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## METHODS FOR WHITENING VITAL TEETH

### Abstract

Teeth whitening refers to a variety of processes that aim to make someone's natural teeth appear brighter and whiter. Teeth whitening methods include sanding down stains, bleaching, ultraviolet (UV) light therapy, and more.

Some teeth whitening methods can cause uncomfortable side effects, particularly tooth sensitivity and gum irritation.

**Keywords:** *whitening, teeth, vital, method, pulp, laser*

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## Vital dişlərin ağardılması üsulları

### Xülasə

Dişlərin ağardılması təbii dişləri daha parlaq və ağartmaq məqsədi daşıyan müxtəlif proseslərə aiddir. Dişlərin ağardılması üsullarına ağartma, ultrabənövşəyi (UV) şüa terapiyası və s. daxildir.

Bəzi diş ağardıcı üsullar xoşagəlməz yan təsirlərə, xüsusilə diş həssaslığına və diş ətinin qıcıqlanmasına səbəb ola bilər.

**Açar sözlər:** *ağartma, diş, vital, metod, pulpa, lazer*

### Introduction

Methods for whitening vital teeth in the clinic-The in-office whitening technique is used for patients who do not have enough time for whitening at home, for those who suffer from plaque taking up space in their mouth, or for patients who do not find the taste of the gel used at home unpleasant. Another advantage is immediate use in the office.

The results motivate the patient to continue whitening at home to maximize the treatment. Although rapid results are achieved with in-office whitening, the end point in teeth whitening may not be reached and additional whitening may be required.

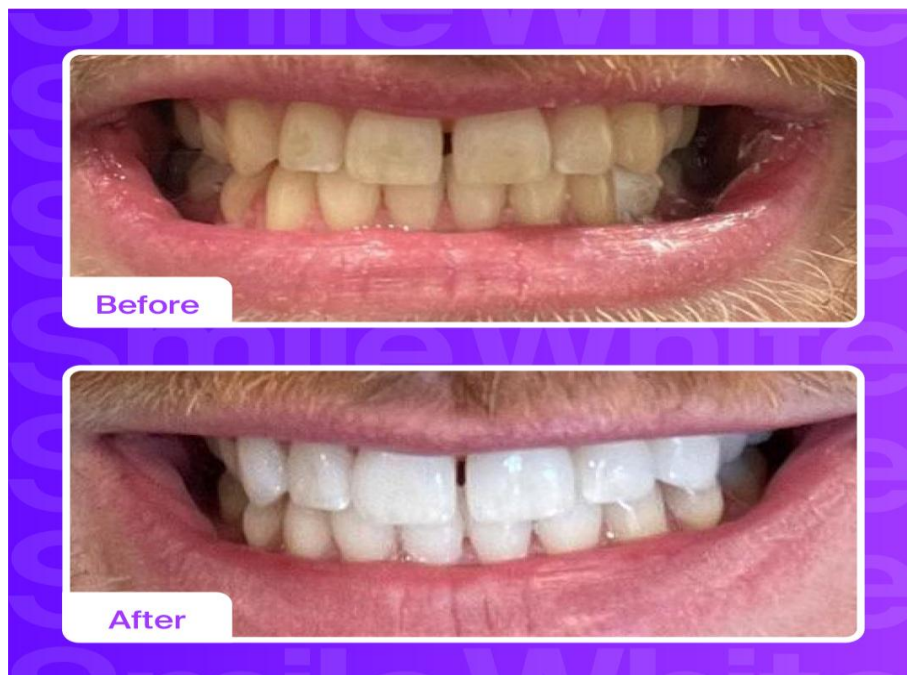
It was emphasized that sessions may be necessary. Most people can compare the results achieved within the first 4 days to at-home whitening procedures, but the number of whitening sessions can be increased to achieve the final finish (Barghi, 1998: 31-38).

The concentration of hydrogen peroxide (30-35%) used in in-office whitening procedures is higher than the concentration of home-made whitening agents (Haywood, Heyman, 1989:76). For this reason, the material penetrates the teeth faster in in-office whitening. To achieve effective results in the office, 2-6 sessions are required, with each session lasting approximately 45 minutes, with or without the use of light (Tezel, Ertash, Ozata, Dalgar, Korkut, 2007: 339).

However, sometimes, depending on the cause of the discoloration, satisfactory results may occur in a single session. The biggest disadvantage of in-office whitening is the caustic effect of the 35-50% hydrogen peroxide used. Use, application, removal and

Necessary care should be taken during removal operations. Isolation and protection must be mandatory for the eyes, the rest of the face, gums, cheeks, lips and tissues at risk of burning (Silva, Brackett, Haywood, 2006: 37). Penetration of hydrogen peroxide into the pulp is also possible, but when its effect is considered for a long time, it does not cause any effect on the pulp (Blankenau, Goldstein, Haywood, 1999: 94). With the use of fast and reliable light sources, whitening procedures used in the clinic have become more popular. Today, peroxides are used in the clinic in combination with an energy source. Argon, carbon dioxide and diode lasers, plasma arc lamps, infrared lamps and quartz halogen lamps are used for this purpose (Heyman, Robenson, Heyman, 2002).

The use of light to create heat accelerates the oxidation reaction of hydrogen peroxide, facilitating the treatment with a thermocatalytic effect. However, using light to heat the whitening agent causes high rates of water loss in the tooth. Water loss increases both sensitivity and rapid results (Sulieman, Rees, Addy, 2006: 34). The main problem with the activation of lights used in office whitening is the generation of heat and this heat affecting the pulp (Barghi, 1998: 38).



Many commercial products are available for office whitening. Most come in paste or gel form and often contain between 30-35% hydrogen peroxide. Metal ions are added to commercially available whitening products to accelerate the oxidation reaction.

Freezing or alkalizing substances are added (Gallagher, Bowman, Borden, Mason, Felix, 2002:19-24). The long time spent for whitening in the office is a disadvantage of this technique, which increases the cost of treatment (Joiner, 2006:19).

**Vital teeth whitening at home under the control of a dentist methods.** Vital home teeth whitening method was first described by Haywood and Heymann (Greenwall, 2005:132) in 1989. Although this method has undergone many changes until today, it is basically oral whitening agents containing 10% carbamide peroxide.

Carriers are devices that keep the whitening material on the teeth, and they must be adapted to the teeth to prevent the whitening agent from being reduced by saliva. After taking measurements of the teeth to be treated, the prepared plaster cast is applied.

The models are covered with soft vinyl material in thicknesses ranging from 0.02 to 0.035 inches in a heated vacuum device.

It is essential to use the trays for 2-6 weeks for periods varying between 6-8 hours. Home whitening has the advantages of being cheap, simple and apparently safe for the patient and the physician (Javaheri, Janis, 2000: 25-51). Home whitening is very popular.

Although it is often recommended for vital teeth, patients cannot adapt to this technique because they do not want to wait 2 or 3 weeks to see the results of the treatment or do not want to use whitening trays.

The patient is taught how to apply the whitening gel to the whitening tray. In the tray, a thin layer of material is squeezed into each tooth to be whitened. The dentist should check that the whitening tray is properly placed. After the whitening plate is placed, the excess material should be cleaned with a toothbrush. The patient is advised not to rinse his mouth during treatment, not to drink anything, and not to use the whitening plate while eating. It should be recommended to remove it.

Although no single method is the best treatment technique for all patients, the majority of patients prefer night-time treatments due to its comfort. The treatment duration for all-night whitening procedures is approximately 1-2 weeks sick all night.

If the patient cannot tolerate the application, the frequency and time of whitening can be changed in such cases. In these cases, gradually increasing the duration of use increases the patient's adaptation to the whitening plate and whitening agents.

Throughout the treatment, it is recommended to whiten one chin, starting from the upper jaw. In this whitening process, the lower jaw remains the standard for comparison. In whitening processes carried out in this way, the two carriers have the same the potential for occlusion problems caused by simultaneous use is also reduced.

Vital whitening methods done without dentist control. There are materials that the patient buys and uses from pharmacies and markets without the consultation and control of the dentist. These consist of bands that stick to the teeth, mouthwashes, toothpastes and systems that are applied to the teeth in the form of polish. These materials contain low amounts of whitener (3-6%) and are generally recommended to be used twice a day for 2 weeks.

Teeth whitening strips are applied in two sessions of 30 minutes a day for 14-21 days and contain 6-6.5% hydrogen peroxide. Gels containing carbamide peroxide applied with a brush are applied twice a day. Companies selling teeth whitening products trays recommended by are designed to allow a certain amount of whitening material to be stored in the buccal part of the teeth.

**Whitening methods for non-vital teeth.** The first indication for whitening treatment on non-vital teeth is to whiten the color of teeth that have undergone root canal treatment. The cause of the color change may be due to the penetration of bleeding into the dentin resulting from trauma, pulp residues left in the pulp chamber after root canal treatment, and cement and restorative materials placed in the pulp chamber. While most posterior teeth that have undergone root canal, treatment are treated with full crown restorations to prevent breakage, anterior teeth can be restored with composite instead of partial or full crowns (Haywood, Heyman, 2001: 76).

Nonvital bleaching techniques include "walking bleach" and "modified walking bleach", "nonvital power bleaching", also known as "thermo/photo bleach", and "inside/outside bleaching" methods.

**Whitening agents and whitening mechanism.** In recent years, hydrogen peroxide and carbamide peroxide have been used as whitening agents (Bulut, Turkun, Kaya, 2006: 66-72). Carbamide peroxide can be used in different concentrations (Bulut, Turkun, Kaya, 2006:66-72).

Teeth whitening with carbamide peroxide is different from hydrogen peroxide. First, carbamide peroxide breaks down into hydrogen peroxide and urea. 10% carbamide peroxide breaks down into 6.6% urea and 3.4% hydrogen peroxide. The urea then breaks down into carbon dioxide and

ammonia (Associates CR, 2003:11-27). The hydrogen peroxide intermediate product breaks down into water and oxygen via perhydroxyl free radicals.

### Conclusion

Another theory for the mechanism of the peroxide reaction is the opening of the carbon rings of the pigment molecules, which turn into chains that lighten the color. Yellow double-bonded carbon compounds turn into almost colorless hydroxyl compounds (Haywood, Robbins, Schwartz, 2001: 26).

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