

## What Causes Tooth Stain?

### What Changes Tooth Color?

The causes of tooth discoloration are varied and complex but are usually classified as being either intrinsic or extrinsic.<sup>2</sup> Foods, beverages, and other external elements, such as tobacco smoke, can deposit on the tooth surface and create extrinsic discoloration. Systemic elements can stain the dentin (the principal mass of your tooth) and produce intrinsic discoloration.



#### Intrinsic Factors

- Tooth anatomy (enamel thickness)
- Medication (such as tetracycline) during tooth development
- Developmental abnormalities
- Systemic disturbances
- Trauma
- Fluoride overexposure (also known as fluorosis)

#### Extrinsic Factors

- Food or other debris
- Beverages (tea, coffee, cola, red wine)
- Tobacco
- Tartar and plaque



## A Whiter Smile!

### What You Need to Know Before Whitening Your Teeth

There are many reasons for wanting to whiten your teeth. Maybe you've always wanted a beautiful white smile, or maybe your teeth have yellowed over time, or stained over the years. A great smile with whiter teeth can boost your confidence and self-esteem as well as give you a younger appearance. Today, most everyone can enjoy a bright, healthy smile by undergoing one of the many options available to whiten teeth.

Tooth whitening—a process that makes teeth appear whiter—can be achieved by lightening teeth or removing stains and discoloration. Although advertising generally uses the term “tooth whitening” interchangeably, there are 2 different types of tooth stains, and successfully achieving a whiter smile depends on choosing the proper whitener for you.<sup>1</sup>

- **Intrinsic stain** is incorporated into the tooth structure and is best removed through the use of a product that can bleach the tooth and change the natural tooth color.<sup>1</sup>
- **Extrinsic stain** is the color or stain on the surface of the teeth, which can create a loss of tooth luster, shine, and brightness. Extrinsic stain is best removed through the use of nonbleaching whitening products that contain agents whose physical or chemical actions help remove surface stains.<sup>1</sup>

A thorough cleaning by a dentist or hygienist will remove most extrinsic staining caused by food and tobacco. But intrinsic stain or extrinsic stain that has remained on the teeth for a long period of time may require professional whitening or the use of over-the-counter whitening products that have been shown to be effective.

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# A Look at Tooth Whiteners

## Sensitivity?

Sensitivity may occur immediately after a whitening treatment when you eat hot or cold food, but it usually disappears after 48 hours or when treatment is stopped. If sensitivity persists, your dentist can prescribe a lower concentration whitening product or give you a desensitizing gel to use for a few minutes just before or right after each whitening treatment.<sup>3</sup>



## What If You Have Crowns, Caps, or Bondings?

Whitening products will not change the color of crowns, caps, or bondings. If you use a whitening agent, your natural teeth will be whiter, but your discolored crowns, caps, or bondings will be unchanged, possibly resulting in an uneven smile. However, there are options.<sup>4</sup> Your dentist can consult with you on alternatives.

## REMEMBER

Don't abuse teeth whitening products. Be sure to discuss with your dental professional what whitening treatment is best suited for you.

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## Which Tooth Whitening Option Is Best for You?

**In-Office Whitening:** If you are a candidate for whitening, your dentist may suggest a procedure that can be done in his or her office. Each visit may take from 30 minutes to 1 hour. The dentist will apply either a protective gel to your gums or a rubber shield to protect the oral soft tissues. A whitening agent (usually between 10% and 35% hydrogen peroxide) is then applied to the teeth. Some dentists will use either a special light or laser with the whitening agent, but research has demonstrated that the light often does not add to the overall end result.<sup>2</sup> In-office whitening usually requires 1 or 2 office visits at a cost of \$500 to \$1,000.<sup>5</sup>

**Take-Home Whiteners:** Your dentist can provide you with whitening trays and gels to whiten your teeth at home. The dentist will take an impression of your teeth and make custom whitening trays. You will then have to wear the trays filled with a whitening solution (usually 10% carbamide peroxide or hydrogen peroxide) for a certain amount of time each day.<sup>2</sup> This type of whitening usually requires 1 office visit plus anywhere from 3 days to 2 weeks of home use at a cost of \$300 to \$600.<sup>5</sup>

**Over-the-Counter Whiteners:** There are several types of over-the-counter tooth whiteners. With small plastic strips that wrap around the upper and bottom sections of your teeth, the bleaching solution (usually hydrogen peroxide) on one side of the strip rests along your teeth. Pastes can be painted on your teeth before you go to bed. Gels sold with noncustom-designed whitening trays also are available.<sup>6</sup> The strips should be worn twice a day for 30 minutes for 7 to 14 days. The pastes should be painted on once or twice a day for up to 2 weeks. Depending on the product, the whitening trays can be worn anywhere from 5 to 45 minutes for as little as 3 days or as long as 2 weeks. Over-the-counter whiteners cost from \$10 to \$55.<sup>5</sup>

**Whitening Toothpastes:** All toothpastes help remove extrinsic surface stain through the action of mild abrasives. Whitening toothpastes have special chemical or polishing agents (high-cleaning silicas) that provide additional stain removal effectiveness.<sup>1</sup> The toothpastes require daily use at a cost of about \$5.

**Reading the Package:** Whitening products contain either carbamide peroxide or hydrogen peroxide; however, the active ingredient in both types of products is hydrogen peroxide. In a water-based solution, carbamide peroxide breaks down into hydrogen peroxide and urea, with hydrogen peroxide being the active whitening agent.<sup>1</sup> Both types of products have been proven effective for tooth whitening. But, don't be fooled by the percentages:

- 1% hydrogen peroxide concentration is about equal to 3.5% carbamide peroxide concentration.<sup>5</sup>
- The concentration of whitening is highest in in-office whitening products, which usually contain from 15% to 35% hydrogen peroxide.<sup>1</sup> Next highest is in take-home whiteners, which usually contain 10% to 15% carbamide peroxide.<sup>2</sup> The lowest concentration is in over-the-counter whiteners, which contain lower amounts of peroxide or other chemical or polishing agents that provide additional stain removal.

## Disclaimer

*The content of this guide is for information purposes only. It does not substitute for the dentist's professional assessment based on the individual patient's case.*