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A new method is developed for predicting shade improvement after teeth bleaching

December 22nd, 2010

Researchers at the University of Granada have developed a new method for predicting the precise shade that a bleaching treatment will bring about for a patient's teeth. What is innovative about this method is that it allows researchers to successfully predict the outcome of a bleaching treatment, which will have a significant impact on such treatments, which are becoming more frequent.

At present, dental offices routinely employ carbamide peroxide bleaching agents for tooth discoloration. As bleaching treatments have soft side effects -all of them temporary and mild- and are relatively cost-effective, they have become very popular.

While bleaching treatments have been long applied, one of its main problems has been the inability to predict the outcome of the process. This means that, so far, dentists have been unable to predict the results for patients' teeth. This means that dental physicians could not inform their patients on the shade improvement that the treatment would bring about, which was a limitation to the therapy.

The study was conducted by **Janiley Santana Díaz**, at the Department of Stomatology of the University of Granada and was coordinated by professors **Rosa M^a Pulgar Encinas**, **M^a Del Mar Pérez Gómez** and **Luis Javier Herrera Maldonado**. Using a fuzzy rule system, scientists had a first approach to the shade improvement that teeth can get after undergoing a 20% carbamide peroxide treatment (Opalescence® PF 20%, Ultradent) two hours a day for two weeks.

Participants

For the purpose of this study, authors took a sample of 53 subjects that subsequently underwent a teeth bleaching treatment. Before the bleaching treatment, participants answered a questionnaire on their eating habits so that scientists analyzed whether such habits had any impact on the prediction models. The researchers found that eating habits are not relevant to such models, so these factors were not considered in the study.

To illustrate the shade change expected after the teeth bleaching treatment, the University of Granada researchers designed a fuzzy system that allows to associate these instrumental measures to the commercial shade guides typically used at dental offices to identify the before-and-after tooth color.

Such association allows to establish a series of objective guidelines that, once the before-tooth color is identified with the closest shade of the guide, will allow both dentist and patient to predict the color that the teeth will get after the treatment.

All in all, researchers warn that, in the long term and given the limitation of any clinical trial, a wider range of patients and initial tooth colors would be required to obtain a more precise fuzzy system.

Provided by University of Granada

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