

Foundation for a Successful Smile Makeover

Understanding Bleaching Choices and Techniques



Joyce L.
Bassett, DDS

INTRODUCTION

“Responsible aesthetics” and “minimally invasive dentistry” are buzzwords that reflect the current trends in dentistry. We all strive to perform conservative treatment, but how do we differentiate between the cases that lend themselves to successful outcomes via minimally invasive dentistry and those cases involving porcelain restorations that may require more aggressive preparations? The dentist’s obligation is to evaluate each situation, gaining a thorough understanding of the patient’s history, condition, and expectations; then, to assess the risk, longevity, and predictability of each proposed treatment modality. When a patient presents with discolored teeth and a high smile-line on both maxillary and mandibular arches, bleaching is my treatment of choice. If the result is satisfactory, a minimally invasive solution (such as bonded composite resin augmentation, or minimal to no-prep feldspathic veneers) can be proposed.

Historically, whitening is more predictable and dramatic with yellow teeth and not as effective with gray teeth. Also, monochromatic (even-toned) teeth have a more predictable bleaching outcome than striated, tetracycline-stained, or white-spotted teeth.

White Spot Lesions

White spot lesions are caused by the demineralization of the subsurface enamel, by the malformation of the enamel during tooth development, acid breakdown of the enamel, and/or poor oral hygiene. During bleaching procedures, the teeth desiccate and the white spots appear more prominent. During the next few days, as the tooth rehydrates, the white spot color may blend in with the new whiter surrounding enamel or the white spot color may become visually intensified, requiring an additional procedure of either composite resin or microabrasive techniques.

Microabrasion uses a slurry of pumice with 15% hydrochloric acid (HCl) applied to the tooth for 15 to 30 seconds. Next, the slurry is rinsed away, and then visually observed. The procedure is repeated again until the desired color correction is noted.



Figure 1. Initial consultation of our patient, showing yellowed, multicolored teeth.



Figure 2. Pre-op shade photos of a case similar to our patient shown in **Figure 1**. Photos in **Figures 2 to 4** were used for a before-and-after comparison in the process of explaining treatment options.



Figure 3. Preoperative photo before bleaching and bonding (same patient shown in **Figure 2**).



Figure 4. Postoperative photo after bleaching and bonding showing similar potential results (same patient shown in **Figure 2**).

The enamel “microreduction” technique utilizes a fine-grit diamond, which is applied to the affected enamel for 5 to 10 seconds. This removal of a small amount of the affected enamel decreases overall treatment time for the microabrasion as the microabrasion eliminates superficial intrinsic stain and the bleach lightens the deeper stain.^{1,2}

If the color does not match after microabrasion or microreduction, then a composite protocol can be implemented.

Bleaching Choices and Techniques Differ Time, convenience, and efficacy are the variables to be evaluated when comparing in-office systems and take-home systems. It takes 14 days of continuous use of take-home bleach to gain the same effects of one in-office procedure.

Both light-activated and non-light-activated systems produce whitening of between 6 to 9 shade differences. However, the light-activated systems will provide one

to 2 shade guide improvements over the non-light-activated in-office systems.^{3,4}

The current whitening lamp (Zoom WhiteSpeed [Philips Oral Healthcare]) has a narrow light spectrum that produces very little heat. The LED blue light technology makes the hydrogen peroxide more effective at breaking down stains (double carbon bonds) that are held within the carbon portion of the tooth. The blue light from the lamp is absorbed by the yellow stains in the dentin.⁵

Greater tooth sensitivity has been reported when using the light; therefore, pre-existing sensitivity must be identified and recorded. Patients must be informed prior to treatment that a temporary increase in sensitivity may be experienced, and a strategy for managing this sensitivity should be implemented.

If a patient has a history of sensitivity to hot and cold temperatures, a desensitizing toothpaste that does not contain sodium lau-

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