, just a simple polish is all

that's needed to create vibrant restorations – no firing required.³ Precise fabrication⁴ and a reliable adhesive bond⁵ ensure predictable results. And the material has been around for decades – the first generation of VITABLOCS was successfully integrated in 1986 and is considered the gold standard in many scientific studies⁶.

¹ Masek R. Reproducing natural color effects on milled ceramic restorations. *Int J Comput Dent* 1999 Jul; 2(3): 209-17.

² Vichi A, Carrabba M, Louca C, Corciolani G, Ferrari M. Color correspondence of different batches of TriLuxe CAD/CAM ceramic blocks. *Int J Comput Dent*. 2010; 13(4): 331-40.

³ Contreras L, Dal Piva A, Ribeiro FC, Anami LC, Camargo S, Jorge A, Bottino MA. Effects of Manufacturing and Finishing Techniques of Feldspathic Ceramics on Surface Topography, Biofilm Formation, and Cell Viability for Human Gingival Fibroblasts. *Oper Dent*. 2018 Nov/Dec; 43(6): 593-601.

⁴ Al Hamad KO, Al-Rashdan RB, Al-Rashdan BA, Baba NZ. Effect of Milling Protocols on Trueness and Precision of Ceramic Crowns. *J Prosthodont* 2021 Feb; 30(2): 171-176.

⁵ Straface A, Rupp L, Gintaute A, Fischer J, Zitzmann NU, Rohr N. HF etching of CAD/CAM materials: influence of HF concentration and etching time on shear bond strength. *Head Face Med*. 2019 Aug 8; 15(1): 21.

⁶ Labban N, Al Amri M, Alhijji S, Alnafaiy S, Alfouzan A, Iskandar M, Feitosa S. Influence of toothbrush abrasion and surface treatments on the color and translucency of resin infiltrated hybrid ceramics. *J Adv Prosthodont* 2021 Feb; 13(1): 1-11.

Clinical success story

Clinical studies impressively document that the material is also successful intraorally for longer periods: After 27 years, inlays and onlays fabricated using the fine-structure feldspar ceramic showed a survival rate of 87.5 %.⁷ After 12 years, the survival rate of crowns was 95 %.⁸ The clinical survival rate after nine years for veneers was 94 %.⁹ In other words, all restoration types for total reconstruction demonstrated clinical stability

over a long period. A crucial advantage in this respect for total reconstruction is the abrasion of VITABLOCS TriLuxe forte that is similar to that of natural enamel.¹⁰ It also facilitates balanced occlusal wear over the long-term clinical course, which ensures that occlusal interference is prevented, particularly in the case of natural antagonists.

Case study

A 72-year-old patient came to the practice because she was dissatisfied with the appearance of her teeth. During the initial examination, significant generalized abrasive and erosive processes were evident. The anterior region was characterized by fractures and considerable loss of length. In addition, the patient complained of exposed cervical areas. The patient wanted reconstruction of the hard tooth substance that had

been lost and long-term occlusal stabilization. As she had requested a fast and cost-effective solution that would meet her esthetic wishes, a decision was taken to carry out bite elevation and total reconstruction using the multichromatic fine-structure feldspar ceramic VITABLOCS TriLuxe forte. Old portrait pictures of the patient helped us to first simulate and discuss the desired result virtually on the computer.

Initial situation vs. final result



Initial situation: The esthetic zone, damaged as a result of abrasion and erosion in the upper jaw.



Result: The monolithic restorations fabricated using VITABLOCS TriLuxe forte looked completely lifelike and natural.

Functional esthetic diagnosis

During palpation of the masticatory muscles, no hardening of the muscles was evident. The patient had no complaints related to her occlusal situation. Clinically, there were also no deviations after deprogramming between the habitual intercuspation and the centric condyle position. There was only a loss of vertical dimension as a result of abrasive and erosive processes. For this reason, the bite was raised by one millimeter in the articulator in order to be able to carry out a functional esthetic wax-up. The wax-up impression was taken using silicone, which then enabled transfer of the wax-up from the model to

the patient's mouth. The silicone key was filled with flowable composite (Protemp 4, 3M, Seefeld, Germany) and repositioned on the dentition. After curing, the composite remained on the dentition when the silicone key was removed: The wax-up became a mock-up that was now used for fine adjustment of the esthetics and function under biodynamic conditions. The modified result was scanned using the CEREC Omnicam (Dentsply Sirona, Bensheim, Germany) and provided the basis for virtual design of the restorations.

⁷ Otto T. Up to 27-years clinical long-term results of chairside Cerec 1 CAD/CAM inlays and onlays. *Int J Comput Dent* 2017; 20(3): 315-329.

⁸ Otto T, Mörmann WH. Clinical performance of chairside CAD/CAM feldspathic ceramic posterior shoulder crowns and endocrowns up to 12 years. *Int J Comput Dent* 2015; 18(2): 147-61.

⁹ Wiedhahn K, Kerschbaum T, Fasbinder DF. Clinical long-term results with 617 Cerec veneers: a nine-year report. *Int J Comput Dent*. 2005 Jul; 8(3): 233-46.

¹⁰ Krejci I. Wear of CEREC and Other Restorative Materials. In Mörmann WH (ed.) *International Symposium on Computer Restorations*, Berlin: Quintessence, 1991: 245-251.

Restorative process

To stabilize the occlusion, the posterior region was first reconstructed with crowns and partial crowns made from VITA-BLOCS TriLuxe forte in shade 1M2. In doing so, it became clear that 17, 16, 25, 26 and 27 did not require treatment due to treatment of the antagonist area. After the bite in the posterior region had proven to be stable, the esthetic zone could be reconstructed and a new anterior canine alignment established. The goal here was that no further destructive eccentric forces should impact the molar area. The first step was restoration of the upper anterior region. Following local anesthetic, the mock-up supported gentle preparation that was limited to the enamel area, as well as shaping of the gingival garland by

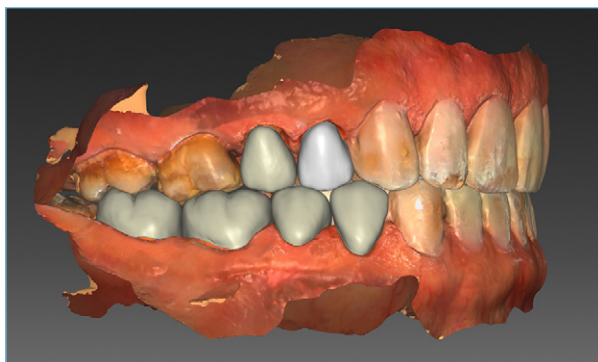
means of a gingivectomy. Following intraoral scanning, the dataset was transferred to the inLab CAD software (Dentsply Sirona, Bensheim, Germany). During the design process, the previously digitized mock-up was also used here to provide a morphological basis. CAD/CAM-supported fabrication of the veneers was carried out using the X5 milling unit (Dentsply Sirona, Bensheim, Germany). The restorations were finalized using fine diamonds and a rubber polisher and then characterized and glazed using the VITA AKZENT Plus stain system. Following fully adhesive placement of the veneers using RelyX Veneer (3M, Seefeld, Germany) in the upper jaw, restoration of the esthetic zone in the lower jaw was carried out in the same way.



A functional esthetic mock-up simulated the target situation.



Tooth 16 and 17 in the first quadrant did not require preparation.



The designs fabricated using VITABLOCS TriLuxe forte in the first and fourth quadrants.



In the second quadrant, tooth 25, 26 and 27 did not require preparation.



The designs fabricated using VITABLOCS TriLuxe forte in the second and third quadrants.



After stabilization of the posterior region, the upper esthetic zone was restored first.

Follow up and conclusion after 4.5 years

To ease pressure on the stomatognathic system at night and to protect the restoration, a front-canine-guided splint was also fabricated for the upper jaw. The restorations were intact 18 months after placement and the patient was free from any symptoms. VITABLOCS TriLuxe forte proved to be an effective booster in treatment with total reconstruction. As a result, it has the potential to make this comprehensive treatment beneficial for an even larger group of patients. This type of restoration

will become increasingly important in the future, particularly as our society continues to get older and corresponding prophylaxis ensures that we retain our own teeth into old age. In this case, the patient was completely satisfied with the rapid nature of her treatment and the esthetic result. Even after 4.5 years, all restorations proved to be fully intact during a follow-up examination. There was no uncontrolled abrasion or parafunction in the incisal and occlusal areas.



The treatment result 18 months after placement.



Even after 4.5 years, all restorations were perfectly intact.



After 4.5 years, there was no uncontrolled abrasion or parafunction in the incisal or occlusal areas.

More information and case reports on:

<https://www.vita-zahnfabrik.com/en/VITABLOCS.html>

