

# Dental Bleaching

By Dr. Roberto Turrini, Italy

Managing aesthetic restorations in presence of discolored teeth is a challenge for both the clinical team and clinician, whose aim is to use methods which are as minimally invasive as possible, and materials which allow the preservation of dental tissue. Should one wish to act on the discoloration of either teeth which are to be restored, or on adjacent ones, it becomes essential to take action on dental tissues through bleaching and dental restoration using materials which allow various clinical situations to be managed such as those with different tonalities between the teeth: prosthetic materials which thus offer adequate uniformity in their results in those areas where it is necessary to mask the discoloration. The use of technology such as bleaching, and ceramic materials simultaneously can achieve excellent cosmetic results. This article intends to explain how to integrate bleaching compared to prosthetic treatment, in terms of time, in the various cases of discoloration, and what factors to consider when choosing the timing.

## I) Pre-operative bleaching:

Can be done on teeth which need to be restored or on those which do

not have to undergo any therapeutic treatment, and we may differentiate three possible situations:

- If the treatment plan includes the improvement in both arches and the restorative rehabilitation involves only a few teeth, then whitening should be done on all the teeth, whether they need restoring or not. In this case restorative rehabilitation will be performed by matching the color obtained by whitening. We can use an in office technique (Pic.1) or an home-bleaching one (Pic. 2)

- If the tooth color of those elements which did not need to be restored is not corrected, then perform the bleaching only on those teeth needing to be restored being as less invasive as possible and using more transparent materials.

- If the discolored tooth is instead a treated root canal lacking pin reconstruction, perform the bleaching internally and externally.

After rehydration of the tooth has occurred, a reevaluation of the color should be made. If the result is already satisfactory a more invasive restorative treatment can be avoided (Pic.3,4)

Materials and methods available on the market can be used to standardize the color of one or more teeth. This is a determining factor when testing the ability of teeth to be whitened and then resorting to restoration which will be done by adapting to the color obtained.

This procedure requires a waiting period of 20 days prior to revealing the color of the end product and its adhesive cementation. In fact, it is important that the result is stable before matching the color, because after whitening, tooth rehydration occurs with a slight decrease in value. Adhesive cementation however, should be postponed in order to avoid that the peroxides inhibit the polymerization, therefore a 20 day waiting period must elapse.

## II) Intra-operative bleaching:

It is only used on teeth needing restoration after performing the preliminary preparation of the abutment. It should be used to enhance the color of the abutment, and can be either external or internal if the tooth is non-vital. It can be done after the preoperative bleaching or replace it when the tooth has previous composite restorations that do not allow the bleach to reach the dental tissues.

The advantage compared to preoperative bleaching is that peroxides act on the abutment and not on the outer portion of the tooth which will then be eliminated. The preliminary preparation and the choice of restorative material should be subsequently adjusted to the obtained result.

Even for this procedure is appropriate to wait 20 days before proceeding to abutment color recognition and the adhesive cementation.

## III) Post-operative bleaching:

It only acts on non-restored teeth. It serves to even out natural teeth color to that obtained by restoration if we

realize there is a color difference after the final cementation.

It is carried out using a home technique with the use of personalized masks or an "in-office" technique by applying the whitening gel only on the teeth to be treated. When the procedure is specifically scheduled and restorations are performed solely to enhance, it is essential that the operator knows the potential of the whitening products very well in order to predict the results. To obtain a homo-geneous result you can use the whitening technique known as Differential Method Home Care (SDMD), indicating a differential treatment time for each individual tooth at home. Post-operative bleaching can be also be used to treat any lapses in whitening.

## Bibliography

1. Sibilla P, Cogo E, Turrini R, Calura G, Fradeani M. The timing and operational management of the variables of bleaching in cases of rehabilitation in the aesthetic field. *Int Jour Est Dent*, Autumn 2014, Vol.9, Issue 3, pg. 436.
2. Magne P, Douglas WH. Porcelain veneers: dentin bonding optimization and biomimetic recovery of the crown. *Int J Prosthodont*. 1999 Mar-Apr; 12 (2) :11-21
3. Krämer N, Lohbauer U, Frankenberger R. Adhesive luting of indirect Restorations. *Am J Dent*. 2000 Nov; 13 (Spec No): 60D-76D.
4. Vichi A, Ferrari M, Davidson CL. Influence of ceramic and cement thickness on the masking of various types of opaque posts. *J Prosthet Dent*. 2000 Apr; 83 (4) :412-7.
5. Chang J, Da Silva JD, Sakai M, Kristiansen J, Ishikawa-Nagai S. The optical effect of composite luting cement on all ceramic crowns. *J Dent*. 2009 Dec; 37 (12) :937-43. Epub 2009 Aug 4.
6. Dishman MV, Covey DA, Baughan LW. The effects of peroxide bleaching on composite to enamel bond strength. *Dent Mater*. 1994 Jan; 10 (1) :33-6.
7. Amaral C, Jorge A, Veloso K, Erhardt M, Arias V, Rodrigues JA. The effect of in-office bleaching in combination with intracoronal on enamel and dentin bond strength and dentin morphology. *J Contemp Dent Pract*. 2008 Jul; 9 (5) :17-24.
8. Shinohara MS, AR Peris, JA Rodrigues, LA Pimenta, Ambrosano GM. The effect of nonvital bleaching

on the shear bond strength of composite resin using three adhesive systems. *J Adhes Dent*. Autumn 2004; 6 (3):205-9.

9. Cogo E, Sibilla P, Turrini R. Sbiancamento dentale: metodi per il successo. *Quintessenza Edizioni*, Milano, Italia.

10. Spear F, Holloway J. Which all-ceramic system is optimal for anterior esthetics? *J Am Dent Assoc*. 2008 Sep; 139 Suppl: 19S-24S.

11. Chaiyabutr Y, Kois JC, Lebeau D, Nunokawa G. Effect of abutment tooth color, cement color, and ceramic thickness on the optical Resulting color of a CAD / CAM glass-ceramic lithium disilicate-reinforced crown. *J Prosthet Dent*. 2011 Feb; 105 (2) :83-90.

12. Fabbri G, Mancini R, Marinelli V, Ban G. Anterior discolored teeth restored with pro-cera all-ceramic Restorations: a clinical evaluation of the esthetic outcome based on the thickness of the core selected. *Eur J Esthet Dent*. 2011 Spring; 6 (1) :76-86.

13. Manicone PF, Rossi Iommetti P, Raffaelli L. An overview of zirconia ceramics: basic properties and clinical applications. *J Dent* 2007; 35:819-826.

14. Vagkopoulou Zirconia in dentistry: Part 1. Discovering the nature of an upcoming bioceramic. *Eur J Esthet Dent* 2009 Summer; 4 (2):

15. Baratieri LN, Coral Neto AC, Monteiro Junior S, Caldeira de Andrada MA, Vieira Cardoso LC. The sandwich technique, an alternative treatment for tetracycline-stained teeth: a case report. *Quintessence Int* 1991; 22 (12) :929-933.

16. Magne M, Magne I, Bazos P Paranhos MP. The parallel stratification masking technique: an analytical approach to predictably mask discolored dental substrate. *Eur J Esthet Dent*. 2010 Winter; 5 (4) :330-9.



Pic 1



Pic 2



Pic 3



Pic 4



**Dr. Roberto Turrini**  
He works in Pesaro in several offices dealing restorative, endodontics and prosthodontics with particular interest in esthetic dentistry.

Author of several scientific articles published in Italian and international magazines, he is co-author with Dr. Enrico Cogo and Dr. Pietro Sibilla of a text about dental bleaching, published by Quintessence International in 2011 ("Dental bleaching: methods for success"), translated in German and Spanish and actually in translation into other languages.

## Hands-On Training in Dubai Dental Bleaching

Tutor: Dr. Roberto Turrini, Italy

Date: 06 May 2017 | 10:00 - 18:00

Venue: InterContinental Hotel Festival City, Dubai, UAE

Target Audience: Dentists, Dental Hygienists

6 CE Credits

## Course Abstract

Nowadays the clinician is faced with the difficult challenge of covering discoloration sometimes quite severe.

Currently we can use extremely predictable techniques of dental bleaching, allowing sometimes to avoid the covering discolored elements, achieving excellent results in terms of aesthetics and durability. The choice of extremely versatile products, together with the use of appropriate techniques, facilitates the clinician in cases of discoloration of medium severity.

In contrast, in more complex situations, which require changes in shape, color and position, it is possible to use high-performance ceramic materials, in order to perform high aesthetic rehabilitations, however using minimally invasive procedures.

Join  
Hands-On Training  
06 May 2017  
www.cappmea.com/cadcam  
DUBAI