

Frequently Asked Questions on Tooth Whitening Safety

1. Should a dentist be consulted before tooth whitening?

Seeking advice about tooth whitening from a dentist before proceeding, as recommended by the American Dental Association, will help ensure that tooth whitening is the right choice for the patient. Safety and oral health are the dentist's primary considerations. A health care professional selects and/or recommends products appropriate for the individual's situation and needs. Depending on the whitening product and procedure, oral conditions such as dry mouth (lack of saliva) and tooth decay may be important in the treatment decision process. Seeking whitening services in a professional dental setting addresses another important aspect of safety: overall oral health will be evaluated and recommendations will be made for necessary treatment. Some discolored teeth may not respond well to whitening, and/or the discoloration may be due to oral health problems, such as a damaged or dead tooth pulp (nerve). Finally, seeking professional care also means that the patient will be monitored throughout the whitening process and any side effects or problems can be identified and addressed. Home-use whitening may be prescribed by a dentist (the dentist supplies the whitening products), or whitening can be done in the dental office. In either case, the individual is monitored for whitening results and possible side effects.

2. What type or amount (concentration) of a whitening agent is safe?

A specific concentration or upper limit cannot be stated since the amount of whitening agent is only one of many factors that may affect patient safety. The concentration of the chemical whitening agent is only one part of the equation. The acidity level (pH), the application time (minutes per use and/or number of applications), the amount of product used per application, other product ingredients, and the application method are some of the many factors that can affect safety. No specific limit on the amount of whitening agent in tooth whitening products has been established in the United States, although some agencies in other countries have suggested limits for products available directly to consumers. At this time, the answer to this question of a "safe amount" is unknown. An answer may be determined through ongoing research on a range of product types and strengths. Limits may be discovered too as marketed products continue to change, if these changes result in an unacceptable increase in adverse effects.

3. Are tooth whitening products safe?

While tooth whitening products today are generally considered to be "safe" when used as directed, safety is often relative and not normally an absolute. As a result, there are benefits and risks just like most dental products or

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treatments. The safety of tooth whitening agents that “bleach” the teeth by a chemical action (rather than abrasives that remove surface stains) depends on many factors and side effects are possible. Most commonly, tooth sensitivity can occur. Unless sensitivity was present before tooth whitening, this side effect will normally clear up within two to three days of discontinuing use of the whitening product. The gums may also be irritated by the whitening materials in some cases, especially if the products are overused or not applied properly. The whitening chemical penetrates into the tooth to lighten the color and it can be detected in the dental pulp (nerve and blood vessel area inside the tooth). This finding has not been associated with long-term tooth problems up to now. The whitening agents seem to be tolerated well by most people, most of the time. Problems should prompt users to discontinue use, speak with their dentist, and/or call the manufacturer to report the problem.

4. Can tooth whitening products cause other adverse effects on the teeth, gums or dental work?

Reports of damage to teeth have been rare and these may have been associated with the acidity (pH) of the product and other factors. It is well-known that too much acid can cause damage to the tooth structure. More long-term / repeated-use research studies in humans are needed to fully answer this question. Some reported effects are: changes to the tooth (enamel) surface structure; gum irritation or burns; release of some filling material components; and decreased bond strength of some filling materials to tooth structure. The results from tests performed so far on whitening products do not always agree about the extent or the type of adverse effects that may occur. Although not an adverse effect, a common complaint after tooth whitening is that dental restorations (fillings, crowns, etc.) DO NOT lighten as the natural teeth do. The color of these dental materials is not affected by tooth whiteners, causing problems for users who have restorations that show when they smile.

5. Is tooth whitening safety different if performed in different settings?

The type of product used and how it is applied may vary in different settings. Both factors can affect safety so following directions is very important. There are two main chemical whitening agents used in virtually all tooth whitening products (carbamide peroxide (also called urea peroxide) and hydrogen peroxide). Less is known about the safety of other chemicals used for tooth whiteners. An example is chlorine dioxide (sometimes used for disinfecting public water systems). Talk to a dentist as discussed above and/or ask questions. Besides seeing a dentist, consumers may purchase tooth whitening products over-the-counter in various retail outlets. In some states consumers may also have their teeth whitening in non-dental settings such as beauty salons or shopping malls. The following responses provide more information.

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6. What about over-the-counter (OTC) whitening products?

Safe use of these products by the public depends on many factors, such as the amount of whitening agent in a product; how a product is applied and the time; and duration and frequency of application. These can vary from product to product. Consulting with a dentist can help, especially so that oral health can be assessed before whitening. An important point is that many people may think that if a little of something is good, a lot is better. The directions for use should always be followed very closely to prevent problems. Although the concentration of marketed chemical whitening agents in products has increased over the years, many products are well-tested before they are marketed and tests may continue after marketing too. However, some products may have undergone little or no testing. All this means that each consumer needs to keep their own safety in mind by asking questions, investigating the products and following directions.

7. What about whitening in non-dental settings such as a mall kiosk?

In a kiosk venue or other non-dental location, the consumer may be unaware of the whitening products used, their strength, how often they should be applied or the qualifications of the individuals providing them. If the chemicals used to whiten teeth are not properly applied, they have the potential to increase the number and severity of adverse effects. Employees in these settings may wear scrubs or a clinic-style uniform, so the setting may look like a healthcare facility or dental office but often that's not the case. The consumer should ask questions and receive appropriate responses about safety of the tooth whitening products and the qualifications of the facility personnel (see examples in response #9 below).

8. Does the Food and Drug Administration (FDA) evaluate, approve or monitor the safety of whitening products?

FDA has not classified tooth whitening products and as a result a formal submission of research results to FDA is not required before products are marketed. In the absence of classification, the products are generally developed and marketed as “cosmetic” products. The tooth whiteners available over recent years have been tolerated well; however, the products continue to change at a rapid pace. Much of what is known about tooth whitening materials is based on products that have been marketed for some time. Less is known about new products as they are introduced since little research may be available for them. This can vary widely though, since some companies commit extensive resources to evaluate their products (laboratory and human research) both before and after they are marketed, and their research results are published in peer-reviewed professional journals and other publications. However, others may conduct only limited testing or almost no scientific evaluation of the safety of their whitening products. Clinical studies provide important information but may not reflect what happens when consumers use these products on their own without consulting a dentist.

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9. Since whitening products are not classified by FDA presently, how do patients/consumers know if products are safe and effective?

Regardless of where the whitening will be done (at home, in a dental office or another location like a mall kiosk) talking with a dentist will help to answer questions about safety. This can apply to the whitening products and procedures and to your oral health as noted in a later response. If a consumer does not see a dentist, then a “buyer beware” approach may be helpful. This simply means that consumers are advised to be prudent and ask questions about the product. This will help consumers understand what risks may be involved, whether the product is purchased over-the-counter or whitening services are provided by someone else. Is the manufacturer well-known? Have others complained about the product or service? Have studies been conducted by the company to evaluate safety and effectiveness? If in a non-dental setting, are infection control procedures followed? What are the qualifications, experience and training of the facility personnel? Will my teeth and mouth tissues be examined by a dentist before whitening? Who do I see or talk to if I have problems during treatment? Common sense principles certainly must be part of “safe use” by the public, since the tooth whitening products have the potential to cause harm. These include reading and following the directions closely for home use products and asking questions before services are performed.

10. What is the “bottom line” on tooth whitening safety today?

Whether tooth whitening is performed under the care and supervision of a dentist, self-applied at home or in non-dental setting, whitening materials are generally well-tolerated when used appropriately and according to directions. Tooth sensitivity is not unusual but it normally is self-limiting and resolves. Tooth whitening materials may affect tooth structure, fillings and the gums if abused or not used properly. Tooth whitening products have not been associated with reports of general (systemic) toxicity or carcinogenicity. Importantly, proceeding with tooth whitening without consulting a dental professional may miss untreated dental disease: patients with some conditions may not be suitable candidates for tooth whitening. In some cases discolored teeth may not be affected by whitening since the dark tooth color may be due to fillings and other dental restorations or dental diseases such as cavities (dental caries) or a dead or dying tooth nerve (pulp). Tooth whitening products continue to change, so it is important that consumers ask questions about their safety and if problems occur, report them to the manufacturer and seek advice from their dentist.