

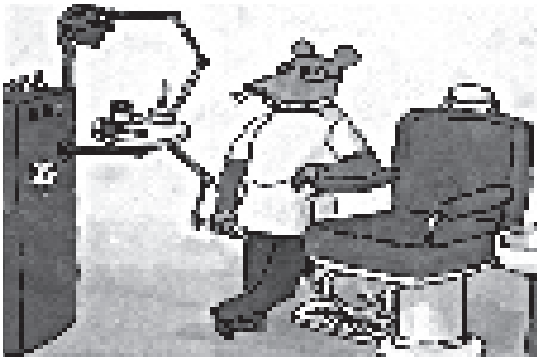
# DENTAL UPDATE

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## SEDATION GAS

Let's face it, everybody gets at least a little nervous going to the dentist!

Most dental procedures these days are completely painless but, for many adults, the memories of childhood experiences are not easily forgotten. They avoid having basic work done, teeth deteriorate and, when these start to hurt, simple treatments have become complicated and daunting.

There are, however, a lot of steps that can fix the problem.

Tranquillisers can be prescribed as a pre-medication. The best ones are short acting – they take effect quickly and wear off relatively quickly. If taken one and a half hours before an appointment, a person feels relaxed, mellow and drowsy by the time they sit in the dental chair.

Tranquillisers can make all the difference for a nervous patient but they should not be used flippantly. The ability to drive a car, or even just cross Toorak Rd. unassisted is impaired severely. (Crossing Toorak Rd. is tricky at the best of times!) It is essential that the patient be escorted to and from the clinic by a friend or family member and then spend the remainder of the day resting.

The other technique that can help profoundly involves Sedation Gas - otherwise known as Nitrous Oxide Sedation or Relative Analgesia.

Sedation has been a part of dentistry for over thirty years and this clinic has used it since the late seventies. It is the same gas that is used in maternity wards during childbirth; half air, one quarter oxygen and one quarter nitrous oxide.

Over the years it has proved extremely safe and reliable. In the health professions Murphy's Law generally applies, but there have never been reports of severe complications.

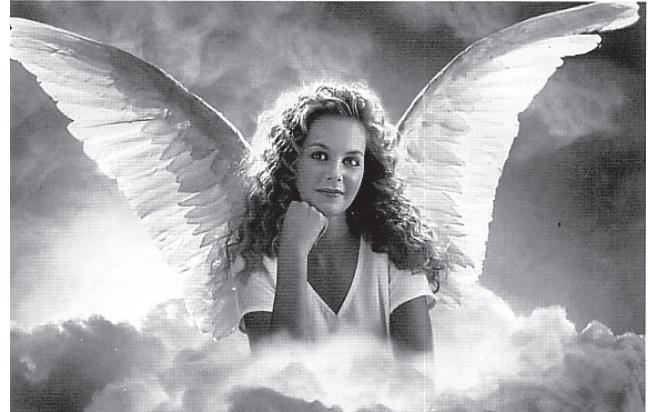
It produces a lazy, euphoric feeling, as well as some tingling in the fingers and toes. A nice side effect is that it also reduces pain perception, such as the prick of the injection.

The patient does **not fall asleep** with the gas. It is always possible to have a conversation between the dentist and the patient. If necessary, one can even ask to have the gas turned off.

The best part about gas sedation is that it **wears off completely** afterwards. The nitrous oxide is flushed out of the body within two to three minutes by breathing oxygen. It is possible to drive off to work quite safely after the appointment.

Sometimes the sedation is simply used for a few minutes when the injection goes in. Other times it might be used when someone is worried about a particular procedure, such as a wisdom tooth extraction.

New patients having work done for the first time seem to especially benefit. After one or two visits they often gain in confidence and can be weened off the sedation.



## WE'RE NOT GOING TO HURT EACH OTHER, ARE WE?

Sometimes patients think about securing their bikes outside the clinic's front door, until it is suggested they bring them around the back. Occasionally people consider tying up their little dogs until they realise it is safer to put them in our courtyard. And occasionally someone will put a **really big** dog outside our back window.

Julie Garnet arrived at the clinic the other day and suspected her Great Dane *Hobgoblin* might terrorise the neighbourhood if he was tethered out on the pavement, so we locked him in the courtyard. Hobgoblin has a lovely nature, so we are told, but he is large enough to intimidate the Hound of the Baskervilles and is extremely protective of his owner. When all sorts of dental things started happening on the other side of the window, he was determined to come to the rescue! Hobby stood with paws on the window sill and barked constantly for *one hour!*

I always try to be kind and considerate with my patients, but, on this occasion I had made up my mind - we were not going to hurt each other. It is not often the dentist gets nervous contemplating a dental treatment!





## TOUGH TEETH

Since fluoride toothpastes became popular and Melbourne's water supplies were fluoridated in the 1970s, tooth decay has dropped dramatically. Recently, though, the rate of decay has again started to rise slightly. Clearly decay is a problem that has not quite gone away.

Melbourne's Professor Eric Reynolds believes the answer lies in the chemistry of tooth decay. He has confirmed that cavities first start to form when plaque acids weaken enamel by leaching out minerals. This softening is referred to as *decalcification*, because it is principally calcium dissolved away by the acids.

If the process continues, bacteria gain access into the centre of the tooth and decay starts to expand rapidly.

Decalcification sounds frightening but, at a subtle level, it occurs every time we eat lunch and a little plaque builds up. Usually minerals in our saliva are absorbed back into the enamel and it remains healthy. Decay only begins when more mineral comes out than goes back in!

Fluoride is known to promote mineral replacement but Reynolds found that dairy products are also especially good at stimulating *recalcification*. Milk and cheese supersaturate the enamel with calcium and phosphate and these minerals are absorbed back into the tooth's chemistry.

Milk's active ingredient is a protein, casein phospho-peptide, (CPP) which actually carries more mineral than any solutions chemists can devise in a laboratory. Prof. Reynolds has isolated the CPP and concentrated it into a product dubbed *Recaldent*.

As well as hardening the teeth, Recaldent has been found to actually reverse early tooth decay.

## WHITE SPOTS

These days smiles look different from in the 1970s. Many young people have front teeth with a different appearance and colour pattern from those of their parents thirty years earlier.

In most ways the teeth are much better. There are not have as many cavities or fillings, which is wonderful, and the teeth are usually straighter since orthodontic treatment is now more common. The colour of the teeth, though, is often rather patchy, with a subtle mottling effect; there are sometimes opaque white spots around the tips and the enamel does not have a uniform colour.

This **fluorosis** is due to mild defects in enamel formation, resulting from excessive fluoride uptake in early childhood. Invariably this can be traced back to too much adult strength toothpaste being swallowed at the age of three or so.

Enamel should have a crystalline mineral structure (hydroxy-apatite) that is regular and full of calcium, but the white spots have a haphazard pattern and a deficiency in calcium. It is these imperfections that produce the opacity.

Applying Recaldent Tooth Mousse tends to correct the white spots because it promotes propagation of the enamel crystals. It can be rubbed in, or, better still, worn inside a plastic plate like a paper-thin mouthguard. The best results are achieved when the dentist prepares the spots with special abrasive and whitening bleach is occasionally applied to increase permeability.

## RECALDENT TOOTH MOUSSE

Studies run on Recaldent have found that, when a superficial hole first develops, Recaldent stimulates mineral uptake to reharden the surface 101%, making it stronger than it was in the first place.

Recaldent has been added to a number of products, such as chewing gum and sugarfree lollies, but the most useful is a creamy paste called **Recaldent Tooth Mousse**.



Tooth Mousse contains 10% CPP and is available only through dentists. At this clinic it is sold, at cost, for approximately \$20. It comes in a number of flavours, such as vanilla, melon and tutti frutti but they all manage to taste milky. Most people do not need the paste but some individuals can benefit profoundly.

◆ Young **children's teeth** are much softer than those of adults and decay readily. If Tooth Mousse is brushed in once a week the enamel matures and is much less likely to decay. It is harmless if swallowed and children do not mind the taste.

◆ People taking blood pressure medications and the elderly often suffer from depleted saliva and experience **Dry Mouth**. Healthy saliva is important because it limits plaque build-up, buffers acids and helps demineralisation. When the saliva starts drying up, teeth that have been decay free for decades suddenly start developing cavities all over again.

◆ Adolescents having their teeth straightened find it hard to remove all the plaque around their **orthodontic bands**. When the bands are taken off the enamel can show a patchwork effect where decalcification set up. Tooth Mousse can prevent the decalcifying even if cleaning is less than perfect.

The best way to apply the Tooth Mousse is, two or three times weekly, to combine it on the toothbrush with a few drops of fluoride gel, such as Colgate Gel Kam. After it is brushed in, it should not be rinsed off but rather a film left over the teeth.

## BUT WAIT, THERE'S MORE

Recaldent Tooth Mousse has a few other benefits. It binds more water into front teeth, hydrates them and gives them more lustre and sheen.

When teeth are cold sensitive due to root exposure, the traditional home treatment has consisted of rubbing in either Sensodyne or Gel Kam fluoride gel. Both work by thickening the tooth's chemistry and creating a barrier to the cold.

Tooth Mousse will speed up the treatment. When applied in combination with Gel Kam, teeth can be symptom free within a couple of days.

## RADIOACTIVE TOOTHPASTE

Back in the 1950s, assistants in shoe stores routinely took X rays of children's feet to ensure their new shoes fitted correctly. As youngsters, baby boomers boasted beautifully fitting shoes, and, as an added bonus, when we took them off we could often see in the dark, due to the soft glow emanating from our toes.

At the same time in America some dentists were even more creative with radiation and routinely added uranium to the porcelain of their crowns. Their patients would have boasted truly radiant smiles, even if they did not set off Geiger counters.

Apparently, though, the Germans trumped us all forty years earlier. In the earlier part of the century, the *Auer* company added radioactive thorium to its toothpastes to make teeth sparkle. When the English scientist, James Chadwick, was held as a POW during World War 1, he continued his physics research by conducting experiments using the German toothpaste. Later in 1932, he went on to discover the atom's *neutron* but, sadly for the world of dentistry, it was *not* through exploding tubes of toothpaste!



*Auer* toothpaste was manufactured for decades although it disappeared during the second World War when the company diverted its radioactive oxides out of the bathroom and into Werner Heisenberg's atomic bomb experiments. Frankly, today's whitening toothpastes have a lot of ground to make up!

## TIMES CHANGE

Twenty odd years ago attitudes were somewhat different, especially in the western suburbs where I first commenced practise.

We had a gentleman arrive at the surgery one day demanding to have a tooth extracted and he was seen by Dr. Ingrid, who was a skilled dentist and a very attractive young lady. The patient wasn't having a bar of this modern nonsense, however, and his response was "I'm not letting no bloody sheila pull out my tooth!"

Ingrid was not put out. She explained that Dr. Fred would be arriving in half an hour and he would certainly know how to remove the tooth.

Now Freddy was middle aged, big and burly and his diagnosis of a situation was usually spot on. He wandered in with a monkey wrench and announced, "I hear you need a tooth out Sport!"



The tooth was successfully extracted but the patient was not heard of again. It is the sort of thing that would **never** happen in South Yarra!

## 'IS BUREAUCRACY DANGEROUS ?'

The Department of Human Services is more safety conscious than were previous generations and shoe salespeople, for instance, are definitely discouraged from irradiating their customers. In dentistry the Department registers all our X-ray machines and posts out little registration stickers.



These stickers make the machines a whole lot safer by confirming that the registration fee has been paid.

Recently the Department decided to work a little overtime and began circulating a quarterly 'Radiation Newsletter', complete with a column called *Helpful Hints*. Here is an example of some of the down-to-earth, practical advice:

*One Becquerel (Bq) of uranium is massive enough to be visible, but 1 Terabecquerel of pure Technicium-99m is not. For americium-241/beryllium neutron sources 37 GBq is equivalent to 2.2 million neutron/seconds.*

Now that these issues have been clarified I will probably sleep better at night. Isn't it nice to know a government department trully understands the needs of the suburban dentist?

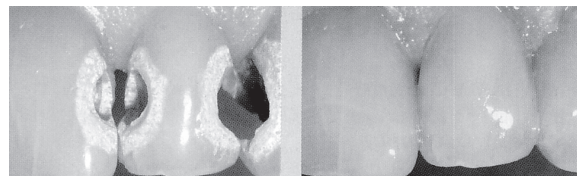
## NO, I DO NOT WANT A BAGEL!

White fillings have been available for thirty years and many dentists like them because they bond to the enamel and eliminate the need to drill mechanical undercuts into the tooth. Composite resin is the most popular and successful material. It is hard and strong, sets on demand (when exposed to white light) and looks exactly like real tooth substance. In some instances, though, it is not always the ideal choice.

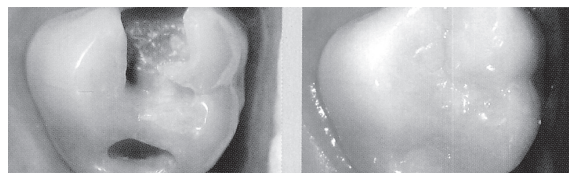
When cavities are extremely deep, the composite bonds poorly to the inner dentine and can even be irritating to an exposed nerve. What is more, it shrinks ever so slightly on setting, and this can stress the tooth.

Modern dentists are now starting to use materials in combination by placing an initial thick layer of Glass Ionomer Cement. These GICs are not as strong or aesthetic, but they are kind to the nerve and, being water based, bond strongly to moist dentine. Moreover, their fluoride release hardens up the rest of the tooth.

So next time the dentist announces 'I need a *Sandwich Filling*' do not assume he is daydreaming about his lunchtime latte and rye bread. He is just turning a weakened tooth into a last-a-lifetime tooth.



*Composite bonds to the tooth, something that amalgam can not do.*



## IF A TOOTH IS KNOCKED OUT

Essendon footballer, Dustin Fletcher, made the news recently for all the wrong reasons when he had two front teeth knocked out. The only good thing to come out of the incident was that it brought emergency dental treatment to the public's attention.



If a tooth is knocked out, this is what you should do.

Pick the tooth up by the **crown**, not the root. Instinct says to wash off any dirt

under cold running water. Do **not** do this! The cells on the root surface will be damaged. Water lacks the pH and salinity which is normal to the body. Instead, remove the debris one of two ways.

- ◆ Either rinse off any contaminants using *milk* (which is, after all, a biological product) OR
- ◆ Holding the tooth by the crown in the person's mouth, have him/her suck and spit out any debris from the root surface. Repeat this a number of times until the tooth is clean.

Try to place the tooth back in the socket and have the person close the teeth together and keep them together. Occasionally repositioning the tooth may prove too difficult; to store the tooth in the interim, either wrap in Gladwrap or have the patient carry it *in the mouth* next to the cheek. Go to the dentist immediately.

## SMART TECHNOLOGY / DUMB TECHNOLOGY

Dentistry is becoming so gimmicky. New toothpastes and brushes are constantly coming onto the market and most of them are no real improvement at all. At dental conferences dentists are pressured to buy all sorts of fancy equipment.



The new HealOzone device slightly reduces the need to drill by killing decay bacteria with ozone. The trouble is – the ozone is dangerous if inhaled and the machine costs \$36,000. A small bottle of silver fluoride does the same thing for \$30. *And* it is safe and rehardens the enamel at the same time.

Sometimes we are confronted with new technology and 19<sup>th</sup> century thinking.

For the price of a large Mercedes, dentists can purchase a computerised *Cerec* system which will scan a prepared tooth and mill a block of porcelain into the form of an 'inlay' which is then cemented into place in the cavity. It is mind-blowing technology! The only trouble is that the porcelain is not made of rubber and will not go into hollows – to accommodate the inlay the tooth must first be shaped to size and suffer extra drilling. This means a very exotic filling but a weaker tooth.

It is like the scientists designing a computerised steam locomotive – very impressive but not a big improvement.

## DID YOU KNOW?



Coke and Pepsi each contain approximately 9½ teaspoons of sugar per glass. Both have pHs of approximately 2.5, while battery acid has a pH of 1.

The really disturbing fact is that teeth start to decay when the pH around them falls to just 5.5!



Sugar free chewing gum helps the teeth but the usual artificial sweetener, *Sorbitol*, does produce plaque. The less popular sweetener, *Xylitol*, actually reduces decay because it stops the main bug in plaque, *Streptococcus Mutans*, from adhering to the tooth surface. As well, it has a direct effect on enamel and hardens it up, rather like fluoride does. So the next time you are shopping for chewing gum, check out the labelling. If you can find it, go for the one with Xylitol.



The strongest mouthwash is Savocol and the very strongest antiseptic is Periogard Forte Gel. They are good products but their *chlorhexidene* gives them two minor drawbacks. Firstly, they stain the teeth if used for week after week. Secondly, they are inactivated by toothpaste – this means the mouth must be rinsed before using either Savocol or Periogard.



Children growing up in areas with fluoridated water have 45% less cavities in their baby teeth and 38% less in their six-year-old molars.

## STAR GAZING

We have some very nice and well educated staff in the clinic at the moment. Young Mark, our receptionist, is nearing the end of a music degree at the Melbourne Conservatorium and Zoe, our new nurse, has just left university. Kylie has a background in mathematics and astrophysics. While some of us were looking up our astrology predictions she was researching the intricacies of star formation.



Recently I was taking X rays and, wanting Kylie to develop them, I asked her to "Please do the honours."

She replied No, she had already done the Honours. Next year she was considering doing the PhD. Smarty pants!

## OYSTERS AND BARNACLES

Most people seem to get a little tartar or *calculus* behind their lower front teeth. It is a calcium deposit and arises from mineral precipitating out of saliva, especially in the presence of plaque.

I was explaining this to a lady the other day and commented that it is rather like barnacles building up on the side of a boat. She did not really like the analogy so we modified it slightly – the calculus was more like a few little oysters. Possibly with pearls, which are much more socially acceptable!