

# Esthetic shape correction of anterior teeth using composite

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Current restoration techniques with directly placed composites are not only used to replace lost tooth structure, but also to make it possible to modify the shape and orientation of anterior teeth. In addition, the direct placed filling technique makes it possible to perform larger restorations in the anterior region in one appointment. Excessive removal of sound tooth structure during preparation is minimal or completely unnecessary. Currently, composite restorative techniques present increasing competition to restorations fabricated in dental laboratories.

## Case Report

A 42 year old patient was referred by his orthodontist after completion of orthodontic therapy and jaw surgery, to close the morphologically-induced residual gap between teeth 11 and 12, as well as to

improve the approximal contour of tooth 21 (Fig. 1). Since the colour properties of directly placed composite fillings evolve through the interaction between natural tooth structure and the composite mass, a temporary build up on tooth 12 was prepared after the initial analysis of the existing colour with the assistance of a dentin/enamel shade guide. For temporary build ups, the composite material is placed directly onto the unetched tooth and polymerised. The temporary build up serves as a means to reassess the selected colour shade of composite and also allows for an assessment of the planned changes in contour for the teeth that will be restored (Fig. 2). Furthermore, the patient can receive a first impression of the desired clinical outcome. After this pretreatment consultation between the patient and dentist to confirm the shade selection and treatment plan, the temporary build up was easily removed

using a hand scaler. The subsequent treatment plan followed minimally invasive principles. After cleansing the teeth using fluoride-free prophylaxis paste, irregularities in the enamel were finished using a microfine grained diamond finishing bur to guarantee perfect adaptation of the composite material. A customised light cured provisional plastic matrix was fabricated to simplify the shape of the approximal filling contour for tooth 12 afterwards. In order to achieve perfect restorative adhesive margins, the enamel was etched beyond the prospective margins for 60 seconds using phosphoric acid. The adhesive was applied after the essential etching step was performed. The shape abnormalities present in tooth 21 were less challenging from a filling technique perspective, and corrected using Synergy D6 Dentin Composite. For the more complex restoration on tooth 12, an initial incremental layer



Fig. 1: Preoperative situation.



Fig. 2: Temporary build-up.



Fig. 3: Sculpting of the cervical region using Synergy Flow und Synergy D6 A2/B2.



Fig. 4: Incisal edge fabricated using Synergy D6 WB.



Fig. 5: Covered layer using Synergy D6 Enamel Universal. Completed filling before polishing.



Fig. 6: Restoration 4 weeks after filling.

of Synergy Flow was applied to ensure for homogenous cervical closure of the filling. The next incremental layer, consisting of Synergy D6 Dentin Composite, provided a stable, customised „framework“ of the approximal area (Fig. 3). Following this, the approximal restorative region as well as the extension of the incisal edge was fabricated using different composite dentin masses (Fig. 4). The polymerisation of each incremental layer could be reduced by 20 seconds due to a favourable C-factor. Taking the natural tooth structure into consideration, the dentin core was finally covered with a layer of enamel composite, and the restoration completely light cured for 40 seconds on the labial and palatal aspects. The combination of this anatomical layering technique combined with the „chameleon effect“ of the composite material delivers an undetectable and harmonious integration for esthetic build ups such as this in the anterior region (Fig. 5). After finishing and polishing of the final composite fillings, as well as controlling of the occlusion and articulation, the restored teeth were coated with fluoride varnish. At

the follow up appointment 4 weeks later, an esthetically pleasing clinical outcome presented itself for the patient and clinician (Fig. 6).

### Conclusion

Using direct placed composite materials combined with an anatomical layering technique and detailed finishing, it is possible to achieve anterior restorations that are esthetically equal to all-ceramic restorations fabricated in a dental laboratory. In this context, Synergy D6 represents an ideal composite material that will provide satisfactory results even in the most challenging clinical situations.

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