Dental Beauty Culture: Whiter than White?

By ACSH Staff — April 1, 1999

If movie stars and supermodels are our gauge of beauty, teeth should be straight, big, and ultra-white. Community water fluoridation and advances in oral hygiene have led to a major decrease in the incidence of tooth decay and, therefore, in the need for fillings—historically the mainstay of the dental profession. Dentists have responded to the economic impact of this decrease with an explosion of new procedures and marketing plans. An increase in the profitability of dental practice has resulted.

The normal color of teeth is yellow-white, not snow-white. Straight teeth may be attractive, but scientific evidence that they last longer than crooked teeth appears absent. On the other hand, cleaning "misaligned" teeth tends to be more difficult than cleaning straight teeth—and keeping teeth clean is essential for maintaining them. The size of teeth and the extent to which gum (gingiva) covers them are hereditary.

Bleaching

The easiest, cheapest, least invasive, and commonest way to whiten teeth is to apply a special hydrogen-peroxide gel to them. In such cases dentists provide patients with a customized tray whose purpose is to hold the bleach against only those teeth selected for whitening. The tray is also designed to prevent the bathing of gingiva and back teeth in the bleach and to limit the amount of bleach the patient swallows. It is expected that the patient will wear the tray for at least two hours daily for 10-14 days. For many, wearing the tray during sleep is convenient. Fees for such treatment range from $400 to $1,000.

Although the long-term safety of dental bleaching has not been established, the consensus is that it is safe if (a) the course of treatment does not exceed two weeks and (b) the patient refrains from undergoing such treatment again for at least 3-4 years. As for efficacy, it is impossible to know in advance how much lighter the teeth will become.

Patients with yellow-brown teeth tend to get the best results. The appearance of blue-grey teeth tends to improve little. The commonest side effect of dental bleaching is excessive sensitivity of the teeth to heat and cold. Another possible complication is damage to plastic (tooth-colored) fillings in front teeth.

Partly because their trays are not customized, over-the-counter (OTC) dental bleaching kits with trays are not as safe as the bleaching systems that dentists provide. Moreover, lengthy bleaching of teeth can dissolve some of their enamel. Those OTC dental-bleaching kits I've examined that have trays carry no warnings, and their portions of bleach are unsafely large.

Dentists can, as an office procedure, apply hydrogen peroxide in concentrations that exceed those
of systems designed for home use. The dentist may also activate the bleach with heat or with a 
very bright light, such as that from a laser. The fee for such an office procedure is comparable to 
that for the customized-tray procedure described above, but the office procedure is riskier both in 
terms of gum damage and in terms of sensitivity of teeth to temperatures.

**Lamination**

Dentists can also give front teeth a whiter (or otherwise different) appearance by "veneering" them. This involves removing a thin portion of a tooth and replacing that portion with a "veneer"—a laminate either of composite (tooth-colored acrylic plus filler) or of porcelain. Meticulousness is necessary for good results. But the improvement in the tooth’s appearance can be striking. Moreover—depending on the kind of laminate and how much of the tooth there had been, and its condition, at the outset of the procedure—the improvement can last as long as 20 years. Fees for plastic lamination range from $200 to $500 per tooth; for porcelain lamination, from $600 to $1,000.

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Lamination changes teeth permanently—that is, the loss of a laminate requires replacement or other dental intervention. Poor lamination or careless maintenance can result in decay at the laminate’s rim. Lam-inates can also spontaneously break or even fall off.

**Crowning Glory?**

The application of crowns (commonly called "caps") is the most invasive and expensive way to reshape teeth, straighten them, and/or give them a whiter appearance. To make a crown, the dentist grinds down every surface of the exterior portion of the tooth and takes an impression of the remaining external portion. A die (model) of this portion is made from the impression and, in a laboratory, is used to produce the crown. Materials that can acceptably compose crowns include gold, stainless steel, porcelain, and plastic. Crowns of pure porcelain are generally considered the most attractive, but bilayer gold-porcelain crowns are aesthetically comparable and much stronger. Thus, in the United States, they are the most commonly used crowns in the reconstruction of back teeth (which are subject to more wear and tear than front teeth). On the other hand, improper crowning can worsen the condition of the patient’s teeth and gum. Crowning can cost a patient from $500 to $1,500 per tooth.

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Correcting a "gummy" smile and tooth shortness (smallness) is difficult. Orthodontic treatment can be of use in some cases; usually, however, surgery is the only means of correcting these problems. To do so, the dentist—usually a periodontist ("gum specialist")—removes a portion of gum and bone. The appearance of a tooth that has been made longer-looking may be acceptable as is, but because such surgery tends to expose the embedded part (root) of the tooth, which is darker than the outer portion, lamination is typically considered necessary. The fee for correcting tooth shortness and a "gummy" smile ranges from several to many thousands of dollars.

**Nonprescription Dental Products**

Americans' consumption of OTC alleged dental whiteners and OTC alleged cures for halitosis ("bad breath") has been estimated at $350 million a year. These products include toothpastes, mouthwashes, and special chewing gums. No such OTC product contains enough hydrogen peroxide to affect the color of dental enamel. Furthermore, the hydrogen peroxide they may contain does not stay on teeth long enough to have any appreciable dental effect.

Some toothpastes contain papain, an enzyme used to tenderize meat, as a whitener. Papain can dissolve some stains, but salivary dilution and the brevity of normal brushing would prevent its doing so. Another popular dentifrice ingredient is baking soda (sodium bicarbonate). In 1996 an advisory panel to the U.S. Food and Drug Administration found that cogent evidence of anti-plaque or anti-inflammatory effects of baking soda was absent.

Some dentists specialize (unofficially) in treating halitosis. Solutions of chlorine dioxide, an algaecide commonly used in swimming pools, are marketed as halitosis remedies (at a considerable markup) through some dental offices. Scientific evidence that chlorine dioxide corrects halitosis—whose cause is almost always oral-hygiene inadequacy, periodontal disease, and/or smoking—is absent. The best way to deal with halitosis is to have one's teeth cleaned properly and regularly by a dentist or dental hygienist, to undergo periodontal therapy if it is necessary, to brush one's teeth and tongue carefully twice a day, to floss one's teeth daily and meticulously, and to refrain from smoking.

**Marketing Methods**

The psychological methods used to market cosmetic dental treatments are the movement's most noxious feature. Dentists are encouraged to evaluate every patient's smile. Sensitivity about one's physical appearance is common. A dentist who, in the context of a dental examination, asks a question along the lines of "Are you happy with the way your teeth look?" will very seldom get a positive reply. Dentists are convincing many patients that serious disease will result if they do not have a purely aesthetic problem treated. In my opinion, dental exams should be strictly diagnostic; that is, their sole purpose should be to evaluate the functional and pathologic condition of oral and related structures. Furthermore, dentists should not initiate discussions of aesthetics with patients.

The American Dental Association (ADA) differs. In the August 1997 issue of ADA News, the organization stated that "far from considering the offer to perform cosmetic dentistry a breach of ethics, the ADA believes that when dentists lay out all treatment options, including cosmetic dentistry, they are simply doing their jobs." Thus, the ADA affords the public no protection from
misdiagnoses and overtreatment in the name of cosmetic dentistry.

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