

A Clinical Trial to Determine Whether a Novel Tray-Based Tooth Whitening

Maura E Slack*

Department of Dental materials, Shanghai Jiao Tong University, Shanghai, China

*Corresponding author: Maura E Slack, Department of Dental materials, Shanghai Jiao Tong University, Shanghai, China, E-mail: Slack_ME@Led.Cn

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Description

The chemical degradation of the chromogens within or on the tooth is referred to as bleaching. Hydrogen peroxide (H₂O₂) is the active ingredient most commonly used in whitening products and is delivered as either hydrogen peroxide or carbamide peroxide. Hydrogen peroxide is analogous to carbamide peroxide because it is released when the stable complex is in contact with water. Whitening is often desired when teeth become yellowed over time for hydrogen peroxide is an oxidizing agent that breaks down to produce unstable free radicals when it diffuses into the tooth. There are a variety of products on the market to remove stains. For whitening treatment to be successful, dental professionals (dental hygienists or dentists) should correctly diagnose the type, intensity and location of the tooth discoloration. The tooth whitening endpoint is determined by time exposure and the concentration of the bleaching compound. The perception of tooth color is multifactorial. The organic pigment molecules that these unstable free radicals attach to create small. A variety of factors, such as specular light transmission through the tooth, can affect the tooth's ability to reflect and absorb light: Surface specular reflections. Surface reflection of diffuse light. The dental tissues capacity for light absorption and dispersion; mineral content of enamel: Depth of the enamel. The combination of intrinsic color and the presence of extrinsic stains on the tooth surface influences the color and, consequently, the overall appearance of teeth. The scattering of light and absorption within enamel and dentine determine the intrinsic color of teeth and because enamel is relatively translucent, the dentinal properties can play a major role in determining the overall tooth color. On the other hand, extrinsic stain and color is the result of coloured regions that have formed within the acquired. Teeth tend to get darker as you get older, which can be explained by secondary dentin formation and enamel thinning as a result of tooth wear, both of which contribute to a significant decrease in lightness and an increase in yellowness. Gender or race has no effect on tooth color.

Dental Hygienists

Extrinsic staining is mostly caused by things like smoking, food and beverage pigments, antibiotics and metals like iron or copper. These sources produce colored compounds that stain teeth by adhering to the acquired dental pellicle or directly onto

the tooth's surface. Plaque from teeth: Dental plaque is a clear biofilm of bacteria that forms naturally in the mouth, particularly along the gumline, as part of the immune system's normal development and defenses. Although plaque is typically virtually invisible on the tooth surface, it may become stained by chromogenic bacteria like actinomyces species. Prolonged dental plaque accumulation on the tooth surface can lead to enamel demineralization and the formation of white spot lesions, which are opaque milk-colored lesions. The acidic white spot lesions and demineralization are both exacerbated by an increased intake of fermentable carbohydrates. Intrinsic staining typically develops during the development of the teeth, either before birth or during early childhood. Stains that cannot be removed mechanically, like those caused by debridement or a preventative stain removal, are referred to as intrinsic stains. Teeth can also become more yellowed over time as a person gets older.

The patient should be examined by the doctor before the treatment: Taking a health and dental history (including allergies and sensitivities), looking at hard and soft tissues, the placement and conditions of restorations and sometimes taking x-rays to see what kind of irregularities might be there and how deep they might be. Too much sensitivity and other issues may arise if this is not done before the whitening agents are applied to the tooth surface.

The color of the teeth is measured with the whitening shade guides. These shades, which can range from two to seven shades, determine the efficacy of the whitening procedure. Depending on the individual, these shades may be achieved in a single in-office appointment or may take longer. The effects of bleaching can last for a number of months, but this can vary based on the patient's lifestyle. The efficacy of the treatment may be harmed if foods or drinks with a strong color stain teeth. Tanning-containing foods and beverages, such as curry, red wine, coffee and tea.

Tooth Sensitivity

To reduce the risk of chemical burns to the soft tissues, in-office bleaching procedures typically employ a protective layer that is carefully painted on the gums and papilla-the tips of the gums between the teeth. The bleaching agent is either hydrogen peroxide itself or carbamide peroxide, which breaks down in the mouth to form hydrogen peroxide. The carbamide peroxide

content of the bleaching gel typically ranges from 10% to 44%, which is roughly equivalent to a concentration of 3% to 16% of hydrogen peroxide. Power bleaching, also known as light-accelerated bleaching, makes use of light energy to speed up the bleaching process in a dental office. This procedure can make use of a variety of energy sources, the most common of which are plasma arc, LED and halogen. When using high concentrations of hydrogen peroxide, bleaching with light may not be any more effective than bleaching without light because it increases the risk of tooth sensitivity.

Lights typically fall into the blue light spectrum because it has been discovered that this spectrum contains the wavelengths that are most effective for initiating the hydrogen peroxide reaction. The ideal source of energy should have high energy to excite the peroxide molecules without overheating the pulp of

the tooth. Power bleaching typically entails six to fifteen minutes of exposure to a light source, application of a professional dental-grade hydrogen peroxide whitening gel containing 25% to 38% hydrogen peroxide, and isolation of soft tissue with a resin-based, light-curable barrier. As a result of recent technological advancements, heat and UV emissions have been reduced, making patient preparation time shorter. Whitening toothpastes differ from regular toothpastes in that they contain higher amounts of abrasives and detergents to be more effective at removing tougher stains. Some whitening toothpastes contain low concentrations of carbamide peroxide or hydrogen peroxide which help lighten tooth colour however they do not contain bleach (sodium hypochlorite). With continuity of use over time, tooth colour can lighten by one or two shades.