



Benefit of Light vs No Light

in vivo study

Clinical Evaluation of a Novel Dental Whitening Lamp and Light-Catalyzed Peroxide Gel

Ziemba SL¹, Felix H¹, MacDonald J¹, and Ward M², Clinical evaluation of a novel dental whitening lamp and light catalyzed peroxide gel. J Clin Dent 16:123-127, 2005.

Objective

To determine whether an ultraviolet light enhanced the whitening efficacy of a peroxide gel containing a photo-Fenton activator

Materials

- 20% hydrogen peroxide gel with ultraviolet (UV) light (Zoom2, Discus Dental Inc.)
- 20% hydrogen peroxide gel without ultraviolet (UV) light

Methodology

Fifty healthy male and female adults aged 18-70 years were enrolled into an IRB-approved randomized trial. The trial was conducted at two geographically separate study sites. At the outset of the study, all subjects had a tooth shade greater than or equal to A3 (Vita Shade guide, Vita Zahnfabrick GmbH, Sackingen, Germany) for all six non-restored maxillary anterior teeth. Participants had to agree not to use any other dental whitening product except toothpaste during the course of the study. Individuals also had to refrain from smoking and consuming coffee, cola drinks, grape juice and other food or drink that could stain teeth for seven days after treatment.

Subjects who met the inclusion criteria were randomly assigned to one of two groups: Light or No-light. The investigator applied the bleaching gel (Zoom 2 Discus Dental, Inc.) to the teeth of both groups for 15 minutes. At the end of the period, the gel was suctioned off and new gel was applied. This process was repeated twice more for a total of three applications for all study subjects. In the Light group, the six maxillary teeth were concurrently exposed to the whitening lamp during the gel application for a total light exposure of 45 minutes. The No-light group was not treated with the whitening lamp. Fluoride/potassium nitrate was applied to teeth according to manufacturer's instructions for all subjects. Subjects were examined before the whitening treatment, immediately after treatment (same day), one week after treatment and one month after treatment. Clinical data were collected on the gingival index, shade score and self-assessed dental hypersensitivity.

Results

The combination of the whitening lamp and gel produced significantly better results (approximately 26% improvement; $p < 0.05$) than did gel alone. Immediately post treatment, subjects in the Light group showed an average 7.7 shade changes compared to an average of 6.1 shade changes for the No-light group. No tissue irritation, ulceration or gross changes in teeth, gingiva or restorations were reported in either group. The sensitivity scores were similar for both the Light and No-light groups with no significant differences at any interval.

Conclusion

The use of the Zoom 2 dental whitening lamp improved the whitening effect by approximately 26% when used with a photo-Fenton activator and 20% hydrogen peroxide gel. This trial demonstrated that this bleaching method is safe and effective for whitening teeth rapidly.

Mean Shade Improvement After Treatment

Vita Shades Changes

