



Tooth whitening *versus* stain removal

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What are the options and how can DCPs manage patient expectations? asks dental hygienist **Anna Middleton**.¹

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Discoloured teeth

This year's National Smile Month survey revealed that 48% of the population is unhappy with their teeth. Of this, 64% stated discolouration as the main reason. The quest for whiter teeth is an ever-growing beauty trend and patients ask me daily how they can brighten their smile.

There are now many different 'whitening products' and 'whitening providers' on the market, making it harder for patients to know which ones are safe, effective and won't leave them out of pocket. With more and more press coverage of rogue traders and teeth whitening horror stories, how can we better inform patients of their options and manage their expectations?

It is important to firstly identify what is causing the discolouration, keeping in mind that teeth naturally vary in shade due to the thickness of enamel covering the dentine. There are numerous types of stains – some are genetic, environmental or pharmacological in nature – however, the most common are surface stains on the enamel caused by things like red wine, tea, coffee, various foods and smoking.

So how do we tackle this? We can offer the options of stain removal or whitening, but patients often don't know which one will have the most effective results.

Stain removal

Let's look at stain removal as the first option,

which is ideal for those with extrinsic staining (stained enamel) and generally what the majority of patients have. Stain removal can be achieved during a routine hygiene appointment where the teeth are cleaned with an ultrasonic scaler and hand instruments to remove plaque deposits. The teeth are then polished with either conventional prophylaxis polish or 'Air-flow'.

'Air-flow' is a powerful combination of water, air and fine powder – usually sodium bicarbonate or erythritol-based powder. It will remove biofilm, surface stains and early calculus quickly and gently. The results are usually instant, leaving teeth smooth, bright and clean. It takes less than a few minutes at the end of a routine hygiene appointment and is used instead of conventional polish, which can be abrasive and scratch enamel.

'Air-flow' is a good first step before whitening as the teeth will be completely free of surface stains and deposits, leaving teeth looking whiter. The cost is minimal, usually between £50 and £100 for a 30- to 60-minute appointment.

Whitening

On the other side of the fence is whitening, and in fact, professional whitening is the only way to actually *change* the colour of teeth. Whitening is an extremely popular treatment as patients report feeling younger, more attractive and confident. However, there's a negative side to the growing popularity of whitening: rogue traders are capitalising on the eagerness and naivety of patients by offering illegal and unsafe treatment while claiming to provide the white teeth patients strive for. Yet despite all this, consumers are still dangerously misinformed.

Regulation and treatment

Teeth whitening used to be unregulated until 2012 when the European Union passed legislation stating that only dental professionals could perform teeth whitening procedures, providing they had the correct training. Even as a dental hygienist, I still need a prescription from a dentist to ensure a patient is dentally fit before I carry out the procedure. I constantly remind my patients that if they see whitening offered in a shopping mall or their local beauty salon, it is illegal.

EU regulation has also capped the level of the active ingredient used in whitening. Once upon a time the active ingredient, either hydrogen peroxide or carbamide peroxide, was as high as 38%. Today the maximum amount of active ingredient allowed is 6% hydrogen peroxide or 16% carbamide



Examples of stain removal

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peroxide. These are the only two chemicals that will change the colour of the teeth. The way it works is through the chemical reaction that breaks apart the carbon bonds that create yellow stains. Once the bonds are broken, they no longer reflect a yellow shade.

The products we can offer our patients are

safe and effective. Developments in whitening technology mean the process has become easy to do with minimal fuss or mess. Whitening is more expensive than stain removal, with prices ranging between £200 and £700. It does take time too with in-surgery whitening taking approximately 60 minutes, but for best



Examples of tooth whitening

results, patients should follow their treatment with at-home whitening for up to two weeks.

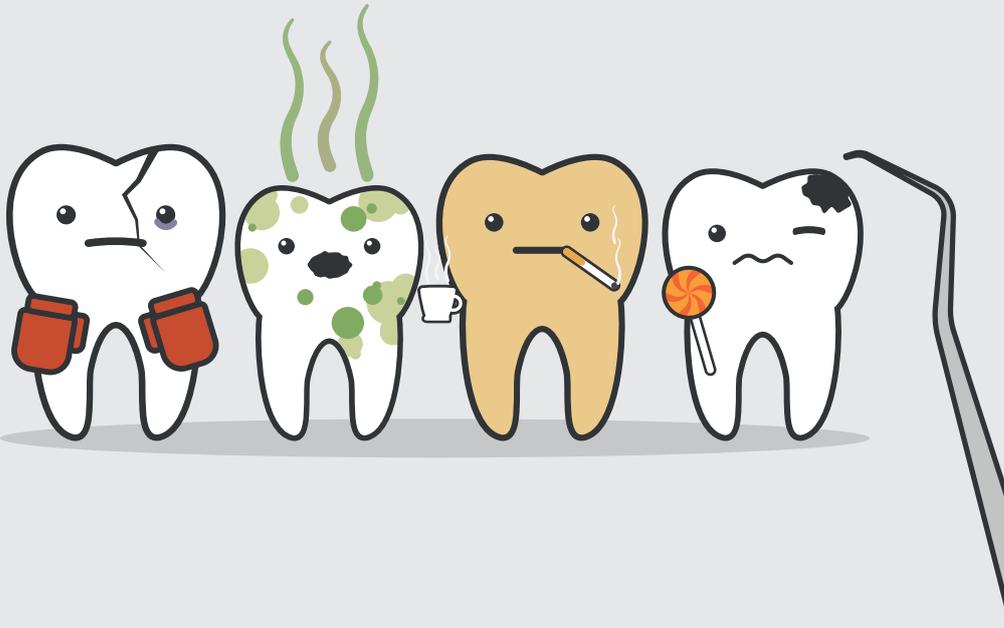
For patients who are budget conscious or short on time, Philips Zoom! QuickPro is a fantastic choice as it's a simple four-day take-home varnish system containing 6% hydrogen peroxide. The patient applies the varnish and sealant to the teeth using a brush, eliminating the need for trays, and leaves it on for 30

however there is no evidence to prove its effectiveness on stain removal. In fact, it may even contribute to negative aesthetic effects as the particles can become embedded in cracks in the teeth or restoration margins.

Setting realistic expectations

It is important to set realistic expectations for patients as results can vary. A full oral exam

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minutes. This is done twice a day for four days and will give a noticeably whiter smile, up to four shades whiter.

Outside of professional treatment, there's not much that can be done to improve the colour of teeth, despite what some products may say. However, that hasn't stopped oral hygiene brands from capitalising on the market by offering whitening and charcoal toothpastes, although patients should be cautious about using these.

While whitening toothpaste may remove surface stains, it can be abrasive and damage the enamel, making it even more prone to staining. It also doesn't contain any active whitening ingredients or may be missing key ingredients for healthy teeth, like fluoride. Charcoal toothpaste is not as abrasive,

looking at tooth anatomy, any calcifications, the patient's age, the condition of their dentition, their oral hygiene and lifestyle factors will help to best advise patients on which treatments would be suitable for them. Teeth with yellow and brown stains will achieve greater success when it comes to whitening, while those with grey shading from tetracycline or other medications may experience little to no results.

A few lifestyle changes can also make an enormous difference. Encouraging patients to give up smoking, cut down on alcohol and use a straw when consuming acidic drinks are all effective in reducing staining. I also like to warn patients against using chlorhexidine-based mouthwash without instruction from a dental professional as this could be the cause of their discolouration.

My top five tips

So, what is the secret to maintaining a healthy, bright, white smile? Here are the top five tips I provide my patients:

1. Invest in an electric toothbrush and brush twice a day with a fluoridated toothpaste, and be sure to include some form of cleaning in between the teeth, either with floss or inter-dental brushes.
2. Have regular dental and hygiene appointments. Visit the dentist at least once a year and the hygienist a minimum of twice a year to keep teeth healthy and gleaming.
3. Use a straw for drinks and try and rinse your mouth with water after consuming dark-coloured foods and drinks. Keep acids and sugars to meal times only, and aim for no more than three to four sugary/acidic snacks per day.
4. Chewing gum is not just for freshening breath. Sugar-free gum increases salivary flow, which can neutralise plaque acids, help remove food debris, strengthen teeth and reduce dry mouth. I suggest opting for chewing gums with Xylitol as an ingredient, as it can help fight tooth decay too.
5. Make lifestyle changes – quit smoking or cut back on the red wine and coffee. Your body will thank you and so will your teeth!

Did you see A clearer future for tooth whitening by Karen Coates?

Karen discussed the latest developments surrounding the ever-evolving battle against illegal tooth whiteners:

<https://www.nature.com/articles/bdjteam2015109>

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