



# Dental bleaching – Association of techniques to obtain effectiveness and naturalness.

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## INTRODUCTION

The smile is considered to be a fundamental accessory which composes the appearance and presentation of the individual in society. Globalization has made people increasingly exposed making the aesthetic standard more demanding and desired. The wellbeing of facial aesthetics is concentrated in factors as dental position, shape and color, i.e., white and aligned teeth (BARATIERI, 1996; FRANCCI et al, 2010).

Aesthetic treatments have held an outstanding position in contemporary dentistry. Aiming at minimally invasive alternatives in aesthetic recovery, tooth whitening is the most preserving treatment for resolving intrinsic staining, when comparing the restoration of compound resin, facets or crowns (CARDOSO et al, 2010; SAMPAIO et al 2010; RODRIGUES JR et al, 2002). Therefore, manufacturers of dental products are constantly developing improvements and new approaches to tooth whitening, devoting preserving and efficient techniques in order to meet demanding customer expectations (JOINER, 2006). The whitening treatment does not involve only aesthetic improvement, it also encompasses aspects as self-esteem, confidence and social positioning.

The yellowing color of the permanent teeth is instituted by the dentin. With the passage of time, there is an arrangement of repairing layers, which makes the dentin thicker, and dental wear, which in turn makes the enamel finer, thereby emphasizing the dental physiological darkening (BARATIERI et al, 2001)

The techniques for whitening are simple, and preserve the dental structure, besides producing excellent results when well indicated (MAIA et al, 2005). However, the greatest discomfort of this type of treatment lies in the possibility of dentinal hypersensitivity, regardless of the technique used. The choice of the whitening technique depends upon the type of chromatic alteration, professional preference and the patient's profile (MAIA et al, 2005; ZEKONIS et al, 2003). In composing this patient profile the etiology of the darkening and aspects which could lead to sensitivity, as lesions from erosion, abrasion or abfraction, cracks in enamel, starting lesions of caries and regions of incisal or occlusal wear.

Despite the well-known advantages of the technique of supervised whitening, introduced by Heymann & Haywood, in 1989, today often the professional's preference has been established for the associated technique (supervised and clinical), due to patient anxiety to obtain more immediate effects and the intention of a more stable treatment with greater duration of the results obtained.

The speed of the whitening process due to the clinical treatment leads to the patient being motivated to use the supervised technique with greater regularity, owing to the generally known effect of quicker results (HAYWOOD, 1992; CARNEIRO JR. et al 2010; RODRIGUES JR et al, 2002). This association combines speed and efficacy in obtaining satisfactory results for dental bleaching, as it reduces the treatment time and diminishes gingival irritation and dental sensitivity (DELIPERI et al, 2004). Several laboratory studies, in

vitro and in situ, were performed to evaluate the effects of this procedure on the dental structure, confirming that the supervised and clinical techniques do not harm the dental tissue and structures (MC CRACKEN, HAYWOOD, 1996; ARAÚJO JUNIOR, 2002; MAIA, 2002; JOINER; THAKKER; COOPER, 2004; MONDELLI et al, 2012).

Factors as the concentration of the gel, capacity to attain the long molecular chains and break them, quantity and duration of the applications directly affect the degree of whitening (JOINER, 2006).

The present article reports a clinical case of tooth whitening through the associated technique (supervised and in the clinic), emphasizing the result of the treatment, as well as the presence or absence of discomfort, as that of dentinal sensitivity.

### **REPORT OF THE CLINICAL CASE**

Patient of the male sex, 21 years old sought dental attendance with the main complaint the high degree of yellowing of his teeth (Figures 1 and 2). After anamnesis and the execution of a determined clinical examination, there was noted the absence of restorations in the front region, absence of cracks, areas of wear or cervical lesions.

Aiming to follow the whitening protocol with the associated technique, at first prophylaxis was executed with a Robson brush and pumice stone/water. The color of the teeth was selected through the Vita Scale, having as start reference the color A3 for incisors (Figure 3a) and A3.5 for canines (Figure 3b). Then, upper and lower plaster models were obtained, and tray made in acetate plates of 1 mm (Plate for trays Whiteness, FGM, Brazil).

The soft tissue was protected with the photopolymerizable gingival dam (Clàriant Angelus® Dam, Angelus®, Brazil) (Figure 4) and lip retractor. As per the manufacturer's instructions, the whitening gel with a hydrogen peroxide base at 35% (Clàriant Angelus® Office 35%, Angelus®) was handled and applied to the vestibular surfaces of the upper and lower teeth to the first molars (Figure 5). The gel was maintained in position for 40 minutes. Then, it was removed with the aid of a suction cannula.

After executing the whitening session in the dental clinic, the patient was instructed to continue with the whitening procedure using the supervised home technique. For this stage the whitening gel with a carbamide peroxide base at 16% was selected

(Clàriant Angelus® Home 16%, Angelus®). The patient was guided regarding the quantity and means of application of the whitening gel in the trays, period of use, as well as the importance of the frequency of daily use for a successful treatment. The patient made use of the whitening gel in the trays for three consecutive weeks, using them in the night period. The patient was guided to return weekly, when the whitening level was evaluated, and possible complaints concerning gingival irritation, dentinal sensitivity or any other discomfort checked.

After this period a satisfactory result was achieved, obtaining a color whiter than B1 of the Vita Scale (Figures 6a and 6b).

The patient reported total satisfaction regarding the aesthetic color result (Figures 7 and 8), as well as the absence of dental sensitivity and gingival irritation during the post-treatment.

### **DISCUSSION**

Tooth whitening is one of the aesthetic procedures most sought after by patients seeking an improved appearance of the smile (CARNEIRO JR. et al 2010). Harmonizing the surface structures with the dentolabial integration provides, among other benefits, increased self-esteem.

To execute whitening a careful clinical and radiographic examination is required to check the presence of factors which may affect dental sensitivity during and after treatment. Dental sensitivity is the collateral effect most usually found during dental bleaching (RODRIGUES JR et al, 2002).

In the clinical case reported, the treatment did not generate any type of discomfort or sensitivity, which allowed the color desired by the patient to be obtained, satisfying requirements. Ratifying the importance of the correct choice of technique, as well as the whitening gel used from the range of variety made available in the dental market.

### **CONCLUSION**

At the end of the treatment, it can be concluded that the bleaching technique associated with the use of bleaching gel with a hydrogen peroxide base at 35% (Clàriant Angelus® Office 35%, Angelus®) in the dental clinic, and bleaching gel with a carbamide peroxide base at 16% at home (Clàriant Angelus® Home 16%,

Angelus®) produced, in this case, satisfactory results in whitening natural, vital and yellowed teeth, without causing dental sensitivity.

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## Photos

**Fig 1. Start aspect of the patient's smile.**



**Fig 2. Start front intraoral image.**



**Fig 3.** Start taking of the color with the Vita Scale. Color A3 as reference for the Incisors (3a), and color A3.5 for canines (3b).



**Fig 4.** Photopolymerizable gingival dam (Clàriant Angelus® Dam, Angelus®, Brazil) applied from second premolar to second premolar, in the upper and lower arches, covering up to 1 mm of the cervical region of the teeth.



**Fig 5.** Total covering of the teeth with the whitening gel with a hydrogen peroxide base at 35% (Clàriant Angelus® Office 35%, Angelus®).



**Fig 6.** After whitening treatment ended, final taking of color with the Vita Scale, color B1 – whiter aspect of the teeth related to the scale, both regarding the Incisors (6a) and the Canines (6b).



**Fig 7.** End aspect of the patient's smile.



**Fig 8.** End front intraoral image.





**Fig 9. Comparison of the end color of the whitened teeth (B1) with the start reference (A3 and A3.5) obtained by the Vita Scale.**

