Aesthetics with all-ceramics and tooth whitening

Many dentists continue to have reservations about bleaching and are hesitant to include tooth whitening in the range of services they offer to their patients. At the same time, increasing numbers of patients are more aware of their teeth and tooth colour. Many people feel upset about their teeth not meeting their expectations of an ideal aesthetic appearance.

A smile that is marred by a dark anterior tooth can be restored to its natural beauty by means of a minimally invasive bleaching treatment in the dental practice—a treatment that is cost-effective and will leave most patients completely satisfied.

Surveys have shown that over 90 per cent of patients are highly satisfied with the results achieved by whitening discoloured or yellowish teeth with bleaching materials applied under the supervision of a dental professional. However, it is essential to have a thorough understanding of the aetiology of the discoloration and to adhere strictly to the indication guidelines regarding
the risks and limitations of bleaching, to ensure that the treatment provides safe and predictable results in practice.

_Case presentation_

A young female patient presented with a request for a lighter tooth shade. Teeth 12, 11 and 21 had previously been restored with ceramic crowns. In the course of the patient’s consultation, the need for replacing the existing crowns was discussed.

It is often advisable to commence the bleaching treatment in one jaw only, to demonstrate the outcome of the whitening process to the patient and align the treatment to the patient’s expectations. This simple step soon raised the patient’s enthusiasm for the treatment.

_How can I access the ‘world of bleaching’?_

Tooth whitening, using a deep-drawn tray and appropriate gels in the practice or at home, is an established bleaching method, even if this option is not quite as spectacular for the patient as bleaching with laser or UV-light. Deep-drawn trays are produced in a relatively straightforward procedure using thermoformable material on a stone model. It is worthwhile equipping the practice with a basic thermoforming unit, if you have not already done so. Various concentrations of carbamide peroxide preparations are available on the market. Higher concentrations provide faster results, but they involve the increased risk of reversible side effects, such as a burning sensation of the gums and hypersensitivities. It is important to provide the patient with clear guidance on how to apply the whitening gel.

According to the treatment plan, the upper jaw was first bleached using VivaStyle gel (Ivoclar Vivadent) containing 16 % carbamide peroxide and a tray. The patient wore the tray for one hour a day over a three-week period. In the course of the subsequent recall visit, she decided to extend the treatment to the lower jaw. Figures 2a and b show the teeth at the end of the bleaching treatment. Compared with the shade of the crowns on teeth 12, 11 and 21, the bleaching effect is clearly noticeable.

Normally, the degree of brightness achieved during the bleaching process will slightly decrease upon completion of the treatment. It is therefore necessary to wait at least two weeks before initiating any further treatments. In the present case, the existing crowns were replaced two months after completion of the whitening procedure.

Figures 3a to c show the prepared teeth. The original dentine shade contrasts with the shade of the adjacent bleached teeth. In this case, we did not have to forgo the aesthetic advantages of glass-ceramic materials, as special opaque ingots

![Fig. 2a](image_url)  
![Fig. 2b](image_url)
that are capable of masking the shade of the tooth preparation are now available. We decided to restore the teeth of our patient with IPS e.max Press (Ivoclar Vivadent) in combination with the veneering ceramic IPS e.max Ceram (Ivoclar Vivadent). This ceramic not only offers a variety of aesthetic possibilities, but can also be cemented using a conventional technique because of its high flexural strength. Whenever possible, we prefer using an adhesive cementation technique in conjunction with an aesthetic dual-curing luting composite. Variolink II (Ivoclar Vivadent) is a proven adhesive composite that has been used for many years in dental practice. The possibility of enhancing the shade effect of the final restoration by selecting an appropriate cement shade can be advantageous in some cases.

The result speaks for itself: the crowns harmoniously blend into the anterior region and complement the outcome of the treatment in terms of shade and shape.

**Conclusion**

The whitening of discoloured tooth structure can be effectively integrated into a practice concept that helps patients to overcome their initial fear of dental treatment. As this type of treatment should always be performed under the supervision of a dental professional, patients are given a detailed consultation to establish their requirements prior to commencing the treatment. In the process, patients are made more aware of the range of prophylactic measures and high-quality dental treatments available to them. The combination of all-ceramic restoration and bleaching can form an aesthetic treatment strategy to enhance the smile of patients in a straightforward fashion with a high success rate.

**Author Info**

Dr Marcus Striegel
Ludwigsplatz 1a
90403 Nürnberg
Germany

E-mail: striegel@praxis-striegel.de