

# An Efficient Approach to In-Office Tooth Whitening

Today, more and more patients are requesting a whiter, brighter smile. Conservative smile enhancements are routine procedures in many dental practices, and the most common and controlled method for quickly changing someone's smile is in-office tooth whitening. Vital tooth bleaching is a viable and realistic option for many patients as a means to improve their smiles and their overall appearance.

Manifesting itself as a result of aging, disease, or exposure to a variety of agents, including foods and beverages, tooth discoloration seems to be increasing in my personal opinion based on what I have seen in my practice. Intrinsic stains result from defects during tooth development, fluorosis, or the use of tetracycline.<sup>1</sup> Extrinsic stains, on the other hand, are localized in the pellicle and are generated by the reaction between sugars and amino acids or are acquired from the retention of exogenous chromophores in the pellicle.<sup>1</sup>

The success of whitening regimens of varying durations using peroxide agents has been well documented in the literature for treating both extrinsic and intrinsic stains.<sup>1-4</sup> However, to reduce intrinsic stain and change the inherent tooth color, professional tooth-whitening products that rely on proven technologies (such as 35% hydrogen peroxide for in-office power bleaching or 10% to 15% carbamide peroxide for at-home bleaching) have traditionally been used.<sup>3</sup> Over-the-counter products that whiten through the actions of surfactants, abrasives, anticalculus agents, and low levels of hydrogen peroxide have been used to whiten extrinsically stained teeth and/or help maintain bleaching effects after professional treatment.<sup>3</sup>

This article demonstrates the use of an in office whitening product (Pola Office+, SDI North America Inc.) that utilizes a 37.5% hydrogen peroxide gel. Pola Office+ can be used with or without a bleaching light, as it does not require activation. While a light is not necessary, you certainly can use a bleaching light or a standard heat emitting curing light to accelerate the bleaching process. In published literature investigating the effects of light activation of whitening agents, researchers have noted that the addition of light can increase the tooth-whitening effect of peroxide, even in concentrations as low as 15%.<sup>5</sup> In fact, it was noted that peroxide and light treatment significantly lightened the color of teeth to a greater extent than did peroxide or light alone, with a low and transient incidence of tooth sensitivity.<sup>5</sup> Other investigations have also found that color changes are significantly affected by an interaction of bleach and light variables.<sup>5</sup>



## Case Presentation

A 35-year-old male patient presented with a chief complaint of teeth that were “too yellow and dark” (**Figure 1**). Following a thorough examination that included radiographs and intraoral digital photographs, it was determined that no pathologies were present that would contraindicate vital tooth bleaching. The patient was then educated and informed about the variety of tooth-bleaching alternatives available, including home-bleaching with a customized tray and over-the-counter products. The patient elected to whiten his teeth through the in-office (Pola Office+ , SDI North America Inc.) tooth whitening system.

To best assess the patient’s preoperative shade, the patient’s teeth were first evaluated against the bleaching system shade guide included in the kit, as well as using the Vita classic shade tabs. Through these methods, the patient’s preoperative tooth shade was determined to be A3.5.

Prior to initiating the in-office whitening procedure, the whitening system was removed from refrigeration (**Figure 2**) and the tooth surfaces were cleansed using a non-fluoride prophylaxis paste (Preppies Paste). While performing the prophylaxis, care was taken not to exceed 5,000 rpm.

A cheek and lip retractor was placed, and a generous amount of petroleum gel was applied to prevent the patient’s lips from drying out during the bleaching procedure. The patient was also provided with suitable eye protection to wear during the bleaching treatment.

The teeth to be whitened were then dried with air, and a gingival protector (Gingival Barrier, SDI North America Inc.) was placed (**Figure 3**). This was applied in a 1-mm to 2-mm thickness covering 3 mm to 4 mm apically from the gingival margin. Approximately 0.5 mm of protector was placed on the tooth surface adjacent to the gingival margin. After application, the gingival protector was cured for 10 to 20 seconds using a curing light (Radii Plus, SDI North America Inc.).

The 37.5% hydrogen peroxide gel (Pola Office+, SDI North America Inc.) that is supplied in a dual barrel mixing syringe was applied to the teeth, providing a consistent blend of freshly activated gel. The whitening gel was syringed onto each tooth to be whitened in a thickness of between 0.5 mm and 1.0 mm (**Figure 4**).

Pola Office+ (SDI North America Inc.) can be used with or without a bleaching light, as it does not require activation. While a light is not necessary, we chose to utilize the Radii Plus with the full arch bleaching LED attachment (SDI North America Inc.) (to further enhance the whitening process (**Figure 5**). The whitening gel was left on for 8 minutes and then rinse off with a vigorous amount of water. Any excess gel was removed from each tooth using gauze, working from the cervical to the edge. Given the severity of the patient’s yellow discoloration, the bleaching protocol was repeated twice more, for a total of three 8 minute applications. The immediate visible results of the bleaching sequence demonstrated a significant whitening effect (**Figure 6**).

In about less than half an hour, the patient walked in and out of our office with a whiter, brighter smile. The Pola Office+ in-office tooth whitening system, featuring a 37.5% hydrogen peroxide base, whitened his teeth in 24 minutes—resulting in reduced chair time for increased patient comfort and satisfaction. This whitening system is available in one or three patient kits, and is one of many offerings in the company’s product lines. Other whitening products include Pola Day, Pola Night, Pola Zing, Pola Paint and Soothe.



**Figure 1;** The pre-operative shade is recorded.



**Figure 2;** The Pola Office + system is prepared for the patient.



**Figure 3;** The soft tissue is protected by the Gingival Barrier and light cured.



**Figure 4;** Application of the whitening gel on to the teeth.



**Figure 5;** Use of the Radii Plus curing light with whitening attachment.



**Figure 6;** Retracted post-operative view after treatment.

## Conclusion

Conservative smile enhancements utilizing in office whitening such as the case described can now be completed more efficaciously and comfortably. The introduction of a new combination in-office whitening system, that features a self mixing and activating agent that may or may not be used with a light, enables dental professionals the opportunity to offer their patients enhanced whitening in a shorter period of time with less sensitivity. In particular, this case has demonstrated how this whitening system accomplishes the objectives of accelerating and activating the whitening action of hydrogen peroxide, limiting and reducing the likelihood of tooth sensitivity, and promoting greater shade retention. Like everything else in society, consumers are demanding dental services be delivered fast and effectively without compromise. Dental providers who are able to meet this demand utilizing products that shorten treatment time will find themselves busy with an influx of more patient requests for these kinds of services.

## Technique

1. Determine and record the patient's pre-operative shade. Follow the Vita shade guide arrangement according to degree of brightness **(Figure 1)**.
2. Set up the Pola Office + system and clean the teeth using flour based pumice **(Figure 2)**.
3. Place the cheek retractor and cover the exposed lip surface with petroleum gel.
4. Dry the teeth and apply Gingival Barrier to arches, slightly overlapping enamel and interproximal spaces **(Figure 3)**.
5. Light cure using a fanning motion for 10 to 20 seconds until the Gingival Barrier is cured.
6. Firmly attach a mixing tip to the syringe away from the patient. Dispense a small amount of the gel onto a mixing pad to ensure adequate mixing.
7. Directly apply a thin layer of gel to all teeth undergoing treatment **(Figure 4)**. Note: Graduation on the syringe indicates the recommended amount per application.
8. Leave the gel on for 8 minutes. A curing light may be used **(Figure 5)**. Refer to the light manufacturer's recommendations.
9. Suction off gel using a surgical aspirator tip.
10. Complete steps 7 through 9 three times. A fourth time is optional.
11. After the last application, suction off all gel. Wash with water and apply suction.
12. Remove Gingival Barrier by lifting it from one end.
13. The final result took the shade from A3 to B1 **(Figure 6)**.

## References

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