



# DENTAL UPDATE

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**Dr. Mark Knapp B.D.S. Dentist**

48 Toorak Rd. South Yarra 3141 Ph. 9867 6405 [www.dentalupdate.info](http://www.dentalupdate.info)

## WHY FILLINGS SHOULD BE WHITE

All right, now that I have your attention lets make one thing clear. There is no evidence that old fashioned silver amalgam fillings cause any health problems. There is a miniscule percentage of people who are allergic to amalgam, but they develop reactions in the gums and cheek next to the fillings, not general health complications.

It is easy for alternative health practitioners to make sweeping claims about the risks of amalgam. What arouses their suspicions is that it contains silver, tin and of most interest, mercury, in an *amalgamation* (hence the name.)



### IS AMALGAM HAZARDOUS?

Mercury vapour is certainly dangerous. The hatters of the nineteenth century worked with mercury to produce felt and suffered neuronal damage as a result of inhaling the gasses. The Mad Hatter of Alice in Wonderland was really a stereotype of the milliners of the time.

When mercury is used in industry it can be a risk too. In the 1950s factories around Minamatta Bay in Japan pumped waste products into the surrounding waters where they were taken up by fish and shell food. Getting into the food chain, these compounds caused debilitating disease for years.

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## STREET TALK

I hope you enjoy the latest Dental Update. The last edition was very well received.

Two days after it was printed and copies placed in the little pamphlet box, out the front of the clinic, one of our patients commented on how people strolling on the street kept stopping to take them.

'One lady walking her dog just grabbed a copy. She seems quite enthusiastic!'

This sort of news is always heartening and only slightly diminished by the fact that the lady with the dog was not carrying the usual plastic bag.



## THE GREAT TOOTHBRUSH TANGO

Patients may notice we are selling a new brand of toothbrush. It had become increasingly difficult for people to find a decent brush at the supermarket or pharmacy, so last year we started retailing soft Colgate Professional brushes for \$3.

These were one of the few brushes with soft, flexible bristles and they were refreshingly free of gimmicks.

Most toothbrushes are laden with extras, bells and whistles. They have cross cut bristles, circular configurations and tongue cleaners.

Some of these gimmicks are more hindrance than improvement – tongue cleaners, for instance, irritate the cheeks and tongue during normal cleaning and discourage decent vigorous brushing.

The best tongue cleaner, in fact, is just a toothbrush. The tongue can readily be scrubbed for a few seconds to remove plaque buildup and reduce the bacteria in the mouth. Nothing special is needed.

But earlier this year Colgate removed the Professional from the market.

I recommend many Colgate products but this meant they no longer made a brush I was prepared to promote.

Now we are selling Oral B Extra Soft brushes. The handles are ergonomic, the design is sensible and the bristles are soft with rounded ends.

They are a good toothbrush but they still have to be handled properly. Close slightly, brush vigorously in circles and include the edges of the gums where most of the plaque collects.



## WHITE FILLINGS (continued)

It is impossible to prove that amalgam fillings are safe (just as it is hard to prove bananas are harmless) but it is possible to look at the statistics. If amalgam is dangerous one would expect people with silver fillings to be more sick, obviously.

Studies of individuals with and without amalgam do not demonstrate any difference in health. Most of the mercury in our system, in fact, comes from our diet.

Amalgam is a tough, reliable material but to place it a dentist must weaken the tooth.

### **SO WHAT IS WRONG WITH AMALGAM?**

Because amalgam does not glue to tooth substance, the only way to hold it in place is to hollow out a cavity and lock it in mechanically. This extra drilling weakens the walls of the tooth. Years later, when the filling distorts, these walls lack support and are liable to fracture.

### **WHITE FILLINGS ADHERE**

The main white material is composite resin. It is a combination of microscopic glass filler and plastic resin. It sets when exposed to blue light and has been in use for decades now. There is composite for front teeth, back teeth and hundreds of different shades and opacities.

Apart from looking great its main feature is its adhering or bonding to enamel and dentine. This means that cavities do not need to be undercut and hollowed out, in fact they can be half the size.

The other advantage of the adhering is that it can seal out plaque biofilm from seeping under the filling. With amalgam, it is fairly common to find recurrent decay growing under the restoration, because nasties have crept underneath.

Research has shown that if a watertight seal is achieved with an adhesive filling, it is even possible to leave decay without it progressing, because it will be deprived of nutrient. Furthermore, the pulp at the centre of the tooth releases chemicals to attack and kill the entombed decay bacteria.

Fillings do not have to be as dangerously deep, replacing any last hints of decay.

### **BUT WAIT, THERE IS MORE**

The other white material is glass ionomer cement (GIC.) These watery cements have a couple of special features – they raise the pH to kill residual bacteria and release mineral to harden up damaged dentine.

Inside the tooth they adhere even better than the composites. The best fillings often have composite on the outside and GIC as a base underneath to protect against further decay.

## BALDERDASH

Our son, Mark Jr., together with his mate, Nick, recently opened a café in Port Melbourne. Balderdash is on the corner of Bay and Bridge Sts and it is already thriving.

It has good food, a great ambience and simply the very best coffee in Melbourne!



Traditionally the best studies into amalgam have concentrated on large groups of nuns in convents because they share the same diet and, in particular, life style. In other words they all have similar habits.



## WONDER DRUG?

When people are told they have gum disease, two questions usually follow. Firstly, do antibiotics help? Secondly, can the gums and bone grow back?

The short answer to both has generally been No.

Recently, though, one antibiotic has sparked interest. Azithromycin has been used in general medicine for decades and is known to be safe. Used against gum disease it does kill bacteria but its surprising action is in moderating inflammation.

Gum inflammation is a sort of immune reaction, fighting against the invading bacteria in plaque. Often it can develop out of proportion to the severity of the actual infection. In the worst cases, teeth begin losing their support tissues and become wobbly.

Azithromycin is readily absorbed into the cells which cause this runaway inflammation and dampen their destructive effect.

The effect is long lasting. A course of three tablets stays in the response cells for many months. Over time, gums and the supporting bone are observed to regenerate slightly.

Research is in the early stages but it is encouraging. In the meanwhile there is still no substitute for good brushing and the occasional professional cleaning.

# SENSITIVITY

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Tooth sensitivity has become big business. It is hard to know which products are the best. Even Colgate can not make up its mind. It markets at least three different products, all designed to do the same thing. If the company is not sure which are the most effective, how can the public possibly decide?

Before narrowing down the field, lets describe what the cause of the problem is.

Usually there are a couple of causes. Many people brush their teeth aggressively (good!) but scrub sideways with a hard or medium brush (bad!) This traumatises the gums, which recede exposing the soft dentine of the tooth roots. Quickly the bristles abrade the roots, creating hollow grooves at their necks.

Another problem is the density of the dentine. Under a microscope it consists of a series of organpipes, or *tubules*, which run down to the pulp. They are filled with fluid, which responds to temperature by sending a signal to the nerves.

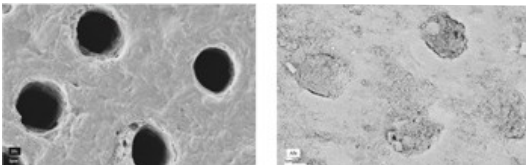
If acidity has drained mineral from the roots, the bore of the tubules becomes broad and open. Cold makes the fluid rocket down to the nerves. Ouch!

So, what are the treatment options? The dentist can easily repair the concavities with small white fillings but it is usually important to also reharden weakened teeth with mineral. These are the best products.

**Recaldent Tooth Mousse** This is a paste invented at the Melbourne Dental School. Tooth Mousse is a milk extract packed with calcium and phosphate which are vital for thickening the density of the tubules. It is great for preventing decay and desensitising. Only available through dentists.

**Colgate Pro-Relief** The new kid on the block. One of the problems with mineralising agents, like fluoride, is that they tend to merely block the ends of the tubules. It is difficult to achieve the effect deep down. Pro-Relief contains arginine, one of the amino acids found in protein (and sold at the local body building shops.) Arginine promotes a deep uptake of mineral and the effect is quicker and more long lasting. Just like Mrs. Marsh with her ink and the chalk 'it really does get in.'

Tooth Mousse and Pro-Relief work best together. They can be brushed in or applied onto the teeth with a finger.



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## WWW.DENTALUPDATE.INFO

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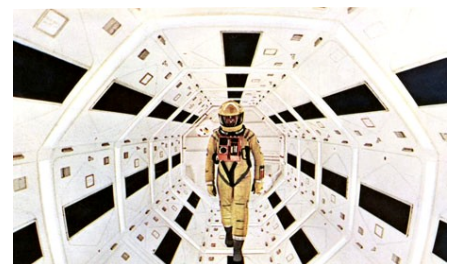
We have a new website and it has just about everything in it – answers to most of the questions people ask, information about procedures, before-and-after photos and back copies of most newsletters.

There are also copies of the articles I have had published in the ADA News Bulletin over the years.

Writing up the website took quite some time and effort, a lot of megabytes on the computer and a fair amount of patience and good will from the family.

When we bought the computer some years ago we christened it Hal, after the mega machine in Stanley Kubrick's 2001: Space Odyssey. *'I am sorry, Dave. I know you were planning to shut me down. I could not allow you to do that.'*

Of all the characters in the movie, Hal displayed the most personality, even as he explained in his soothing monotone why he had to kill all the crew in the spacecraft.



We did give some consideration to the name Marvin, after the paranoid android in Hitchhiker's Guide to the Galaxy. *'Brain the size of a small planet and I am stuck here listening to you lot!'* But Microsoft had already appropriated the name for their new hand held phone/computer.

Microsoft's Marvin has voice recognition and does not argue back like the original robot, which means that when you ask for Dental Update you are not given a site for Mental Uptake.

This is particularly so when you ask politely, a trick that usually seems to give good results, whether in the work place or a social context.

After the weeks of labour hidden away in the office, however, the computer has finally been renamed.

It is now Camilla, the third person in the relationship.

## CURE FOR CANCER?

If you think about it, cancer is a genetic disease - not hereditary, but genetic in the sense it involves genetic changes to cells' DNA. Cancer therapies have recently made wonderful advances and survival rates are often remarkable but treatments still struggle to target such rogue cells and attack just them exclusively.

Cancer cells grow excessively because they lack the checks and guidance of healthy DNA. Often the body's immune system fails to recognise the cells as unwelcome and even vaccines specifically designed to stimulate the immune system attacking particular tumours are of limited success. Animal studies\* suggest part of the problem is that cancers can co-opt the body's own stem cells to produce a chemical called *Alpha Fibroblast Activation Protein* which switches off the local immune response.

Professor Niles Pierce of California's Cal Tech believes a genetic disease like cancer requires a genetic treatment involving something like DNA.

RNA is closely related to DNA except that it contains a ribose sugar rather than the more famous deoxyribose. It is not as long or complicated as DNA and usually comes in a single strand rather than double helix, but it is integral to reading the genetic code. Basically, while DNA contains information on the body's growth and organization and constitutes a virtual recipe book, RNA does the actual cooking. Its job is to carry instructions from the DNA to the nuclei's *ribosomes* and then act as catalysts to produce the prescribed proteins.

But RNA can be tweaked to perform different roles. Pierce and his colleagues engineered human RNA with two additional elements. The first, the *diagnostic component*, scans the nuclei's DNA and looks for specific genetic sequences that are stereotypical only of cancerous cells. For instance, a growth development gene might align itself next to a *strong promoter*, producing a nasty *fusion gene* which initiates runaway growth.

Once malignant changes are detected, the second *therapeutic component* is stimulated to unwind the RNA molecules.

They then reattach themselves like double stranded DNA molecules, looking virtually identical to infecting foreign viruses.

The body's cells are programmed to self destruct when harbouring viruses. Cancer cells are tricked into thinking they are infected and begin dying off. Pierce reported a 20 to 100 fold reduction of tumour cells in laboratory studies.

It is a big step from laboratory experiments to human trials but, in future, reconditioned RNA might just prove to be the genetic bullet which treats cancer.

\* Research carried out by Dr. Doug Fearon of Cambridge University



## THE JOYS OF LEADERSHIP

After a long, cold winter, summer is finally on the way and most of us are looking forward to getting outdoors in the sun and possibly topping up our tan.

Years ago, before the Slip, Slop, Slap message had evolved, many young people longed to be bronzed Aussies and we spent excessive time baking in the sun and never applied sun screen. Foolishly I even sat in front of a sun lamp on occasions. Sunburn was a minor price one paid for going brown and we rarely considered the consequences.

It should have come as no surprise I developed a little basal cell carcinoma on my face. This innocuous looking skin cancer was treated repeatedly over many years but it always managed to somehow return and grow slightly larger. Its appearance was deceptive and the dermatologists invariably removed most, but not all of the lesion.

Eventually it had to be scraped away and I ended up with a large skin graft on my cheek and a resemblance to the Phantom of the Opera on a bad hair day. Subsequently a small amount of nipping and tucking have restored my good looks and these days I am regularly mistaken for either Brad Pitt or George Clooney but back then, I carried a nasty scar.

But at least the skin cancer had been removed and life went on. I started playing cricket again and eventually became captain of the local club's Thirds.



My team-mates enjoyed their cricket but few took the game or its etiquettes very seriously. Despite the fact we won most of our matches, leading the team was rather like herding cats. Setting the field was a particular challenge.

One game I had to move Jason (we'll call him) into short leg. Jason had blonde tips and an attitude but this attitude did not extend to fielding close to aggressive batsmen. 'Jason' I suggested, 'would you please move in a bit closer. Jason, just go into short leg. Jason, will you **go in close!**'

*You go in close! Your face is already mucked up!* (Or words to that effect.) Jason's reasoning was difficult to argue with, so I did. I moved in to short leg.

Shortly after, cricket and I parted company. I decided it was more satisfying to play solitaire on a Saturday afternoon than lead the local Thirds. But I did take some valuable life lessons from the experience. I learnt that with leadership comes the weight of responsibility but the pay rate is usually poor. More than anything, though, I realized the importance of always applying a good sun screen.

As for Jason, he learnt that... well, come to think of it, Jason was not amenable to learning very much at all.