

# DENTAL UPDATE

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Dr. Mark Knapp B.D.S. Dental Surgeon  
48 Toorak Rd. South Yarra 3141 Ph. 9867 6405 www.dentalupdate.info

The old cliché about prevention and cure really is true. Especially in dentistry, prevention really works. So this newsletter is all about preventing cavities and gum disease.

## THE TOOTHBRUSH THAT SHINES

The big trouble with plaque is that it is tooth coloured and difficult to see. Wouldn't it be great if you could actually see the plaque and know exactly where to brush?



Almost forty years ago my friend Prof. Barrie Gillings had a brilliant idea. He put fluorescein dye into a disclosing solution and painted it onto teeth. When an ultra violet light was shone on the surfaces the teeth looked unchanged but any plaque fluoresced a bright yellow. Suddenly it was possible to tell precisely where teeth were dirty and where brushing had failed.

The Dental Health Foundation embraced the concept and set up a special caravan clinic that toured the country with its own UV *plaque tunnel*, showing families how to brush better. For a number of years it even appeared at the Royal Melbourne Show where kids found examining their own teeth was actually great fun.

### PLAQ PRO

Recently Barrie refined the system by placing a small ultra violet LED light into an electric toothbrush. At the same time I realized the dye could be incorporated into toothpaste. Suddenly we had a system that could be used conveniently at home, showing people where their brushing had missed and how they could clean better.

I approached a small company from Ringwood, Dentalife, and they agreed to manufacture and distribute the product, which was to be called **Plaq Pro**.

### DID YOU KNOW?

Clarke Gable was one of the screen's heart throbs during the thirties and forties.

Apparently he did not take himself too seriously and during the filming of *Gone With The Wind* regularly upset his highly strung co star Vivian Leigh by trying to kiss her with his dentures out.

Sadly none of the scenes made the movie's final cut. But the experience probably set Miss Leigh up nicely to play the neurotic Blanche DuBois in her next famous movie, *Streetcar Named Desire*.



The toothpaste is rather pleasant tasting, with little of the pungent peppermint flavour associated with most toothpastes.

Obviously it contains no sugar but it boasts a higher level of the sweetener Xylitol, which is known to inhibit bacterial growth. This Xylitol also stimulates the mouth to produce more saliva and at a higher pH. The result is that it effectively hardens the enamel. (See over page...)

### QUESTION

Why don't chemists sell fluoride tablets any more?

Because we know now that the tooth hardening effect is mainly topical, not dietary.

Fluoride changes the enamel's weak hydroxy apatite into strong fluoroapatite when it is absorbed directly into the surface.

The tablets only worked when kiddies chewed them before swallowing. Strangely enough, dentists should have realized this since the 1940s when the original research clearly suggested the effect was topical.

## THE TOOTHBRUSH THAT SHINES (Continued)



The paste is more sophisticated in other ways too. It has none of the usual thickener which tends to dry and occasionally irritate the mouth. Its silica abrasive is fine grade and less prone to traumatize tooth roots and gums with 'toothbrush abrasion'. And it is preservative free.

The brush is well designed with a secure grip and, of course, soft, flexible bristles for proper access into the crevices where plaque collects.

### **HOW TO USE PLAQ PRO**

It is simple. Clean the teeth as normal and rinse out thoroughly.

Turn the brush around and press the button. Shine the UV light on the teeth and check in the mirror where plaque shines bright yellow. (I bet there is still a little plaque between the teeth and around the gums.)

Repeat the cleaning, this time concentrating on the spots you missed initially. Engage the light and look again, checking especially near the gums.

Since you now know where to brush, this time there should be absolutely no plaque left behind.

I have written an article on the concept for the magazine Australasian Dentist. You can see it on my website [www.dentalupdate.info](http://www.dentalupdate.info).

Eventually we hope to distribute the product through pharmacies but initially it is being sold either through dental clinics and directly from the company.



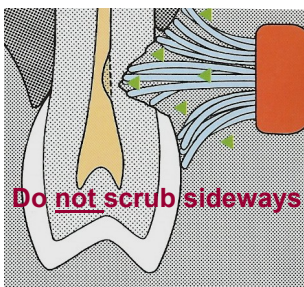
## **BACK TO BASICS – HOW TO BRUSH**

Brushing should not be complicated but it does benefit from a little bit of thought and technique.

First up, brush systematically, in three steps to make sure everywhere gets attention.

Start with the outer surfaces and, believe it or not, close together, on the edges of the front teeth. This will relax the muscles of the lips and cheeks and make access to the back teeth so much easier. Paradoxically, closing like this actually makes more room.

Brush hard in large circles that include the edges of the gums. The crevice between tooth and gum is the very best spot for plaque to collect and this, of course, often leads to decay and gum inflammation.



Most people do not like brushing the margins of the gums because any gingivitis makes them red, tender and inclined to bleed too readily. The only way to get gums healthy is to get them clean and this simply means brushing. Usually minor gingivitis can be reversed within a few days. Gums respond extremely well to 'tough love'.

A common mistake is to scrub sideways. Not only does this fail to remove plaque, it scratches the gums and tooth roots and can lead to root sensitivity.

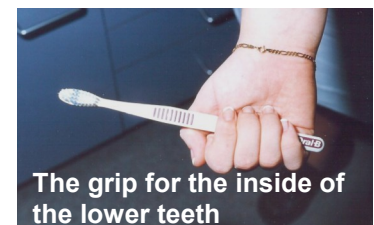
Secondly, open slightly and brush the biting surfaces - easy!

Thirdly, the hard part- brushing the inner surfaces is always a little trickier.

A particular challenge is the inside of the lower teeth.

This is difficult because the brush must be angled downwards. Normally, when one picks up a brush it naturally angles upwards – so, apart from twisting one's wrist around, how to point the brush downwards?

Change the grip on the brush. Hold the handle across the palm, at a right angle to the forearm and with the thumb on the same side as the fingers. Now raise the elbow up to shoulder level. The brush will naturally aim slightly downwards.



### **A BIG MISTAKE**

Most people open too bite when they brush. This stretches the cheeks and limits access to the back teeth. Because of the muscle tension it makes circular brushing trickier and encourages ineffective scrubbing.

In addition it can stimulate a nasty gag reflex, especially when cleaning the inner surfaces. So, make life easier and never imitate the man at Luna Park.

# MOUTHWASHES

Mouthwashes are less effective than people imagine. The most impressive thing about them is their advertising. They do kill some bacteria but these can quickly grow back if they have access to sticky food debris. The best way to rid the mouth of nasty bugs is with the toothbrush.

Decent brushing does two things. It physically removes billions of bacteria where they congregate, in plaque, and it deprives them of their source of nutrition, the sticky carbohydrates that encourage them to multiply.

If it is a choice between a mouthwash and an extra thirty seconds of good toothbrushing, go for the brushing.

Some years ago the Aust. Dental Journal published an article suggesting alcoholic mouthwashes were linked to oral cancer. It turned out there really was a statistical link but it was the wrong way around. The cancer was leading to the use of the alcoholic rinses (in the slums of third world countries.) Mouthwashes are harmless but they are a distraction from the issue of removing plaque.

If antiseptics are required in controlling a gum infection, the best is not in a mouthwash but in a gel.

**Curasept Gel** is highly concentrated anti bacterial chlorhexidene. It can be rubbed onto inflamed gums not as a definitive treatment, but to *kick start* a long term management program.

The other useful product is **Curasept Toothpaste**. Again it contains chlorhexidene. Think of it as a mouthwash in the toothpaste. After brushing, do not rinse out, simply spit out, so the agent can interact against the bacteria.



These products are an additional help with gum disease but they are no substitute for proper cleaning.

## DRY MOUTH

As we get older, and especially as some of us take more and more medications, our mouths produce less saliva. This does not just make the mouth uncomfortable, it predisposes to gum disease and decay.

Products such as Tooth Mousse and Neutraflur can help prevent decay but they do relieve the feeling of dryness. **Oral Seven** gel and mouthwash help replace the enzymes that are normally present in saliva and effectively moistens the mouth. They have a soothing effect.

Not every chemist stocks the product but they can be bought at the South Yarra Pharmacy.

Or see [www.oralseven.com](http://www.oralseven.com).

## HARDENING THE TEETH

The obvious way to prevent decay is with a sensible diet and decent brushing. Occasionally though, dentists know that something extra is needed, since they can see spots where enamel is decalcifying and softening and decay is just starting to develop.

There are two products that can put missing mineral back into the tooth surface.

**Tooth Mousse** is a milk extract overflowing with calcium and phosphate.

Using a finger, rub some onto the teeth before bed time to help replace the mineral that acids have leached out.

**Neutraflur 5000** toothpaste contains five times the usual level of fluoride.

Most pastes contain fluoride, of course, and it is present in tap water, but for soft vulnerable teeth this is not always enough.

Brush in two or three times a week and then spit out, rather than rinse.

The fluoride will tend to recalcify and harden weak, chalky enamel.



## “GET YOUR TEETH OUT, DEAR”



Sixty years ago, people had every right to assume if teeth were decaying and crowns too expensive, dentures would be needed sooner or later. And of course, old thinking dies hard.

When I first started work in South Yarra I employed a young nurse who had come to Melbourne from the Western Districts. She was attractive and bright but her family worried about her terribly, since she was still unmarried *at the age of twenty two!* She had known a boy for all of three years but they were not even engaged! The grandmother knew what the problem was. No one was going to marry her while she still had her teeth. She was a *financial liability*. The advice was “Get your teeth out, dear!”

Things are different in the country.



# GENETICS REVOLUTION

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In the 18<sup>th</sup> century Jean-Baptiste Lamarck proposed that acquired traits, such as strength or illness, were passed by inheritance from one generation to another. The idea had some naive appeal.

Often the son of a hard working blacksmith looked just as strong as his father. It was tempting to assume the biceps dad had acquired through exertion had been passed from father to son.

Modern genetics, which began with Mendel, gives the more sophisticated explanation that genes for big muscles, together with an environment of manual labour, are responsible Smith Jnr. developing arms like his sturdy father.

Recent studies suggest the situation is a bit more complicated.

Prof. Brian Dias, from the University of Atlanta, taught rats to associate the smell of cherry blossom with the fear of electric shocks under their paws (poor rats.) As a consequence, when they smelt the blossom they became stressed.

He then bred more rats, some by artificial insemination, so that there could be no behavior pattern taught by parent to offspring. Subsequent generations likewise reacted to the aroma. The learnt response had been inherited.



Australian research has indicated a similar type of result with animals who overate passing obesity and cell dysfunction onto their offspring.

Historical analysis hints at the same sort of trends in human populations. In the last hundred years average height has increased progressively, seemingly out of proportion to improvements in nutrition.

Conversely, during times of deprivation, such as during WWII, malnourished populations have passed on low body weight to the following generation, irrespective of any return to better diet.

This new science of **Epigenetics** suggests that environmental factors do not change an individual's genetic code but they certainly do effect its expression.

Every cell in our body contains exactly the same DNA, irrespective of whether it is a muscle cell, a nerve cell or whatever. If all the material was stretched out in a straight line it would be 2 meters long. Instead the double helices of DNA are tightly wrapped so they can fit inside cells' nuclei.

Most of the genes are hidden away and inaccessible, but those genes relevant to the particular cell's function are identified by epigenetic tags, or markers, which open up a section, making it available for reading and protein production.

The epigenetic tags are responsive to environment. For instance in muscle cells, manual labour or weight lifting might encourage more tags and greater expression of those genes responsible for growing muscle fiber.

An analogy might be a kitchen with ingredients from the local market and a recipe book (the genetic code). The potential is there for a great dish but it requires the chef (the epigenetic code) to start cooking.

The same recipe could be interpreted differently by a different chef, producing a slightly different dish (in the same way identical twins never look truly identical, because their epigenetic codes will differ.)

So, modern research makes the surprising discovery that what we do and what we encounter can actually effect the next generation. Genetics just got a whole lot more interesting.

## TAIL WAGGERS

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Our dogs do not know that I am a dentist and always wag their tails enthusiastically when they see me. Apparently, though, there are different types of wagging. Some can mean 'Good to see you' and others can mean 'I know you are cross with me and I am sorry for chewing the slippers.' Humans have trouble discerning the difference but other dogs can.

Scientists in Trento, Italy, recently filmed dogs and monitored their heart rates in various situations. Under slow motion it was found that happy, relaxed dogs moved their tails slightly more to the right than the left. When apprehensive, they wagged more to the left.

What is more, if they encountered strange dogs wagging one way or the other they reacted accordingly, indicating they could pick up signals we could not detect.

If my dogs ever do discover my profession, I just hope they keep wagging to the right.

