



# DENTAL UPDATE

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## TOOTH WHITENING

Over the years this newsletter has featured numerous articles on the latest developments in smile whitening. It is about time to put all the information in one piece.

### What is the best way to whiten teeth?

The only technique proven to produce obviously whiter teeth is 'home bleaching' with professionally constructed mouthguard trays and gel. This approach has been used for decades and it always works. No other technique will give results as good.

The trays are made of a very thin transparent plastic and usually cover the ten front teeth. It is important they are designed to fit accurately, not just for comfort, but to prevent the bleach leaking out and being dissolved by saliva.

The most common bleaching agent is carbamide peroxide gel, although occasionally its variation, hydrogen peroxide, is substituted. The concentration usually ranges from 10% to 16%. Surprisingly, stronger solutions do not seem to produce whiter smiles or work significantly faster, since they still require time to penetrate the surface.

### How long does the whitening take?

The timing ranges from two to five weeks, with the average being three. After that any improvements are going to be minor.

To be effective the bleaching gel should act on the enamel for about two hours a day.

For most people the easiest way is to place a tiny amount in the trays and wear them overnight. (It would be nice if this gave eight hours worth of whitening but the efficacy of the gel drops by half after a couple of hours.) Alternatively, another smart approach is to wear the trays in blocks of thirty minutes, four times a day, when say, driving to work or watching television. This will give a marginally faster result because it ensures that full strength bleach is always interacting with the enamel.

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Here's where you can read all about it!

## 'I JUST WANT A TOOTHBRUSH THAT LOOKS LIKE A REAL TOOTHBRUSH'



Don't you just hate it when a company comes up with a really good product and then discontinues it for something inferior? Macleans used to make the best toothbrush, the Flex Direct. It was well designed and, best of all, the bristles were soft and flexible, so they could get into the nooks and crannies. Now Macleans are only selling medium and hard.

Look through the supermarket shelves and most toothbrushes are so fancy, with tongue cleaners, cross-actions and rubber inserts. Most are ineffective. It is like the man asking the lady in the milk bar for a bottle of milk and being told he can have soy, skim, omega-3, folate or extra dollop. He only wanted milk that tasted like real milk.

Recently the clinic started selling Colgate Professional toothbrushes and toothpaste for \$3, which is close to cost price. We had become frustrated at our patients not being able to find a decent soft brush. There *may* be better brushes available but this one is a personal favourite, especially as the bristles certainly are soft and have the capacity to reach between the teeth and around the gums.

Electric toothbrushes are becoming popular but unless handled properly they tend to simply skim over the surface, leaving plaque in the crevices. If an electric brush is to be used it is critical to actually *brush* with it, in a similar fashion to a manual one.

So, good toothbrushes can now be bought from the clinic. And they do not even have 2% fat!

## Is whitening safe?

Home bleaching has been around for many years now and it is an extremely safe procedure, unlike one appointment *office beaching* which uses strong chemicals and must be performed very carefully (usually for little result.) While there are no long term complications it is very common for people to report transient tooth sensitivity, particularly to cold. It is less likely with the sensible 10% concentration used at our clinic.

This minor hiccup is easily overcome. A number of products can readily *desensitise* enamel.

Colgate Gel Kam is a fluoride concentrate which thickens and blocks the microscopic 'organ pipes' tubules that conduct temperature change to the pulp or 'nerve'. Recaldent Tooth Mousse (from the clinic) is a dairy extract supersaturated with mineral. It releases calcium and phosphate to likewise occlude the tubules, but to an even greater depth.

Sensodyne contains potassium nitrate which inhibits sensory transmission in the nerve fibres at the end of the tubules. It virtually acts as an anaesthetic. While it does not make a barrier to the cold, it certainly does help alleviate the feeling.

**Sensodyne** and **Tooth Mousse** are the most effective products. The best way to apply them is to mix a little together and wear inside the trays for a few nights.

Bleaching does *not* damage the teeth. In fact being antibacterial and it is sometimes used to *prevent* decay and gum disease when elderly or handicapped people can not brush properly.

## How white will the teeth become?

Everybody's teeth have an upper limit as to how white they will end up. When that level is reached, prolonged bleaching will not have any further effect. There is always a significant improvement, sometimes spectacular, although if patients are expecting teeth to look artificial, like bathroom porcelain or liquid paper, they will usually be disappointed.

## But I do not want my teeth to be too white.

The whitening is a gradual process, so simply stop when you are satisfied with the colour.



## How long will the whitening last?

This is a slightly contentious issue. In my experience there is no significant relapse although, as people continue to get older, their teeth do continue to darken with age. Of course it is easy to repeat the bleaching for a few days every year or so.

## Does it whiten old fillings?

The answer is no. There is no effect. This means that if old fillings are to be replaced it might be best to do the bleaching first, so as to determine which colour match to use.

## Don't some systems whiten teeth by eight shades?

Some businesses promote their systems claiming teeth will whiten 5 shades or 8 levels or whatever. This is meaningless because there is no universal, graded colour chart. It is like Spinal Tap claiming they were the loudest rock group because the dials on their amplifiers did not range up to ten, they went all the way to eleven!

## What about whitening clinics?

It is impossible to really change the colour of teeth in an hour or so, irrespective of fancy lights or lasers. Any difference is an illusion due to teeth drying out. If someone falls asleep with their mouth open, the surface of their enamel dries and the teeth will look whiter for a few minutes until the moisture is reabsorbed. It is basically the same with *In Office* bleaching.

The theory behind lights and lasers is that they hope to accelerate the breakdown of oxygen molecules, from the peroxide, into reactive oxygen atoms which should denature coloured proteins in the tooth surface. Unfortunately the peroxide requires time to penetrate the surface and an hour is insufficient to make any obvious, lasting difference.

Professor Van Haywood, the world's leading authority, recently toured Australia and he reports there is no published evidence of these systems producing any lasting change discernible to the eye. He believes the fancy devices contribute *almost nothing* to the whitening process and are basically just expensive marketing tools.

## Is there any way to speed up the whitening?

Stronger bleaches lead to more sensitivity but teeth do not respond by whitening more quickly. Lights and lasers can, in theory, stimulate the oxygen but not a great deal can be achieved during a hour appointment. The most practical step is raising the pH slightly, by rubbing a little bicarbonate solution on the teeth before bleaching.

Simply place a teaspoon of baking soda powder in an empty jam jar and add a little water to dissolve. Use a finger to smear some on the front teeth and the surface will become slightly alkaline, so accelerating the action of the bleaching gel.

## How can I find out more?

The world authority is Prof. Van Haywood, who virtually invented whitening twenty odd years ago. Check out his excellent website - [www.vanhaywood.com](http://www.vanhaywood.com).

## FOSAMAX UPDATE

A bit of a scare went through both the dental profession and the community a couple of years back when reports came in of extractions failing to heal and jaw bone rotting. The *7:30 Report* ran a rather sensational segment and clinics started getting phone calls from worried patients. The cases all seemed to be linked to people taking biphosphonate medications for osteoporosis.

The biphosphonates are very effective at treating bone weakening and are widely prescribed with good justification. The most commonly used is *Fosamax*.

The concern was that patients taking these drugs could not have teeth extracted without the fear of osteonecrosis. Stopping the medication beforehand would not help because the drug stays in the system for twelve months.

Like many interesting stories it now turns out the details were greatly distorted.

As well as being used for osteoporosis the biphosphonates are also used to treat life threatening bone cancer. In these instances they are administered intravenously and the doses are extremely high. It is these cases which are usually associated with the dental complications.

When people are taking the drugs simply to address osteoporosis the risk of necrosis following extractions is merely 1 in 10,000. The rate does rise when there are other factors, such as high doses of corticosteroids or when there is diabetes.

These statistics put the problem in perspective. Extractions should always be avoided and when they are done, they should be done carefully. In the meantime there is no need to panic.

## BODY IMAGE

Have you ever wondered why a small piece of fibre caught in the teeth always feels enormous or a tiny chip in the enamel seems huge? It's as if the tongue multiplies any little irregularity right out of proportion.

The reason is not just that the tongue has so many more nerve endings; it is also that its sensory representation in the brain is disproportionate.

The cerebral cortex is rather like a Melways road map where the skin of our body parts is 'mapped' on the surface. In a street directory, the CBD is blown up to a much larger size than say, Nar Nar Goon or Dimboola West.

More prominence is given to the corners and laneways of the city than the creeks running across the Western Highway. In the same way the sensations from the hands and mouth are better represented than the skin on our elbow.



It is possible to construct a 3 dimensional figure of how the brain perceives the body. This *homunculus* ends up looking more like a gremlin than a real person and the lips and tongue are so prominent they resemble Botox with an allergic reaction.

So the next time you are having a bad-hair-day or just feel plain daggy and do not want to be seen in public, don't worry – you probably look a whole lot nicer to everyone else than you appear to yourself.

## SENIORS CARD

New patients are always requested to answer a few medical history questions when they write out their details.

The lady who arrived the other day much preferred this to being quizzed by the doctors. She complained 'Nobody asks me if I am pregnant these days!' Sigh.

We all get smarter as we get older but it is nice to still look and feel young.

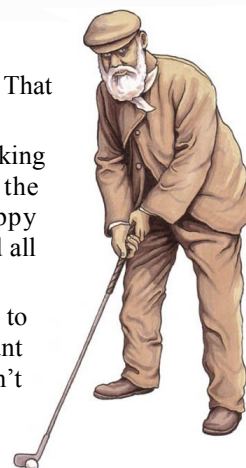
Before I moved to South Yarra, patients used to ask me whether I had much experience. That does not happen much either any more.

More and more however, I have noticed new acquaintances out on the golf course are asking whether I am still working. This is becoming a concern. It should be obvious from the erratic nature of my swing that I have little time to practice. Perhaps a really snappy response might be *Certainly I am still working. Are you still driving?* Except that I need all the friends I can find on the golf course...

I turned sixty a few months ago. While this was cause for celebrations at home I did confide to one of the neighbours, who was a contemporary at school, that I had passed a significant milestone. My friend tried to be reassuring. 'Don't worry about it' he suggested. 'Why don't you do what I did? Go and get yourself a seniors card. You'll feel a whole lot better!'

Somehow I do not think that is going to cut it. That is like moving faster down the fairways – by sitting in a golf cart!

Instead I learnt to use the iPod my daughter gave me for my birthday. Now I can turn up the volume and listen to Led Zeppelin as I pump iron at the gym. Why should the twenty year olds have all the fun? And if there are any derogatory comments, I have not heard them.



**HINT** Brushing in fluoride gel, such as Gel Kam, once a week, certainly prevents decay by hardening the enamel, but it is easy to fall out of a routine. Why not set aside a particular time, say Sunday night, to always remember and apply the gel?



## **CANDY IS DANDY BUT CHOCOLATE IS HEALTHIER**

It is always gratifying to learn that just a few of the things we enjoy can, in moderation, actually be good for us.

A glass of red wine in the evening eases the tensions of the day and certainly elevates the mood. In addition its antioxidant polyphenols, specifically *Resveratrol*, may also elevate the body's good HDL cholesterol to help protect the linings of arteries against hardening and cardiovascular disease. *Here's to your health!*

The Journal of Neuroscience recently published studies tentatively suggesting the caffeine in the morning coffee may actually slow the onset of Alzheimer's' disease.

Researchers at the Byrd Institute in Florida report that the beta-amyloid proteins that aggregate into plaques in the brains of Alzheimer sufferers were reduced in mice who had caffeine added to their drinking water. Mice that were bred to acquire dementia did not develop memory loss when they consumed the caffeine, or alternatively, had the symptoms reversed. *Early days yet, but all very encouraging...*

The really big surprise is that even chocolate may have some health benefits. Most people know that it contains sugar, which can rot the teeth and contribute to diabetes. Worse still, it is full of saturated fatty acids, which are usually associated with heart problems.

However not all saturated fats are the same. The stearic acid in red meat, margarine and especially chocolate does *not* raise cholesterol levels. Instead it significantly lowers the risk of thrombosis and cardiovascular disease.

Thrombosis, or blood clotting, occurs when platelets become sticky, aggregate together too easily and get entangled in strands of fibrin. The resultant coagulations block up blood vessels or break free and circulate in the bloodstream, leading to heart attacks and stroke.

The stearic acid in chocolate reduces platelet size and stickiness and lessens the chances of thrombosis. Studies conducted by Prof. Alan Turner at RMIT showed volunteers who eat as little as 100 grams (two small squares) of dark chocolate each day had their risk factors drop after just three weeks.



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As well as fighting heart disease, chocolate also contains anti-oxidant flavinoids and a number of agents which are potentially mood elevating. Theobromine and trace amounts of caffeine stimulate the heart and the central nervous system while phenylethylamine reputedly acts as a mild anti-depressant. L-tryptophan is a precursor to serotonin, the body's main endorphin.

This is all good news but it does not mean that Mars bars will not lead to obesity or tooth decay. The health benefits come from dark chocolate and only two squares a day are needed. And, of course, remember to **brush the teeth** afterwards. Otherwise, *Bon appétit!*

## **REDHEADS**

The Nobel Prizes have just been awarded and, as most people realize, Australia's Elizabeth Blackburn received the prestigious prize for medicine. While the presentation of these awards was auspicious and dignified it did not compare for entertainment with the ceremony that took place a few weeks later.

The Igs (as in ignoble) are the flip side of the Nobel Prizes. They are presented by Nobel Laureates but are for research that is just plain useless and silly.

Probably the most uplifting award was for the bra that converts to a gas mask in case of emergency.

It was disappointing that no dental research was featured but one study



published recently in the American Dental Journal could well have given it a shake.

It reported that redheads, who have their colouring because of a

MC1R gene variation, are resistant to local anaesthetic injections and, as a result, have a bad history of traumatic dental experiences and are unusually phobic about receiving treatment.

This comes as a bit of a surprise but, on close consideration, it could explain quite a deal.

It could be the reason pole vaulting's Steve Hooker and Geelong's Cameron Ling both appear so timid and psychologically scarred – NOT!

While such revelations are fascinating the research could well take a different direction.

What I really want to know is – do children who eat their crusts grow up to have curly hair and do blondes really have more fun?

I was surprised the other day to receive a promotional letter from a young specialist starting up a new business, proudly announcing his particular interest in 'Outcome Based Treatments'.

This was all very reassuring and nice to hear he was so conscientious, but it did set me thinking – when it comes to dental treatment, is there really any other sort?

Sad to say, *Income Based Treatments* were the only sort that sprung to mind.