



Teeth Whitening Fact Sheet

History of Teeth Whitening

Teeth whitening has a long history and has evolved into one of the most popular aesthetic dental treatments available. From “chew sticks” made from twigs dating back to 3000 B.C. and the ancient Romans’ discovery that ammonia in urine could serve as a bleaching agent to today’s use of various forms of peroxide to safely whiten teeth, the quest for “pearly whites” threads throughout the history of oral health.ⁱ

In the 1800s, the discovery of fluoride’s teeth protecting capabilities allowed for new oral hygiene opportunities. And, in the 1980s, modern teeth whitening methods were introduced, using a new formula that included peroxide and came in various forms, most notably in wearable trays that were filled with whitening gels.ⁱⁱ Since then, whitening options have evolved to include toothpastes and whitening strips that are available at the supermarket as well as professional options, such as light-activated whitening.

The need for teeth whitening may be caused by the numerous factors that can discolor teeth. Common causes of yellow or discolored teeth include:ⁱⁱⁱ

- **Aging:** It is to be expected that with age the shade of a person’s teeth will darken. With age the thickness of a tooth’s enamel becomes thinner, thus revealing more of the (darker) dentin that lies underneath.
- **Genetic Factors:** There is no one specific color that a person’s teeth are supposed to be, or should be. Due to inherited genetic factors, some people’s teeth are just naturally lighter or darker in color than others.
- **Food & Drinks:** The consumption of wine, soda, coffee and tea, as well as food like apples, potatoes and beets, can cause discoloration.
- **Tobacco Use:** Smoking and smokeless tobacco can cause staining on the teeth.
- **Poor Dental Hygiene:** Insufficient brushing and flossing, especially in conjunction with frequent use of staining substances such as drinks, food and tobacco, can cause teeth discoloration.

- **Disease/Medications:** There are a number of diseases that can affect oral health and the color and appearance of teeth. In some cases, disease treatments, such as medications, may have side effects resulting in teeth discoloration. Certain antibiotics like tetracycline and doxycycline are known to cause teeth discoloration when given to children developing their teeth.
- **Tooth Trauma/Root Canal Treatment:** Events associated with causing or treating tooth nerve tissue damage can result in gray or brown tooth discoloration. These events include traumatic incidents (an accident or fall) and root canal treatment. The stain only forms within those teeth (typically one or just a few) that have been directly affected by the event.

Importance of a Smile

Research from the American Academy of Cosmetic Dentistry (AACD) found that virtually all Americans believe a smile is an important social asset. In fact, according to a survey conducted by the AACD, most adults believe an attractive smile may make a person more appealing to the opposite sex and an unattractive smile may negatively impact a person’s chances for career success.^{iv}

Aside from these potential benefits of an attractive smile, teeth need care and attention like any other part of the body, and teeth whitening could play an important role in healthy teeth maintenance.

Options for Teeth Whitening

Many factors play into what kind of whitening is ideal for each patient. Since there are a number of methods available for teeth whitening, it is important to consult a member of the dental team – dentist, hygienist or dental assistant – to determine which method is appropriate. Current teeth whitening materials are based primarily on either hydrogen peroxide or carbamide peroxide.^v Hydrogen peroxide is a stronger and faster whitening agent typically used for in-office whitening while carbamide peroxide is most commonly found in at-home or over-the-counter (OTC) whitening agents.^{vi,vii}

There are three common categories of teeth whitening:^{viii,ix,x,xi}

Professionally-Applied Teeth Whitening:

Professionally-applied whitening is any whitening procedure (light-activated or non light-activated) performed within a dental office, under the direction and care of a dental professional. In-office whitening products use much stronger gel for a shorter period of time, making typical in-office whitening procedures 75 to 90 minutes in length. A technologically advanced in-office whitening method is light-activated, which involves using a beam of light on the desired areas of the mouth. Clinical studies have shown that when a light source is added to the whitening process, the results are enhanced.^{xii} The treatment begins by applying whitening agents like hydrogen peroxide gel or carbamide peroxide gel on the tooth enamel. The gel is then activated using a controlled light.

Professionally-Prescribed Whitening:

Professionally-prescribed whitening is any whitening material dispensed by a dental professional for a patient to use at home either as their main whitening treatment or for maintenance after an in-office whitening treatment. These products may be used during the day or night, depending on a patient's lifestyle. Take home products are usually gels sold as blends of carbamide peroxide and hydrogen peroxide, and work by placing the gel into custom-fitted trays that are placed over teeth. As the peroxide in the gel breaks down, hydroxyl radicals enter the teeth to whiten the stains over a period of time.

Consumer-Purchased/OTC:

Consumer whitening products are any whitening material available for consumers to purchase for home use without seeing a dental professional, such as those available at drug stores, which include whitening toothpastes, rinses, gels, chewing gum, paint-on films, whitening strips and whitening kits with boil and bite or non-customized mouth trays. Unlike professionally prescribed products, not all consumer-purchased products contain peroxide as the active ingredient.

Teeth Whitening Precautions/Side Effects

While teeth whitening is generally safe, it is recommended that the following whitening candidates speak to a dental professional before undergoing any whitening treatment:^{xiii}

- Pregnant and lactating mothers
- Those currently being treated by their physician for a serious illness or disorder
- Children under the age of 16 years

Side effects with professional teeth whitening are minimal. The most commonly reported side effect is teeth sensitivity. Some people experience temporary increased sensitivity due to hot or cold foods during or

right after treatment. These symptoms usually disappear within 1-3 days after interruption or completion of the treatment.^{xiv}

Teeth Whitening Aftercare

Teeth whitening is not permanent. The results depend on many variables including the properties of a person's teeth, the products and methods used to whiten teeth and lifestyle habits. People who expose their teeth to foods and beverages that cause staining may see the whiteness start to fade in as little as one month.^{xv} Those who avoid foods and beverages that stain may be able to wait one year or longer before another whitening treatment or touch-up is needed. To keep teeth looking their best, it is important to maintain proper oral hygiene. Floss each day, brush twice a day and speak regularly with a dental professional.^{xvi}

The American Dental Hygienist Association (ADHA), with the Get It Right! campaign, emphasizes the importance of speaking with a dental hygienist or other dental professional to get advice on the best treatment option. The Get It Right! campaign is made possible by Philips, the makers of Sonicare power toothbrushes and Zoom whitening.

i Sparks, Lisa Vernon. A History of Tooth-whitening. The Seattle Times. Retrieved July 13, 2011 from http://seattletimes.nwsource.com/html/health/2013419604_teeth16.html.

ii Sparks, Lisa Vernon. A History of Tooth-whitening. The Seattle Times. Retrieved July 13, 2011 from http://seattletimes.nwsource.com/html/health/2013419604_teeth16.html.

iii Williams, Darren. Dental Health and Tooth Discoloration. WebMD. Retrieved July 26, 2011 from <http://www.webmd.com/oral-health/tooth-discoloration>.

iv American Academy of Cosmetic Dentistry's Whitening Survey, 2011. AACD. Retrieved July 28, 2011 from <http://www.aacd.com/index.php?module=cms&page=717>.

v Tooth Whitening/Bleaching: Treatment Considerations for Dentists and Their Patients. ADA Council on Scientific Affairs. Retrieved July 28, 2011 from http://www.ada.org/sections/about/pdfs/HOD_whitening_rpt.pdf.

vi Kihn P, Barnes D, Romberg E & Peterson K (2000). A Clinical Evaluation of 10 Percent vs. 15 Percent Carbamide Peroxide Tooth-Whitening Agents. *Journal of the American Dental Association* 131(10): 1478-1484.

vii Hydrogen Peroxide Teeth Whitening Gel. Teethwhitening.com. Retrieved August 5, 2011 from <http://www.teethwhitening.com/dentist-laser-whitening/peroxide-whitener.html>.

viii Menage Bernie RDH, BS, Kristy. Get the Facts on Tooth Whitening. ADHA.org. Retrieved July 28, 2011 from www.adha.org/downloads/tooth_whitening_factsheet.pdf.

ix FAQ. Teethwhitening.com. Retrieved July 28, 2011 from <http://www.teethwhitening.com/reference/faq.html>.

x What Is At-Home Teeth Whitening & Bleaching? Teethwhitening.com. Retrieved July 28, 2011 from <http://www.teethwhitening.com/teeth-whitening/at-home-teeth-tray-bleaching.html>.

xi Tooth Whitening/Bleaching: Treatment Considerations for Dentists and Their Patients. ADA Council on Scientific Affairs. Retrieved July 28, 2011 from http://www.ada.org/sections/about/pdfs/HOD_whitening_rpt.pdf.

xii Ontiveros JC, Paravina R, Ward MT. Clinical Evaluation of a Chairside Whitening Lamp and Bleaching Efficacy. *Journal of Dental Research*. Vol. 87 (Special Issue A): 1081, 2008.

xiii Williams, Darren. Dental Health and Tooth Discoloration. WebMD. Retrieved July 26, 2011 from <http://www.webmd.com/oral-health/tooth-discoloration>.

xiv FAQ. Teethwhitening.com. Retrieved July 28, 2011 from <http://www.teethwhitening.com/reference/faq.html>.

xv Tonn, Elvern DDS. Guide to Teeth Whitening. WebMD. Retrieved July 28, 2011 from <http://www.webmd.com/oral-health/guide/teeth-whitening>.

xvi FAQ. Teethwhitening.com. Retrieved July 28, 2011 from <http://www.teethwhitening.com/reference/faq.html>.