

10 Rumours about Dental Bleaching

The question how far each of us would go to adhere to our time's ideal of beauty tends to stimulate potentially very interesting discussions. Which beauty procedures we consider quite normal, which we see as kind of exotic but would still at least consider having done to us, and which we think are definitely out-of-there-bizarre, is of course a question everybody answers a little differently. Still, our views of what is normal and acceptable are to no small degree shaped by our fellow human beings, our cultural environment, in short: society. And societal standards are subject to continuous change. As Europeans, we currently experience a somewhat momentous change in societal attitude towards dental bleaching.

In German-speaking countries, bleaching – basically considered a standard personal grooming procedure in North America today – used to be seen as something exotic, a procedure “just for Hollywood stars and TV types”. However, teeth whitening is currently being re-evaluated here, too. For many, regular bleaching appointments are even now turning into the new normal: White teeth have become an indispensable part of the well-groomed appearance they feel they owe to themselves and to others.

Others are intrigued, but might feel insecure about the bleaching procedure. Is it really safe? And are the results going to last? When it comes to the subject of teeth whitening, there are lots of half-knowledge, ignorance and rumours. Perhaps you have heard or read that bleaching is harmful to your teeth. Or you might be worried that it might tear a giant hole into your finances. Then this E-book is for you!

We at the Vienna-located MeinZahn dental office would like to clear up some rumours and misunderstandings about tooth whitening. We don't want to talk you into it – of course, inner values still do count! – but we want you to be able to make a well-informed decision.

You have more questions or would like to be advised personally on the subject of dental bleaching? Just give us a call or drop us an email:

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1. Bleaching is bad for your teeth!

WRONG!

Bleaching agents are aggressive chemicals – after all, they are supposed to efficiently whiten your teeth. From this, it is frequently concluded that they must have a somehow deteriorating effect on tooth substance. Let us reassure you: From an expert's point of view – an expert who is even more invested in the health of your teeth than in their looks – there is absolutely nothing to be said against tooth whitening, as long as it is done professionally. With bleaching agents, as with many other chemicals, it is the dosage that makes a substance useful or harmful.

Think about a white tablecloth with a nasty red wine or tea stain that you're about to remove with some bleach. Though laundry bleach is not hydrogen peroxide but sodium hypochloride, the principle is the same as with a tooth whitening. If you treat your laundry with a reasonable amount of bleach, you don't have to fear for the integrity of your fabrics: Stains and dyestuff are way more sensitive toward hypochloride than, say, cotton fibre. However, if you overdo it and wash your laundry with way too much bleach again and again, the fabric may actually become threadbare and brittle after repeated treatments. But if you apply bleach moderately in the recommended amounts, your table cloth has nothing to fear.

The same is true for tooth whitening. Scientific studies have clearly shown that moderate application of bleaching agents does not damage the tooth substance. However, the exact definition of “moderate” can be different for different individuals. This is why you shouldn't mess around with strong bleaching agents on your own without first consulting your dentist. He or she can tell you how long and how intensively you should bleach to be effective as well as safe.

Happy with the short answer? Then jump ahead to point 2. Interested in the details? Keep reading!

The question whether bleaching is bad for your teeth can be reformulated in a more “scientific” way. Then it goes: Does bleaching cause demineralization of dental enamel? There have been astonishingly different study results on the effect of bleaching on dental enamel over the years – and that is precisely the reason why there are so many rumours about it.

Since the 1990s, the interaction between bleaching agents and enamel has been studied intensively. Usually, scientists subject extracted teeth, or little slabs of enamel to a variety of bleaching protocols. Then, the enamel surface is inspected under an electron microscope for erosion and porosity, and/or surface hardness and roughness are measured.

Many studies have reported that even extensive bleaching protocols (like seven hours daily for two weeks) did not harm dental enamel in the least. Others, however, arrived at very contradictory results, finding heavily eroded enamel with rough, porous surfaces – clearly, the bleaching agents had a demineralizing effect in those studies.

How are such different results even possible?

The answer is revealed when looking at the design of the conflicting studies. There were no significant differences in bleaching protocol or range of hydrogen peroxide concentrations. There was, however, a small, but very important disparity: In between bleaching routines, scientists that found bleaching to be harmful stored teeth or enamel specimens in distilled water or ordinary saline. Scientists that didn't find harmful effects stored them in saliva (in some studies, they were mounted on small brackets and worn in the mouth – no kidding!).

Saliva appears to be the knight in shining armour when it comes to saving teeth from bleaching damage. Good thing it is in liberal supply in our mouths! Studies that have found enamel damage

have neglected that important function of saliva, their design is therefore somewhat unrealistic and their results don't really apply to the real life (“in vivo”) situation.

Some words about demineralization and remineralization

Demineralization of dental enamel is known to be caused by acids: those that are contained in food and drink, and those that are the metabolic products of sugar-eating bacteria that live on the dental surfaces. Consuming sweet and/or sour foods, fruit juices, soft drinks and wine will lead to enamel demineralization. It is quite possible that even the demineralization observed to be caused by bleaching agents has more to do with their slightly acidic pH value than with their chemical aggressiveness.

The same mechanisms that accomplish re-mineralizing the dental enamel after eating a chocolate bar or having a glass of orange juice are at work after a dental bleaching, too: Saliva is buffering the acids, bringing the pH back up to neutral values, and minerals dissolved in the saliva recombine to form intact enamel on the dental surfaces.

Actually, things may be still a bit more complicated than that: Experimental bleaching protocols have been tested where the enamel probes were stored in a saline that specifically contained all the minerals needed to form dental enamel (calcium hydroxyapatite). But even then, remineralization did not happen. That means, there must be some other important components of the saliva involved in safeguarding the teeth. It is assumed that this might have something to do with the pellicle: a thin protein layer on the dental surface that is destroyed by bleaching but regenerates quickly from saliva.

So, here you go: Even though the exact mechanisms of remineralization is not fully understood, nature's wisdom still takes care of it, ensuring that bleaching is really not a problem for your teeth (as long as you don't store them in a beaker of saline, but in your mouth...).

It's an entirely different matter for your gums, though: Hydrogen peroxide that contacts the oral mucosa will cause considerable chemical burns. This is why, during a professional tooth whitening routine, you'll wear an individually manufactured tray that securely protects your gums from contact with the bleaching agent.

2. Bleaching increases the risk of tooth decay!

WRONG!

The most important effect of bleaching on caries risk is somewhat short-lived – but entirely positive. The bleaching agent is killing off all the bacteria that hang around your teeth at the time of the bleaching – caries-causing germs included. So, your teeth don't just feel squeaky clean for some time after a whitening – they actually are. There are even studies that have shown frequent bleachings to prevent caries, presumably because of the regular disinfection of dental surfaces.

Bleaching products that contain fluoride are particularly good at preventing caries. Fluoride protects dental enamel not just from demineralization caused by bacterial acids, but also from demineralization during a whitening procedure. Second-best to a whitening product with fluoride is the application of a fluoride gel right after the bleaching.

Sometimes, teeth may feel hypersensitive for a bit after a bleaching. Dull or stabbing pain and increased temperature sensitivity result from a slight irritation of the dental pulp caused by the bleaching agent. This passing hypersensitivity is unpleasant, but nothing to worry about, and it doesn't have anything to do with caries or caries risk. A tried-and-tested remedy for sensitive teeth is

potassium nitrate. Preventively use a bleaching agent with potassium nitrate, or apply a desensitizing gel or a toothpaste containing potassium nitrate immediately after the procedure.

3. Bleaching is forbiddingly expensive!

WRONG!

Quite a few people are still convinced that bleaching is exclusively for the very well-to-do. But this is not true at all.

What is true however is that insurance companies don't usually pay for cosmetic procedures (they may contribute minimally in some exceptional cases). That doesn't change the fact, however, that a tooth whitening is affordable for most people with a medium income. The cost is comparable to the co-payments that your dentist must charge you for aesthetic solutions in many other dental matters: dental fillings, crowns, bridges – because here, too, insurances pay for just the minimal treatment. The decision whether money spent on a bleaching is money well spent is entirely yours – but financial strain is not (much of) a factor.

The specific, everything-included price of a tooth whitening can only be determined after individual consulting, a careful weighing of the options and thorough treatment planning. Never trust any price quotes given without a consultation! And please don't let the fear of forbiddingly high cost discourage you from seeking professional advice on the subject of bleaching. There is a range of options with different price tags (home bleaching with an individually manufactured tray, office bleaching, internal bleaching). During a consultation we will be able to tailor an offer to your precise aesthetic and financial needs – which you are, of course, still free to take up or refuse.

4. The white does not last long!

THAT DEPENDS...

Honest answer: how long your teeth remain visibly whiter after a bleaching depends on your habits and behaviour. The whitening effect may last for up to two years – or it may wear off after just a couple of months.

If you are a heavy smoker and/or regularly drink tea, coffee, coke or red wine in considerable amounts, you will soon notice new discolourations on your teeth. Most intensively coloured foods will stain your teeth – unfortunately, it is almost exclusively the healthy stuff with lots of antioxidants, like blueberries, blackcurrants, cherries, carrots or beets, and spices like curry or mustard. People who eat very healthy tend to not have the whitest of teeth... Particularly problematic are foods that contain dyes together with acid, as the acid softens the enamel, allowing stains to penetrate deeper.

It is really quite simple: “White” food will promote white teeth. Milk, yoghurt, white cheese, cottage cheese, sour cream, white rice, potatoes, pasta, white bread, oatmeal and bananas are all advisable eating from the standpoint of dental aesthetics. However, white teeth are not the only factor you should consider when planning your diet: Please stay healthy and don't skip the healthy antioxidants of naturally colourful foods entirely!

Often, a professional dental cleaning is all it takes to recover the right-after-bleaching-whiteness of your teeth. Just remove plaque, tartar and other superficial deposits and enjoy a newly brilliant smile! Using an abrasive toothpaste (better known as whitening, or smoker's toothpaste) you can

even attempt this at home. Don't overdo it, though: Once a week is enough. Otherwise, you might proceed to scrub off your dental enamel – not advisable for your dental health... and it doesn't help aesthetics, either, as the dentin that is becoming exposed under the enamel has a yellowish hue.

Finally, there is always the possibility of a touch-up whitening treatment to bring teeth back into their splendid condition after a bleaching. A touch-up is less extensive, and therefore less costly than the initial bleaching treatment.

5. Teeth can be made up to ten shades whiter with one bleaching

EVEN IF THAT WAS POSSIBLE – WOULD IT BE ADVISABLE?

A good dentist will usually advise you against extreme changes like that. For one thing, he/she will be motivated by concern for your dental health: To accomplish such an extreme whitening, you would have to bleach very long and very hard (“with one bleaching” doesn't exactly cut it). There is a non-neglectible risk that some of the demineralization that is bound to occur during this intensive procedure will be permanent.

Apart from this, becoming ten shades whiter (“from old ivory to fresh snow”) is not even very much in the interest of anyone's good looks. A dazzlingly white “garden fence” in your mouth will look good when you have a TV-camera trained on your face, or stand on a stage in the spotlight wearing a lot of make-up – but, honestly, on your everyday self, it will likely appear quite unnatural. Please understand that we are not trying to talk you out of tooth whitening here! Just cautioning against extremes: A moderate bleaching will still have a very noticeable effect on your teeth, making them look distinctly whiter.

6. Bleaching is painful!

WRONG!

A professionally executed bleaching on healthy teeth does not cause any pain. However, two measures are required: A) Some means of protection (e.g. a correctly fitted tray) that prevents your gums from having even the slightest contact with the bleaching agent. B) Prior to the whitening treatment, your teeth must be thoroughly examined, and necessary repairs taken care of. If any bleaching agent trickles directly into the dental pulp through leaky fillings or a tooth fracture, the resulting pain is very bad indeed.

After the treatment, freshly bleached teeth can ache a little and/or be sensitive towards sweet, sour or cold sensations. This hypersensitivity will completely subside on its own after a couple of days. Potassium nitrate – a substance contained in toothpaste or -gel for sensitive teeth – can help with hypersensitivity. Some bleaching agents are fortified with potassium nitrate to prevent a reaction.

7. I can attain similar results by myself at home!

WRONG!

Not everything shown in commercials or written on the internet lives up to its promise. Banana peel for whiter teeth? You do not seriously believe this, right? The bleaching kits (strips, gels, pens) sold in drugstores at least contain some hydrogen peroxid – but in a much weaker formula (merely 0,1

percent or even less) than the bleaching agents your dentist has at his/her disposal. Effective bleaching agents are classified as medical products and thus prohibited from over-the-counter sale. This regulation has a very valid rationale, too: Applying these substances without consultation with and monitoring by your dentist is simply not a good idea.

What you can do at home is using an abrasive toothpaste (smoker's, or whitening toothpaste). These toothpastes rely on a mechanical rather than chemical principle: They don't actually bleach your teeth but scrub them really clean. Abrasive toothpaste does not contain bleaching agents but more and coarser mineral cleaning particles (abrasives) than ordinary toothpaste. That makes it particularly good at removing even hard deposits (tartar, or nicotine and tar residue from smoking) from the surfaces of your teeth. However, abrasive toothpaste is no match for stains that have penetrated the enamel – and it can't change a naturally yellowish or greyish tooth colour, either. A bleaching remains the only way to address these problems.

Please use an abrasive toothpaste no more than once a week. If applied more frequently, it can damage your dental enamel. We don't recommend abrasive toothpaste for patients with worn enamel and exposed tooth necks.

Over-the-counter home bleaching kits are not worth their money, and even if you got your hands on the “good stuff” you shouldn't attempt to use it all on your own. However, you can still do a home bleaching: You perform it at home, with a powerful bleaching agent – but only after a visit to the dental office. Your dentist will examine your teeth, manufacture your fitted individual bleaching tray and give you detailed instructions about the bleaching procedure. Here's the ideal compromise that lets you have it all: Savings, safety and effectiveness!

8. After a bleaching I can eat and drink whatever I want!

TECHNICALLY, YES.

There is no problem with you having lunch, supper or a snack right after the procedure. However, in the interest of long-term visible treatment results you should go easy on intensively coloured food and drink in-between bleaching routines and during the first days after your treatment is completed. Curry, mustard, ketchup, dark chocolate, coffee or tea contain dyes that may stain your teeth. If the enamel is somewhat softened as it tends to be right after a whitening treatment, the dyes can penetrate deeper and more easily. Even red lipstick may be a problem (if it gets on your teeth). So, as a general rule for the “vulnerable” phase right after a bleaching: If something would leave a problematic stain on a white shirt, try to avoid putting it on your teeth.

After a few days you can ease up and commit some little “sins” again. Please remember, though: How long the whitening effect lasts really is determined mainly by your own living and eating habits.

By the way: Mouth wash solutions that contain the disinfectant chlor hexidine (marked by its distinctly red colour) will stain your teeth, too. If you don't want to skip the mouth wash, you should switch for a different product.

9. Bleaching will destroy my fillings, crowns and bridges!

WRONG! BUT IT WON'T WHITEN THEM EITHER...

Bleaching literally has no effect whatsoever on fillings, crowns and bridges, no matter whether they are made from ceramics or plastic.

That means, however, that there could be a little problem of a different nature after a bleaching: The whitening agents don't even affect the colour of fillings and dental restorations. Since they have been matched to your original tooth shade, they may now look conspicuously darker than your natural, bleached teeth.

Of course, you could now proceed to have your fillings, crowns and bridges exchanged for restorations that are a few shades lighter. If you don't have many, that would definitely be an option – but in any case, there will be considerable additional cost and more time to be spent in the dentist's chair. Also, to keep your teeth and restorations even-hued, you will basically be obliged to have regular bleachings performed from now on. If that was your intention anyway – good for you!

With other words: If your teeth have been repaired in many, and/or in particularly visible places, if you have crowns, bridges or implants, you should be aware that a bleaching alone will not be able to transform your teeth into the impeccable sight you have probably envisioned. Further cost- and time-intensive procedures will be required. In such a case, the pros and cons of a bleaching treatment have to be carefully weighed. The treatment must be thoroughly planned, and possible alternatives to bleaching (veneers or crowns) should be considered. Your dentist will tell you more about these possibilities.

10. Bleaching outcomes are irregular, my teeth won't be even-hued.

GENERALLY: WRONG!

However, see point 9: Bleaching agents don't affect dental fillings and restoration.

Generally, professional bleaching achieves a very regular whitening effect on all your natural teeth. Still, if your teeth have very different colours (some are stained much more than others, or you have a root canal-treated tooth that has turned grey), these differences will likely still be noticeable after the bleaching. Under such circumstances, a dentist may perform a targeted re-treatment of some teeth (office bleaching, possibly an internal bleaching) to achieve the desired regular whiteness, though at additional cost. Again: Only your dentist can advise you on a strategy that will be effective for your individual case.

We would also like you to ponder this: The natural beauty of a string of pearls has a lot to do with the subtle differences between individual pearls. Likewise, there is something to be said in favour of not turning your teeth into a uniformly snow white picket fence.

CONCLUSION

You would like to face the world with a radiant smile? Then we wholeheartedly recommend a professional bleaching. As dentists, we can assure you it won't harm your teeth – and you will be delighted with the results. For the safety and efficacy of the treatment, cooperation with a dentist is essential. Every professional tooth whitening treatment will be preceded by a thorough dental examination, a professional oral hygiene treatment and a fair, individual consultation.