



DENTAL UPDATE

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LIFE'S MYSTERIES

There are many mysteries in this world. Where do the possums go during the daytime? Why do more people shop with American Express? Why do my golf shots go sideways?

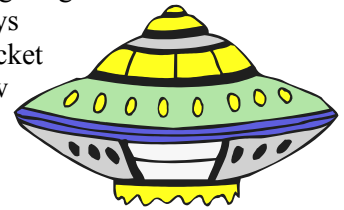
One of the enduring mysteries is why people still suffer tooth decay? It seems strange, because fluoride has hardened up enamel and everyone is so much more aware of diet.

Of course not everyone gets decay. Many youngsters will go through life never needing a filling. Others are not so lucky. If you have had decay in the past, and want to avoid it in future, here is what to do...

- use a very soft toothbrush and brush hard in large circles, especially around the gums where food collects
- avoid acidic drinks like Coke and Gatorade and sticky snacks such as biscuits
- harden the enamel against acid attack by brushing in a fluoride supplement such as **Colgate Gel Kam** once or twice a week
- buy some **Recaldent Tooth Mousse** from the clinic and rub it into the teeth every few days to toughen the enamel even further

In the meantime, here are some mysteries that *have* been solved.

Flying saucers did not appear until the 1940s. Prior to then there were sightings of UFOs but they always appeared to be rocket ships, as everyone knew that was the only way to travel through space.



In 1947 a commercial pilot reported seeing what may have been other planes. His comments were completely misquoted. "These objects more or less fluttered like boats on rough water. I said they flew like you take a saucer and throw it across the water."

Since then the rockets disappeared and people started seeing flying saucers instead.



Loch Ness definitely harbours a dark secret but it does not seem to be a monster. The loch straddles

geological fault lines which occasionally shift. When this happens, a mini tsunami makes the water erupt as if some creature is breaching the surface. Mundane but true.

As for the possums, I am still not too sure.

A WEAK BLADDER



When dentists go to seminars they often learn as much in the foyer nattering to colleagues as they do falling asleep in the lecture theatre. Recently I was talking to an old friend about the benefits of sedation gas, or nitrous oxide.

Relaxation gas is terrific for calming nervous patients, especially before injections are given. It does not put them asleep but it does turn a grimace into a grin and change a dental appointment into quite a pleasant experience.

My friend was relating how his gas suddenly stopped working the other day. No matter how much he turned it up there was no effect and the rubber gas bag that indicated the gas flow did not even move. The patient was getting more anxious and he was becoming impatient.

Then he tweaked. The rubber bladder had sprung a hole and the laughing gas was leaking. He had been talking about replacing the old equipment before it wore out but had not gotten around to doing it.

The moral is fairly obvious. Talk is cheap but you can not trust a rotten old gas bag.

SENSITIVE NEW AGE TEETH

Everyone is becoming more conscientious about cleaning their teeth. Sometimes, though, it is easy to scrub sideways, expose the roots and abrade their surfaces. The resultant indentations can become quite sensitive, especially to cold.

The other factor that can thin the teeth is habitual grinding, especially during sleep. Believe it or not, teeth actually flex and the area of greatest bending is near the gums. Over time this spot wears out, creating grooves and mimicking the sort of abrasion caused by sideways brushing.

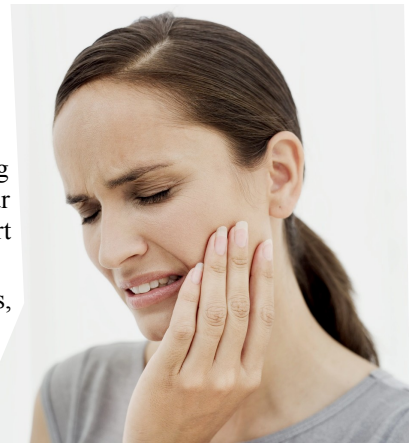
These concavities expose parts of the tooth that are permeable and weak. The canals, or *tubules*, that run through them down to the nerve are usually broad and hollow and filled with fluid that readily transmit stimuli such as temperature change. To insulate the pulp underneath they need to close up and thicken by absorbing calcium and other minerals.

So what can be done? Apart from smarter toothbrushing, desensitising agents can sometimes help. Toothpastes such as **Sensodyne** contain potassium salts, which reduce the electrical transmission between the tubules and nerve endings in the pulp. They are somewhat effective but do not address the underlying problem and their effect quickly wears off. The best strategy is to increase the density of the tooth structure through uptake of mineral.

Colgate Gel Kam (from the chemist) and **Recaldent Tooth Mousse** (from the dentist) are both designed to prevent tooth decay but are wonderful at treating sensitive teeth. Gel Kam is a supplement which promotes the absorption of fluoride and other minerals. It strengthens enamel by converting weak hydroxy-apatite into decay resistant fluoro-apatite, but importantly, it also stimulates increased thickening of the tubules. Tooth Mousse is a product based on *casein phosphopeptide*, found in milk. It is saturated with calcium and phosphate and readily deposits these minerals to again coat and narrow the tubule walls so temperature change is transmitted more slowly.

Both are very effective but they work best when used in conjunction. Simply put a little of each together on a finger and rub them into the sensitive teeth for a week or so.

In addition to home care, dentists now have great adhesive materials for filling the little hollows. They even release mineral to further soothe and toughen jumpy teeth. In most cases - problem solved!



THE FLIP SIDE OF FLUORIDE

There is no doubt fluoride has dramatically cut the rate of tooth decay. Since fluoridation was introduced in 1975 dentists do not make nearly as much money fighting decay as we did back in the sixties. Dentistry is not what it was!



Despite the benefits there are a few complications. There is no evidence of any general health effects but there are some dental ones. The profession tends not to publicise these drawbacks for fear the lunatic fringe will create a health scare. On the other hand, all my patients are sensible, intelligent people so you may as well know the *down side* of fluoride, even if that down side is just a slight dip.

Probably the biggest problem is young kiddies swallowing too much fluoride toothpaste. Fluoride hardens enamel topically - in other words, directly on the surface. The **dietary effect is minimal** and, when three year olds ingest too much, the enamel formation can, in fact, be adversely effected. This can easily happen, because, after all, little ones have low weight and lack the motor control to spit properly.

It is not uncommon to see adolescents with opaque **white spots** on their incisors. Usually the cause can be traced back to when their teeth were originally forming.

Fluorosis enamel has a haphazard crystal structure with reduced calcium and excess fluid. In theory its surface is softer although, in practice, decay is rarely an issue.

White spots can be treated if they are a cosmetic problem but, of course, they are best prevented. Toddlers up to the age of two should have their teeth brushed just with water. Then, up to five, brushing should simply be with a pea sized amount of junior low fluoride toothpaste.

For dentists the main problem is that **recognising cavities has become more tricky**. In the old days, decay created real physical holes on the surface of teeth, since the enamel was softer.

Today decay finds it harder to burrow into teeth but, when it does, it leaves little visible scar on the surface. It is usually only when the tooth has well and truly rotted that an actual cavity collapses on the exterior.

So, is fluoride a good idea or not? It certainly *is* beneficial and I suggest that most people even brush in a supplement, such as Colgate Gel Kam, as an added insurance against decay. Applied directly to enamel it converts vulnerable hydroxy-apatite crystals into acid resistant fluoro-apatite.

On the other hand parents of young children need to buy the right toothpaste and dentists need to be diligent about diagnosing decay when it is not all that obvious.

SEALANTS

Many people have teeth where the enamel is neither sound nor decayed but hovering somewhere in between.

The problem is that plaque can lead even the best teeth to lose a little mineral. The easiest place for food to collect is in the wrinkles of back teeth — in other words the pits and fissures. Over time, the resultant plaque acid will eventually leach calcium from the surface.

When enamel decalcifies and turns chalky it begins allowing bacteria to actually penetrate the surface. It is then just one step away from tooth decay. Ouch!

Often the dentist can effectively 'heal' these early decays by applying a sealant before real damage is done. The process is simple. The surface is cleaned with the air abrasion 'sand blaster' and a film of Glass Ionomer Cement set over the weak spot.

There are multiple benefits. Obviously plaque is sealed out so that acids can not attack the surface. In addition sealants raise the pH to neutralise acids and kill bacteria. Most importantly they release minerals such as calcium, phosphate and fluoride to reharden the soft enamel.

Usually the most vulnerable teeth are kiddies' six year old molars. These are actually permanent, adult teeth but, when they are newly erupted, their enamel is immature and weak. Children's little hands usually have trouble cleaning at the back of the mouth and it is common for early decay to commence within months of eruption.

Most dentists place sealants on these teeth as they erupt purely for prevention. Not only is decay intercepted but the resultant mineral exchange matures the surface so plaque acids are resisted long after the sealants have worn out.

Today's sealants are reasonably soft and do not last quite as long as the resins used some years ago. On the other hand they harden the enamel to such an extent that, by the time they have worn away, the surface underneath resembles that of strong adult molars.



Pits are weak and vulnerable. Sealing can prevent decay by keeping out the plaque and rehardening the enamel.

A WRONG IMPRESSION

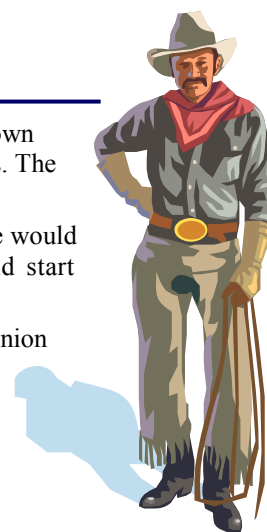
Some of the materials we use in dentistry are rather tricky. Taking an impression for a crown recently, I was horrified to discover the rubberised paste had leaked and spilt over my trousers. The impression was perfect but the trousers were ruined!

The patient was an eminent professor of medicine. As one health worker to another I knew he would understand. I confided that these materials were difficult to handle and maybe I should start wearing surgical overalls.

The professor disagreed. He had years of experience in the health profession and in his opinion what I needed was a pair of chaps.

It was an interesting suggestion, and no doubt, the look would be rather fetching.

Though, goodness knows, the dental profession sure does not need another cowboy.



STRAIGHTENING TEETH

Orthodontics is the best way to straighten teeth, whether for children or adults. Some grownups, of course, are often concerned about the look of crooked front teeth but do not like the idea of braces or plates.

If you want to learn about alternatives, check the article I published recently in the ADA News Bulletin, 'Mimicking Tooth Straightening'. It explains how bonding and shaping can often create the appearance of straight teeth.

The piece is written for the dental profession, so it is a little technical, but the Before and After photos explain a great deal. Some of the improvements are quite spectacular.

A copy of the article is available at the clinic or it can be downloaded from our website www.dentalupdate.info.



Making teeth appear straight can often be achieved in two or three appointments

“NOT THE MELBOURNE METHOD!”

The ABC recently reported that Australians are now spending more, per capita, on cosmetic procedures than Americans. This raises a number of interesting questions, not least of which is why do most of us still look so average to ordinary?

Obviously serious cosmetic problems need to be addressed but frivolous procedures are easy to lampoon and this often happens in the movie business. An early example was in the classic Cary Grant flick, *Arsenic and Old Lace*. The plot revolved around two sweet, little old ladies who were quietly poisoning their elderly house guests because “they looked so happy and peaceful when they were dead.” Grant and his girl friend could have handled this dilemma if their problems were not compounded by the arrival of the sinister cousin and criminal, Johnny, who was, as ever, running from the law.



Johnny was accompanied by his henchman, Dr. Einstein, a disgraced plastic surgeon played by a simpering Peter Lorre. Einstein was in the habit of altering Johnny’s appearance to evade detection but recently he had botched the operation. He had been watching a Frankenstein movie and, after a few drinks, had decided to make Johnny resemble Boris Karloff. The joke was that, in the original stage show, the villain was in fact played by Karloff.

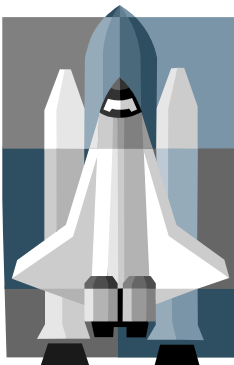
Johnny was invariably angry and violent, but when he really became cross he threatened to bump off everyone in the household. Not only that, but he was going to use the dreaded Melbourne Method! Probably the person most distressed by this announcement was poor Dr. Einstein who repeatedly exclaimed, ‘Oh no Johnny! Not the Melbourne Method!’

We never found out the details of this particular technique but it sounded fascinating. Six years ago when I published a paper on a new minimal approach for filling teeth I was half tempted to call it the Melbourne Method.

Better judgement prevailed and it was instead dubbed the Terminated Tunnel Restoration. I had been watching an Arnold Schwarzenegger movie.

THE SHUTTLE AND THE HORSE’S REAR END

When the space shuttle was designed its scientists were virtually given a blank cheque and *carte blanche*. Its concept was new and owed nothing to earlier technology. Right? Well, almost...



The shuttle is assembled in Florida but its components come from all over the US. Its size is determined by the force of its propulsion and the major thrust comes from the two massive booster rockets at its side. These are built in Utah and have to be railed across the country since they are too heavy to travel by road.

The rail lines pass through a mountain tunnel which is only slightly wider than the gauge, so effectively the dimensions of the rockets are determined by the width of the tracks.

These tracks are four foot, eight and a half inches, exactly the same as have always been used in England, since it was British trained engineers who designed them back in the nineteenth century.



English rail-lines were essentially identical to earlier tramlines.

These horse pulled trams were constructed with the same jigs as wagons and coaches and for centuries their wheel spacing was built to fit the ruts of English roads.



The roads traced back to the Romans and the ruts to the wheels of their war chariots.

The width of the wheels was universal and always just sufficient to fit between the hindquarters of two Roman warhorses.

So, in a way, the dimensions of the space shuttle are decided by the size of a horse’s behind.