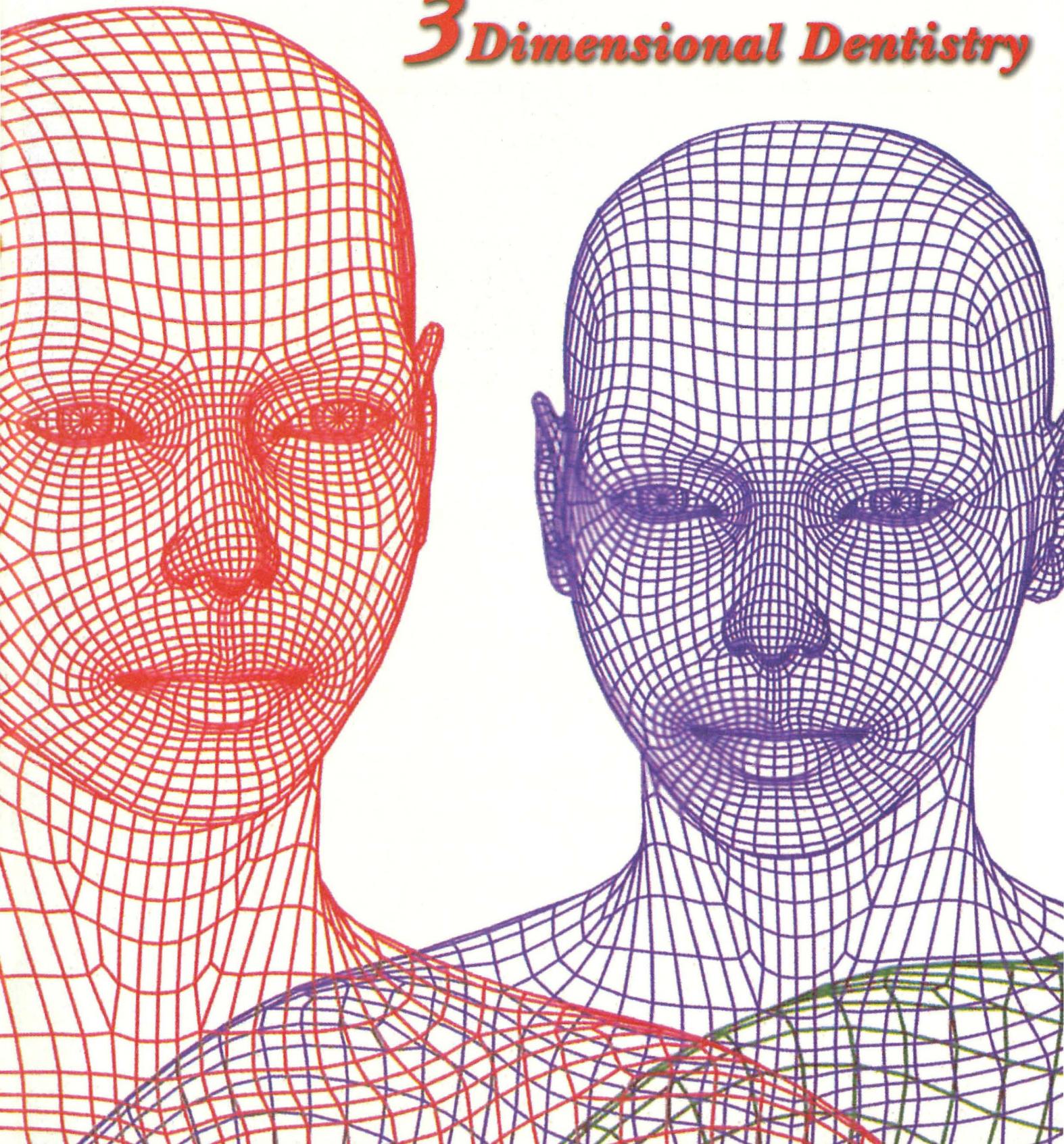


# The Dental Probe

The Maltese Dental Journal

**3 Dimensional Dentistry**



# Precise tools for precise problems



**In your office... and at home**

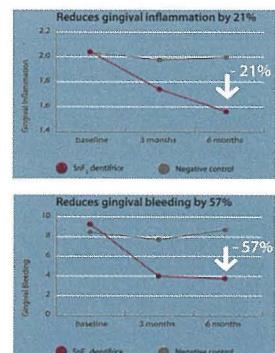
## New Crest and Oral-B EXPERT

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New Crest Expert toothpaste are also available in variant **Crest Expert Enamel Protection** and **Crest Expert Sensitive**.

For better Results, brush with the **Oral-B Expert specialised line of manual toothbrushes** (Expert Antibacterial, Expert Complete 7 and Expert Clean) and **power toothbrushes** (Vitality Expert, Expert Power Antibacterial and Whitening).



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# Editorial

By Dr David Muscat

Dear all,

I have recently been given a guided tour of the dental department at Mater Dei and I must say that I was very impressed not only by the equipment but also the organisation and most of all the positive attitude of all the staff.

We have had many exciting events over the last few weeks and I will list them here. Please note that the DAM is there for us all. You need to embrace it-join us. We not only represent you ,but we organise academic and non academic events enjoyed by many and also involve spouses in some cases.

Dr Lino Said and I spend a lot of our time organising events and it is very encouraging to note a great increase in the numbers attending especially the younger members. Nick helps us with the e mails and smsing so we appreciate your co-operation in replying and confirming your attendance when we book restaurants ,museums, castles or medieval towers! Lino has been instrumental in the tremendous success of our social and cultural calendar. There has never been anything like it .We organise so many events that sometimes I am taking names for 2 or 3 events at a time.

The above is correct at the time of writing the editorial and is subject to changes at last minute due to matters sometimes outside our control. The advertisers are solely responsible for the content of their adverts and the editor may not necessarily agree with the content of all the articles or adverts.

*David*

Dr David Muscat B.D.S. (LON)  
Editor, Vice President and P.R.O. D.A.M.

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## LATEST/PLANNED EVENTS

### 15 APRIL

'Dental Recalls' lecture by Dr Adam Bartolo and 'SMS For Health' presentation by Dr Wilfred Galea. Sponsored by Pro Health obo Laboratorios Kin

### 23 APRIL

'The Red Fort Comes Alive' re-enactment with lecture on facial fillers by Pro Health

### 5 MAY

'The Perfect Smile' lecture by Vivian Commercial

### 7 MAY

Voco lecture, Treasure Hunt and dinner at Dagostinos. Page Technology.

### 12 MAY

Sanofi Aventis Rodogyl, Solpadol lecture with dinner at Gianinis.

### 19 MAY

CEREC Launch and 25 Anniversary Bart Enterprises Hilton. DAM appreciation of Bart enterprises read out.

### 26, 27 MAY, 2 JUNE

Augmentin presentation with dinner Tarragon GSK

### 23 JULY

3M Espe IMTEC MDI and Endure Implants seminar Marletta Enterprises Ltd.

### 7 JULY

Periodontology lecture MFPB 8pm reception CPE sponsors. GSK 8pm 'Periodontal Infection in chronic kidney disease patients. What do we know? Where are we going?' by Dr Effie Ioannidou DDS MDS Assistant Professor School Dental Medicine Farmington Philadelphia.

### 9, 10 JULY

Ivoclar Vivadent All Ceramics workshop at Radisson by Bart Enterprises

### 14 JULY

Madliena Cottage pasta night 8pm sponsored by Mediterranean bank

### 4 AUGUST

'Controlling pain In endodontics' 8pm lecture By Dr Dan Keir followed by dinner at Cafe Jubilee gzira 9.30pm sponsored by Abbott.

### SEPTEMBER

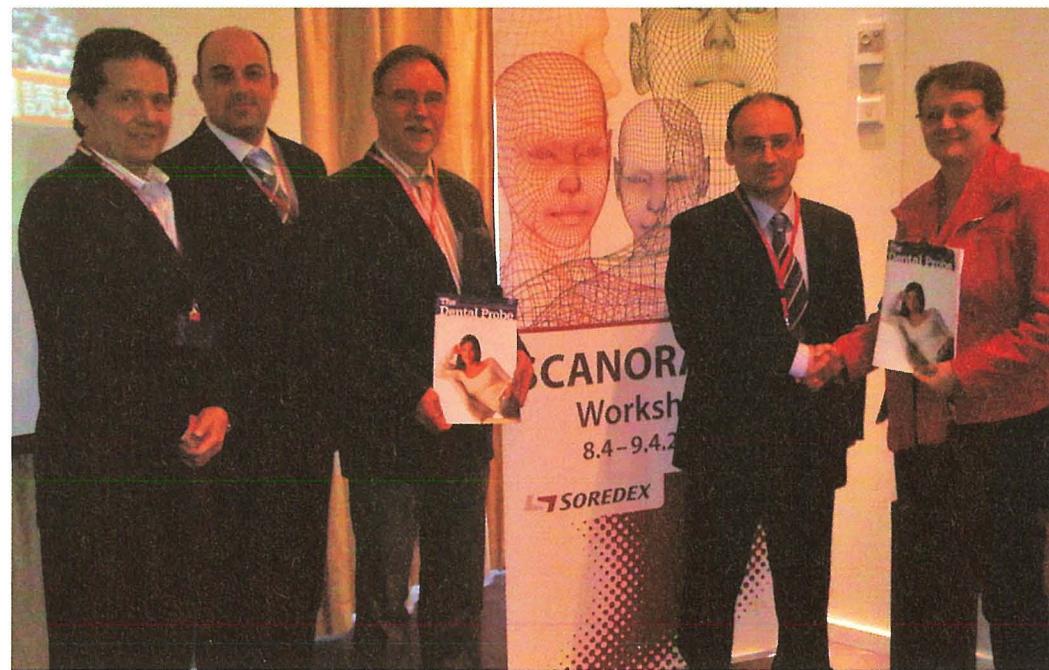
Voco interactive web 9th and 15th evenings 8-10pm teaching for DAM members

### 1 SEPTEMBER

Vinum new wine launch event by Lino Said

### 24 NOVEMBER

'Oral pathology for the General Practitioner' MFPB CPE by Dr. A. Betts sponsors GSK



Dr David Muscat, editor, presenting a copy of *The Dental Probe* to Mrs Tina Holkko, Soredex director at the 2010 International Scanora 3D Workshop in Helsinki. Also in the picture are Dr Joseph Xuereb, dentist from Gozo and Mr Kevin Galea, director of Suratek Ltd, representing Soredex Malta and Mr Matti Linnosari, Soredex Product Manager. See write-up on page 24.

WHITE SMILES WITH

YOTUEL®

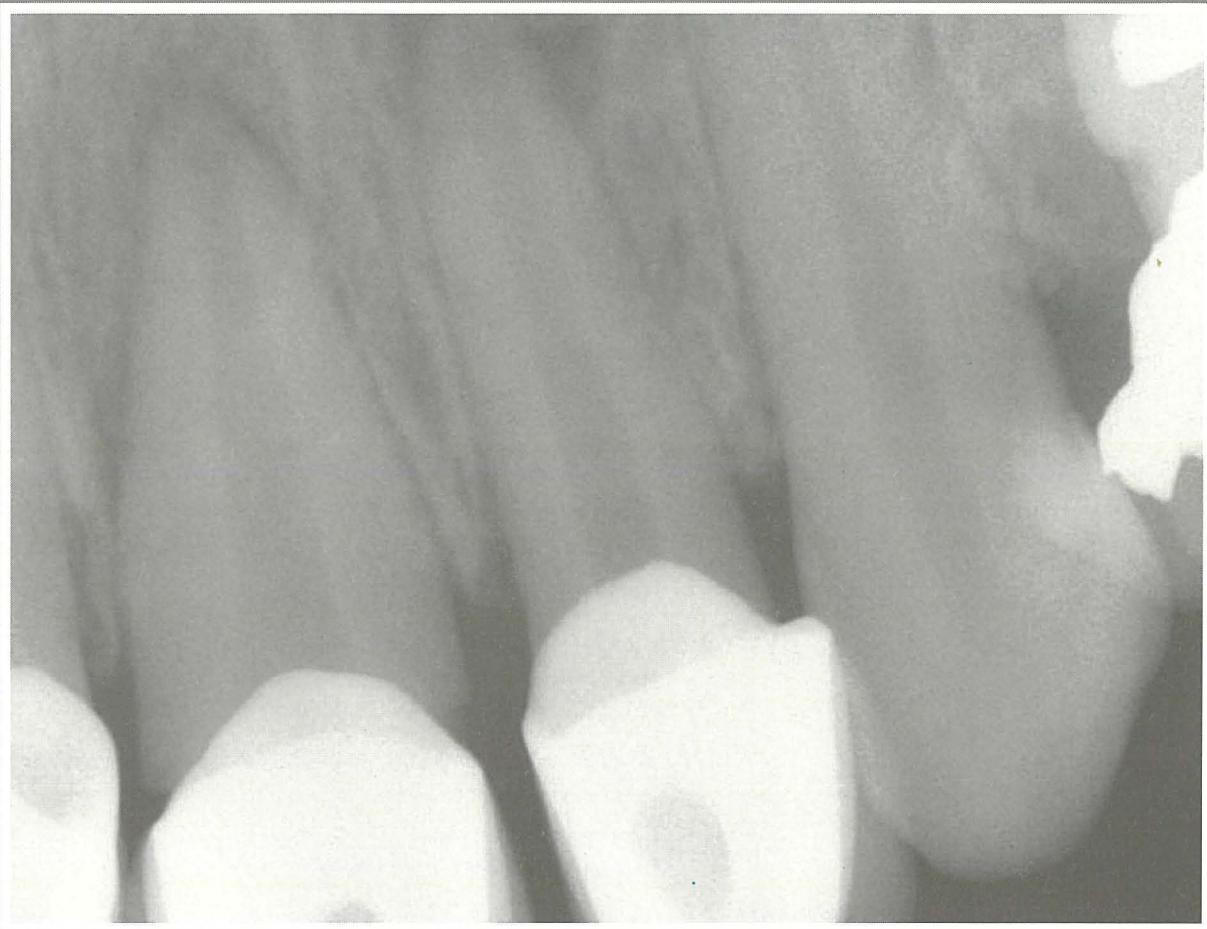


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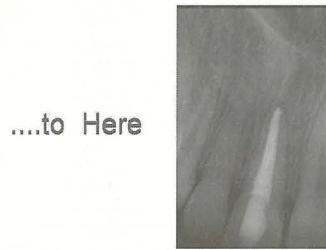


# MANAGING THE OPEN APEX

A presentation by Daniel M. Keir, DDS



How do we  
get from  
here.....



....to Here

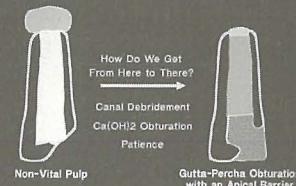
## Managing the open Apex

- Apexification
- Revascularization
- Apexogenesis
- Apical Barrier

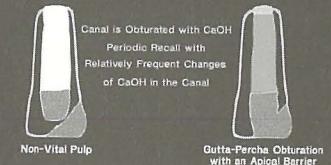
### Apexification

A method to induce a calcified barrier in a root with an open apex in teeth with necrotic pulps

### Apexification



### Apexification



Continues on page 9

# Time to talk about dry mouth?

Dry mouth is an increasingly common condition, primarily related to disease and medication use. In fact more than 400 medicines can cause dry mouth<sup>1</sup> and the prevalence is directly related to the total number of drugs taken.<sup>2</sup>

## Ask your patient

Some patients develop advanced coping strategies for dealing with dry mouth, unaware that there are products available that can help to alleviate the symptoms, like the biotène system.

Diagnosis may also be complicated by the fact that physical symptoms of dry mouth may not occur until salivary flow has been reduced by 50%.<sup>3</sup>

## Diagnosing dry mouth

Four key questions have been validated to help determine the subjective evaluation of a patient's dry mouth:<sup>4</sup>

- 1 Do you have any difficulty swallowing?
- 2 Does your mouth feel dry when eating a meal?
- 3 Do you sip liquids to aid in swallowing dry food?
- 4 Does the amount of saliva in your mouth seem to be too little, too much or you do not notice?

Clinical evaluations can also help to pick up on the condition, in particular:

- use of the mirror 'stick' test - place the mirror against the buccal mucosa and tongue. If it adheres to the tissues, then salivary secretion may be reduced
- checking for saliva pooling - is there saliva pooling in the floor of the mouth? If no, salivary rates may be abnormal
- determining changes in caries rates and presentation, looking for unusual sites, e.g. incisal, cuspal and cervical caries.

Consequences of unmanaged dry mouth include caries, halitosis and oral infections.

# biotène® leaders in dry mouth treatment

1. Eveson JW. 'Xerostomia'. Periodontology 2000. 48: 85-91 2. Sreebny LM, Schwartz SS. 'A reference guide to drugs and dry mouth - 2nd edition'. Gerodontontology 1997. 14: 1; 33-47. 3. Dawes C. 'How much Saliva Is Enough for Avoidance of Xerostomia?'. Caries Res 2004. 38: 236-240 4. Fox PC, Busch KA, Baum BJ. 'Subjective reports of xerostomia and objective measures of salivary gland performance'. JADA 1987. 115:581-584. 5. Tenvuuo J. 'Clinical applications of antimicrobial host proteins lactoperoxidase, lysozyme and lactoferrin in xerostomia: efficacy and safety'. Oral Disease 2002. 8: 23-29.

## Saliva's natural defences

Saliva's natural defences contain a mixture of proteins and enzymes, each of which plays a specific role:<sup>5</sup>

### Protein:

- lactoferrin - chelates iron. Deprives bacteria of iron, which is essential for bacterial growth.

### Enzymes:

- lysozyme - disrupts cell walls of bacteria, resulting in cell death
- lactoperoxidase - synthesis of hypothiocyanite, a potent antimicrobial agent.

## The biotène patented salivary LP3 enzyme system

The biotène formulation supplements natural saliva, providing some of the missing salivary enzymes and proteins in patients with xerostomia and hyposalivation to replenish dry mouths.

The biotène system allows patients to choose the right product to fit in with their lifestyles:

- relief product - gel
- hygiene product - mouthwash

The range is specifically formulated for the sensitive mucosa of the dry mouth patient:

- alcohol free
- SLS free
- mild flavour

The biotène formulation:

- helps maintain the oral environment and provide protection against dry mouth
- helps supplement saliva's natural defences
- helps supplement saliva's natural antibacterial system - weakened in a dry mouth



# Help form a barrier of extra protection against acid attacks



As a result of changing dietary habits in the 21st century, acid erosion is becoming an increasing problem across all age groups. New Sensodyne Pronamel Daily Mouthwash is the first fluoride mouthwash specifically developed in collaboration with leading dental experts to help protect against acid

erosion and caries, containing Tri-Hydra™ polymers to enhance fluoride uptake. The unique combination of fluoride and Tri-Hydra™ polymers is proven to re-harden teeth and build significantly more protection against the effects of acid erosion compared to standard fluoride mouthwashes.<sup>1,2,3</sup>

Recommend Sensodyne Pronamel Daily Mouthwash to all patients with signs of, or at risk from, acid erosion to provide them with **70% more protection\* than brushing alone<sup>2</sup>**



## Extra protection against acid erosion

### References:

1. Fowler C et al. *J Dent Res (Spec Iss A)* 2009; 88: 3377.
2. Shirodarla S et al. *J Dent Res (Spec Iss A)* 2009; 88: 24.
3. Young M and Willson R. GSK data on file. December 2008.

\*based on clinical data on US formulations with 225ppm Pronamel Daily Mouthwash and 1150ppm fluoride toothpaste.

# cariax®

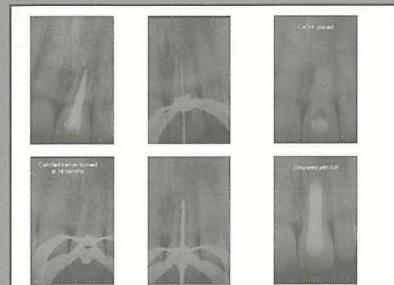
G I N G I V A L  
Inflamed and bleeding gums



Available only in Pharmacies

# MANAGING THE OPEN APEX

Continues from page 5



## Mineral Trioxide aggregate

- dicalcium and tricalcium silicate, bismuth oxide and calcium sulfate
- sets firm in 3 hours
- ability to induce cementum-like hard tissue
- excellent sealing properties
- can set up in presence of fluids
- biocompatible
- greater degree of hard tissue formation than CaOH

## Revascularization

A method to induce the continued apical development of an incompletely formed root in teeth with necrotic pulps

## Revascularization

Goal is the preservation of the potentially remaining dental pulp stem cells and mesenchymal stem cells of the apical papilla so these cells can differentiate into secondary odontoblasts and complete root maturation

## Revascularization

- Accomplished in 1-2 appointments
- No canal instrumentation
- Irrigation with 1.25-5.25% NaOCl (20-30ml)
- Irrigation with Peridex or 2% Chlorhexidine
- Triple antibiotic paste of metronidazole, ciprofloxacin and minocycline for 1-4 weeks
- Removal of paste
- Formation of blood clot
- MTA placement and permanent restoration

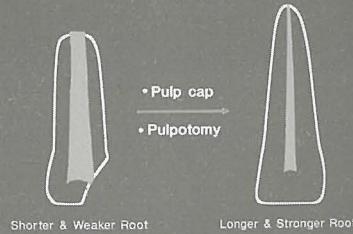
## apexogenesis

Vital pulp therapy procedures performed to encourage continued physiological development and formation of the root end.

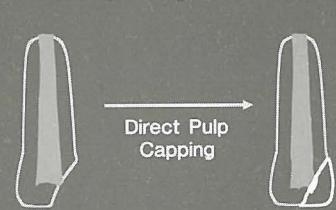
## apexogenesis

The goal is continued root end development and formation of apical closure through continued deposition of dentin and cementum.

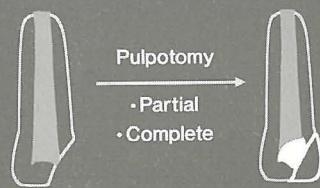
## Apexogenesis



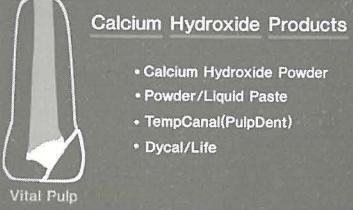
## Apexogenesis



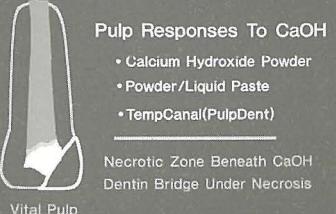
## Apexogenesis



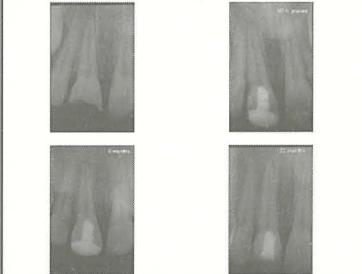
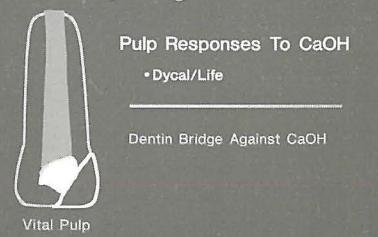
## Apexogenesis



## Apexogenesis



## Apexogenesis



## apical barrier techniques

- Used in teeth with no natural apical constriction
- Loss of apical constriction due to pathological resorption
- Loss of apical constriction due to iatrogenic cause



# HALITOSIS

## HALITOSIS is a condition of offensive exhaled breath.

The word is derived from 'halitus' (which in Latin means breath) and 'osis' (which in Greek describes a medical condition). The actual term 'halitosis' was introduced by Listerine in 1921.

There are records of halitosis which go back as far as 1550BC, where a mouthwash of wine and herbs was used.

Hippocrates wrote 'a pleasant odor is essential in any girl, and must be maintained by using a mouthwash containing anise, dill and myrrh.' In Hebrew literature, written 2000 years ago in 'The Talmud', the marriage certificate or 'The Ketuba' states that 'the marriage can be dissolved if one of the partners has a breath malodor.' There is similar literature in the Greeks, Romans and early Christians.

Halitosis may result in poor self esteem and stress and can adversely affect personal, social and business relationships. It is embarrassing for both those who suffer from it and also those around them.

Some people suffer from 'halitophobia' where they believe they suffer from it even though they may not. This is 'The Olfactory Reference Syndrome.'

Ex-sufferers of halitosis have also written books on the subject such as 'Breath, Eyes and memory.', 'A Breath of Snow and Ashes' and '10 Minute Toughness'.

In South Asia lovers chew Areca nut and Betel leaf to freshen breath. These

also have mild stimulant properties and can be addictive. Ironically betel nut can cause tooth decay and dye teeth red when chewed.

Betel leaf is also used with tobacco as 'pan' which is left in the sulcus and this is carcinogenic.

Sweet magnolia tree bark extract has also been used to treat bad breath. Halitosis may be transient or chronic.

Transient halitosis may be 'morning breath', where the mouth is dry. Also the person may have eaten garlic, onions, meat, fish and dairy products such as cheese. Also heavy smokers and coffee/tea cause bad breath. Spicy foods are also responsible.

There are also variances of halitosis due to the menstrual cycle, hunger, thirst, alcohol, lack of sleep and sunlight and even head positioning. The human nose can detect up to 10,000 different smells and there are in excess of 600 types of bacteria in the mouth.

### 30 % OF THE POPULATION SUFFER FROM HALITOSIS

There is an International Society for Breath Odor Research (ISBOR) which was formed in 1996.

The main cause of halitosis is gram negative anaerobic bacteria which live in fissures in the tongue, periodontal pockets or tonsillar crypts.

The bacteria break down proteins to amino acids which are then broken down to sulphur-containing gases. Cysteine is broken down to hydrogen sulphide. Methionine is broken down to methyl mercaptan.

#### 1. THE BACK OF THE TONGUE

Identified as the main area, bacteria

will thrive on remnants of food deposits, dead epithelial cells, old plaque bacteria and also a post-nasal drip.

On the tongue, bacterial anaerobic respiration can yield a smell of Indole, Skatole and polyamines. Or 'rotten egg' smell of volatile sulphur compounds such as hydrogen sulphide, methyl mercaptan, allyl methyl sulphide and dimethyl sulfide.

The coating on the tongue has a yellowish hue, and is the perfect culture medium for the bacteria to grow in the tongue fissures producing sulphur gas.

#### TREATMENT

A. The tongue needs to be cleaned with a 'tongue cleaner'. This is anatomically shaped so as not to cause the patient to gag. There are both single and double bladed varieties, and also incorporated in some electric brushes.

An inverted spoon can be used. The dorsum of the tongue is cleansed twice daily from back to front, avoiding damage to the circumvallate papillae. Do NOT use a toothbrush to clean the tongue as it will spread the bacteria. There has been research which has shown that spread of bacteria from the tongue can cause periodontitis.

- B. Eat healthy breakfast with rough foods to keep the tongue clean.
- C. Chew sugar free gum or fennel, cinnamon, parsley or mastic gum.
- D. Gargling  
Mouthwashes and toothpastes

containing both zinc and chlorhexidine together. The zinc breaks down the sulphur. Stabilized chlorine dioxide also breaks down the sulphur chemicals.

Stannous fluoride is a broad spectrum antimicrobial which helps reduce the oral bacterial population.

## E. Oral Hygiene

### 2. THE NOSE

This is also a cause of bad breath due to sinus infections and foreign bodies.

Polyps or hindered air or mucus flow in the nose also may be a cause. The post nasal drip onto the tongue can cause bad breath.

### 3. GUM DISEASE

Research has surprisingly shown that there does not seem to be a correlation between malodor and periodontal parameters.

Interdental brushes are superior to dental floss in cleaning spaces between the teeth as they conform perfectly to the anatomical spaces.

Interdental and subgingival niches can cause bad breath as can faulty dental work, impacted food, abscesses and unclean dentures.

Dental caries can cause bad breath.

Hydrogen peroxide is a good mouthwash.

### 4 DRY MOUTH

Saliva has a cleansing effect, is of immunological value and wets the tissues. Certain drugs such as the anticholinergics, antidepressants etc..

### 5. SYSTEMIC DISEASES

- a. *Fetor Hepaticus* (chronic liver failure)
- b. lower respiratory tract infections(bronchial and lung). Productive cough-catarrh.
- c. renal Infections and renal failure- has typical smell
- d. carcinoma- bad breath is sometimes first sign
- e. trimethyaminuria (fish odor syndrome)
- f. diabetes- sweet smell
- g. metabolic dysfunction

### 6. STOMACH ACIDITY

A peptic ulcer can cause bad breath as can a hiatus hernia.

Reflux may occur if the Cardiac valve between the esophagus and the stomach does not close properly allowing acid to enter the esophagus and gases to escape into the mouth. A fistula between the stomach and esophagus can also cause reflux.

### 7. TONSILS

Cause of up to 5% halitosis cases. Small bits of calcified matter in tonsillar crypts called TONSILLOLITHS that small foul.

Follicular tonsillitis can cause bad breath.

### TESTS FOR BAD BREATH

At home you can lick the back of your wrist, let it dry for 2 minutes and smell, or you can simply ask a friend or relative.

Breath odor can be measured professionally by:

1. Halimeter -measures levels of sulphur emissions. The machine is however sensitive to alcohol.
2. Gas chromatography-measures levels of volatile sulphur compounds.

3. BANA test measures salivary levels of enzyme.

4. Beta galactoside test- salivary test of this enzyme.

### ORGANIC MEASURES

- Nutritional supplements for halitosis-Coenzyme Q10 and folic acid (if from gums).
- Take selenium (if gastric cause). Take Vit E.(if deficient)
- (Vit C controversial as causes acidity)

### HERBS

- Eucalyptus
- Sage
- Caraway
- Peppermint.
- Myrrh (rinse)
- Tea tree oil and clove oil (rinse or toothpaste) - there is evidence that oils are useful in halitosis mouthwashes. There are also mouthwashes with olive oil.
- Bloodroot (rinse).
- PARSLEY is the most effective natural cleanser as it contains a lot of chlorophyll. It is also rich in nutrients and cleanses the blood.
- ALFALFA is also rich in chlorophyll.
- ECHINACEA is anti bacterial.
- Licorice is also useful (this is also antifungal).

“

Halitosis may result in poor self esteem and stress and can adversely affect personal, social and business relationships.

”

# DIAGNOSING DENSE BONE DISEASE THROUGH DENTISTRY

DR C. CORNEY, MBBS, DMRD, FRCR, SPECIALIST DIAGNOSTIC RADIOLOGIST, SLIEMA

## CASE HISTORY AND CLINICAL FINDINGS

A 35 old man, 5ft-6ins tall, attended his dentist with extensive dental caries. The dentist noted that the patient's nose was thickened, with bossing of the forehead and prognathous due to an enlarged mandible. The patient said that he had always looked the same, when questioned.

## INVESTIGATIONS

- A lateral mandibular Xray revealed that the mandibular angle was increased. The mandible contained sclerotic areas and had an undermodelled, widened appearance. Part of the skull seen on this Xray was thickened and sclerotic.
- A lateral skull Xray [q.v.] confirmed generalised skull vault and base sclerotic thickening and sclerosis in the maxilla and hard palate.
- A skeletal Xray survey revealed that the tubular bones [including the long bones of the limbs and the short bones of the metacarpals [q.v.] showed diaphyseal widening but without sclerosis. [The diaphysis of a tubular bone is the central parallel margin section, having normally a rather slender shape compared with the flared non-parallel marginated metaphysis and bone end or epiphysis]. In this patient the slender diaphysis of the tubular bones had not developed – giving a "chunky" or widened or undermodelled appearance of the diaphysis.

## DISCUSSION

A skeletal Xray survey is crucial to demonstrate the extent of the bony abnormalities because, without it, the full radiodiagnostic picture is not revealed sufficiently to narrow down the differential diagnosis into hopefully the final diagnosis.

The widespread bone involvement in this patient indicates a developmental

skeletal dysplasia. As both skull sclerosis and tubular bone widening are present, the dysplasias which cause one or both have to be considered.

These are loosely known as the craniotubular dysplasias—many of which have similar features but with different accentuations. Macpherson (1) having questioned whether one or several diseases are present suggests a spectrum of descriptions based on the distribution and accentuation of involvement of the cranio-facial and tubular bones.

Thus if the diaphyseal involvement exceeds that of the skull involvement then diaphyseal dysplasia [Engelmann's Disease] is present. If skull involvement exceeds that of the diaphysis then craniodiaphyseal dysplasia is present.

[If the metaphysis were involved, rather than the diaphysis then a parallel spectrum of other dysplasias has to be considered. Similarly other dysplasias have to be considered if all the bones were sclerotic or if the skull alone was sclerotic.]

## DIAGNOSIS

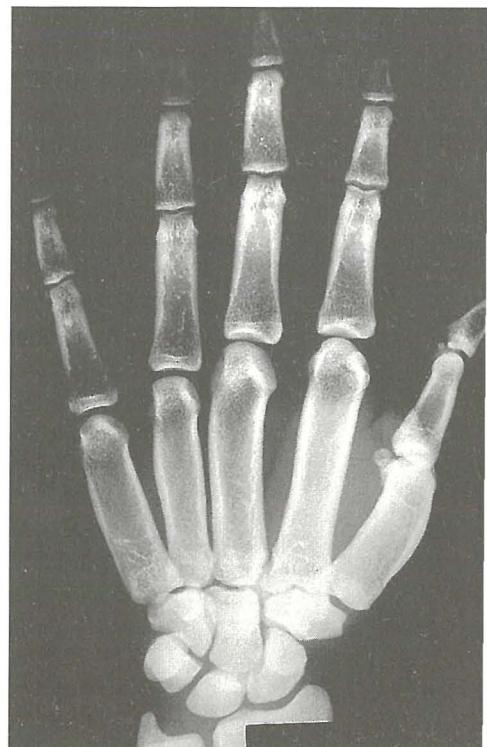
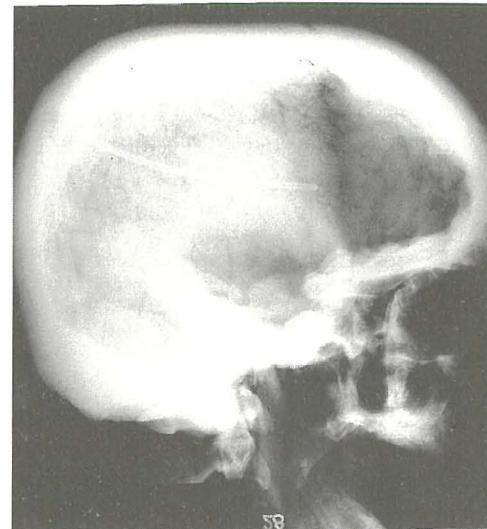
By listing the distribution and accentuation of abnormality in the skeleton radiologically the diagnosis in this patient is narrowed down to craniodiaphyseal dysplasia.

Genetic transmission is thought to be autosomally recessive enhanced by close consanguineous marriage of the parents—as in this case.

Outlook depends on whether the skull base sclerotic changes continue to progress. If they do then the skull foramina start to close producing cranial nerve palsies and vascular occlusions leading to early death.

## SUMMARY

Sharp observation of Xrays taken by the dentist led to a diagnosis of a bone dysplasia as in this case, but other



generalised diseases have similarly been revealed in the mandible, such as multiple myeloma, histiocytosis X and hyperparathyroidism.

## REFERENCE

1. Macpherson RI. Craniodiaphyseal dysplasia, a disease or a group of diseases? *J Canad Assoc Radiol.* 1974; 25: 22-33.

# Discounted Insurance for Dentists

Mediterranean Insurance Brokers (MIB) on behalf of the Dentists Association are offering discounted tailor-made policies to deal with a number of exposures dentists are faced with in their daily operation.



INSURANCE BROKERS & RISK CONSULTANTS



*'Clinic cover for buildings, contents, dental equipment, money, public and employers' liability would only cost about Euro 200 for a normal practice.'*

- > Enhanced Professional Indemnity - Are you insured if any of your patients (especially foreign) decides to take legal action alleging inappropriate treatment?
- > Do you have the right cover for your clinic?
- > Enhanced Personal Accident - How can you keep up the same level of income if you happen to have an accident and cannot practice as a dentist following an accident?

Contact Thomas Attard at MIB on either 23433125 or on 99447557 if you would like to clarify or discuss any of the above covers.

# THE CAN CAN... AND THE CAD CAM

By Dr David Muscat

For those of you who have been to Paris the Can Can is one of the attractions which arouses great interest. The CAD CAM also arouses interest-albeit of a different but still exciting kind.

Now that I have your attention please note that the CAD CAM means Computer aided design and Computer aided manufacture, and that is quite exactly what it is .CEREC is an acronym for Chairside Restoration Of Esthetic Ceramics. Cerec uses a digital 3D camera to create an optical impression which replaces the traditional physical impression.

In the age of three dimensional dentistry the Cerec has made great strides forward. One can now look 'outside the box' and approach difficult cases with greater tools at ones' disposal . The Cerec gives the dentist the power to perform and execute the restorative procedure from start to finish. It also enables the dental ceramic technician to produce ceramic work more quickly and accurately. Cerec has in fact been around for a number of years, so we are not actually reinventing the wheel.

An example of Cerec is presented. The lower right second molar suffered a mesio-distal fracture due to an unexpected hard tiny rabbit bone in a Gozitan eatery. The tooth was root filled but eventually split down the lingual cusp which had to be extracted.

The tooth had to have a crown or an overlay. Lesser mortals may have headed for the forceps drawer. But not this Michelangelo.

Dr Robert Lautier from Fortedent carried out the overlay preparation. A scan was then taken of the preparation after sprinkling the magical Cerec white powder onto its surface to make it more opaque and non reflective. The scan takes the image of the preparation and the adjacent teeth for fit and contacts.

A fast setting silicone was then used interdentally so as to get the inter-occlusal registration for cusp position/interocclusal contacts and the silicone is then scanned.

Dr Lautier then used his three dimensional computer to design the outline margins of the ceramic restoration.

A shade was taken .The computer will guide the operator as to the occlusal shape choice and the size and type of ceramic block required for the particular case. There are different occlusal shapes depending on different cultures and races. In this case a Japanese model was chosen as the posterior teeth were quite flat and worn with attrition.

The ceramic block was placed in the Cerec robotic machine and after 20 minutes of cutting using two diamond burs ,one on each side ,a perfectly machined overlay was completed. The sprue was also cut off the buccal aspect. The sprue was placed buccally as it is preferable to have a perfectly smooth surface lingually. The attention to detail is admirable.

Due to the heavy occlusion there had to be some adjustments , but

the fit was tight and snug. A ceramic adhesive was used and the chunky overlay cemented.

The patient asked if the restoration 'would last forever'. Quite rightly Dr Lautier replied that 'it would last as long as the tooth lasted.'

The Can Can or the CAD CAM? A difficult choice...

## THE NEW CEREC LAUNCH AT THE HILTON MALTA

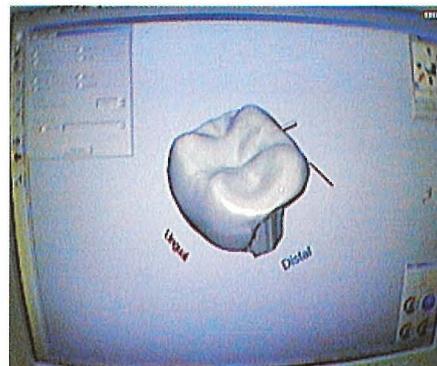
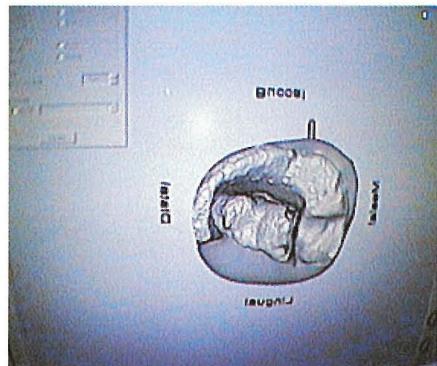
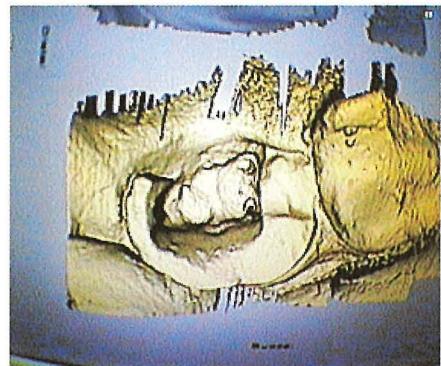
The new CEREC was launched by Bart Enterprises on 19th June, as Fortedent have been using Cerec for some time.

The Cerec Bluecam can now take digital impressions and use the internet to communicate and work with their laboratory. This is Cerec Connect. An acrylic working model is produced using a stereolithography machine.

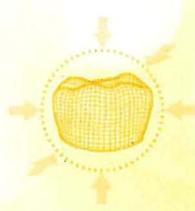
The dentist can also use Cerec AC and the milling unit Cerec MC XL and produce their own restoration in the clinic. Alternatively you can send to the central lab at Bart Enterprises or one of the several technicians who have the milling machine .

One can also take a normal impression and send to a lab where a model is poured up and then scanned prior to milling a restoration.

Patients prefer optical impressions. There are no dimensional distortions. With Cerec Biogeneric one receives clinically natural customized restorations.



## THE SIRONA CEREC INLAB NETWORK



# ARTICAIN THE BART ENTERPRISES LECTURE

Summarized by Dr David Muscat

Local anesthetics do sometimes fail. This may be due to inaccuracy in the deposition of the drug, or different anatomy.

There are also other factors such as status of tissue at the site, vascularity, ph, inflammation.

Vasoconstrictors should be included. This allows a longer duration, haemostasis, lower drug blood levels, local anesthetic absorption and post op pain relief. The disadvantages are a longer duration, the side effects of secondary ingredients such as antioxidants and ph buffer.

15% of patients hypo-respond and 15% hyper-respond to the anesthetic. 70% are ok.

Lidocaine is the oldest -1948 from the USA. It has an amide group with benzene.

Lignospan Special 1.8mls with 1:80,000 adrenaline added with a vasoconstrictor. One can use 3 cartridges with no toxicity. A maximum of 6 cartridges (300mg).

Do not use on patients less than 3 year old. Up to age 14 use only 1-1.5 LA within 2 minutes. It is metabolized in liver and excreted through the kidneys-caution in renal and hepatic patients.

Half life elimination is 90 minutes, so the blood concentration goes back to half in 90 minutes.

Lidocaine has few side effects and is well tolerated. There are few documented allergies. Care with patients on MAOIs.

Lidocaine has good solubility, a rapid onset of 2 minutes with a satisfactory intermediate duration.

ARTICAIN HCL. This has NO preservatives. It has a half life of 27 minutes and an onset of 1-2 minutes. It has a unique metabolic pathway.

It is bio-transformed in both the plasma and the liver, so there is a lower metabolic load on the liver. It penetrates soft and hard tissues.

Other ingredients in Septanest are sodium disulfite-antioxidant and EDTA as a stabilizer for the vasoconstrictor.

Articaine works faster than Lidocaine.

According to Donaldsson in 2000 there are fewer ID failures. There is good liposolubility, molecular configuration and plasma protein bonding.

## THE TORRI LAHMAR PROHEALTH DAM QUIZ

PROFAITH-SFNSIKIN, KIN HYDRAT, CARIAX have very kindly sponsored the evening today. Since the company is based in Zebbug, we would like you to answer the following on our DAM cultural quiz

1. Zebbug is also known as Citta' \_\_\_\_\_ . Rohan
2. The following are the 6 hamlets of Zebbug. Fill in the blanks please
  - a. Hal-\_\_\_\_\_ *Muxi*
  - b. Hal-\_\_\_\_\_ *Mula*
  - c. Had-\_\_\_\_\_ *Dwiel*
  - d. Santa \_\_\_\_\_ *Marija*
  - e. Ta' Gan \_\_\_\_\_ *dlora*
  - f. Tad-\_\_\_\_\_ *Dawl*
3. You are in area of ecological importance. Translate into English please:
  - a. Pepprin \_\_\_\_\_ *Poppy*
  - b. Saghtar \_\_\_\_\_ *Thyme*
  - c. Busbies \_\_\_\_\_ *Fennell*
  - d. Suffejra \_\_\_\_\_ *Marigold*
  - e. Fidloqqom \_\_\_\_\_ *Borage*
  - f. Lellux \_\_\_\_\_ *Crown daisy*
  - g. Widnet il-bahar \_\_\_\_\_ *Maltese rock centaury*
  - h. Papocci horom \_\_\_\_\_ *Greater snapdragon*
  - i. Gargir \_\_\_\_\_ *Maltese rocket*
  - j. Hobbejza \_\_\_\_\_ *Mallow*

# voco HIGHLIGHT

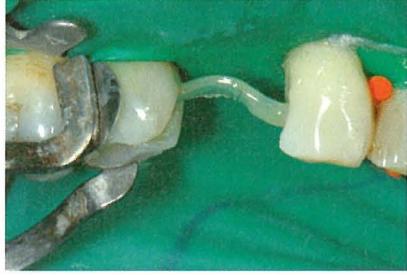
## GrandTEC

Resin impregnated, light-curing, glass strands for use in the dental adhesive technique

- For splinting of teeth in periodontology and orthodontics
- For reinforcement of temporary bridges
- Temporary space care after implant insertion

Offer from May - September 2010

Light-curing, glass strands, 5 pieces, 5.5 cm each + free 2 x 2 g syringe Grandio Flow A3



Clinical photos on this page are courtesy of Dr. Henk Alting, Groningen (NL)



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## Health & Beauty



Clinical **WHITE**



Clinical **CARE 6in1**



Clinical **Fresh GEL**

Clinical **ACTIVE**



# TePe Toothbrushes



**TePe**®

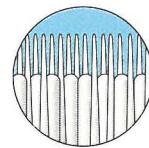
We care for healthy smiles

## TePe Supreme - Improved Access

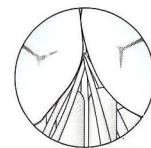


The TePe Supreme™ brush has an innovative two-level filament design for improved access. The longer, tapered filaments reach further in between the teeth and allow better access along the gum line while the shorter filaments gently clean the rest of the tooth surfaces. A sturdy, non-slip handle with a thumb pad provides a comfortable and secure grip

- Dual filament design
- Smooth and gentle cleaning
- Tapered brush head



Filaments in two levels for improved access



The longer, tapered filaments reach further interdentally



Suitable for cleaning around orthodontic appliances



For further info, please contact:  
Alfred Gera & Sons Ltd.,  
10, Triq il-Masgar,  
Qormi QRM 3217

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Tel: (+356) 2144 6205  
main@alfredgera.com

# STEM CELLS FROM

A stem cell is a cell from which one may obtain specialized cell types by the process of differentiation.

After conception, the fertilized egg, the morula, generates every cell in the body. This contains Totipotent stem cells, meaning that they can produce anything.

When the morula divides further into a blastocyst, the stem cells are now pluripotent, meaning that they can develop into every cell in the body except the placenta and extra embryonic tissues. These pluripotent cells can then differentiate into isolated stem cells, haemopoietic cells, neural or mesenchymal stem cells. Dental tissues usually give rise to mesenchymal stem cells.

In 2003 Dr Shi grew stem cells from his daughters' deciduous anterior teeth. There are 4 different types of stem cells in deciduous teeth;

1. The Mesenchymal stem cells that can develop into reparative cells
2. Chondrocyte cells- to generate cartilage in treatment of arthritis and joint injuries.
3. Osteoblast cells -to generate bone.
4. Adipocyte cells-to repair damaged cardiac tissue.

Also, besides being 100% match or the donor, a 75% match for siblings, parents and grandparents.

According to Huang, Gronthos and Shi, to date there are 5 different human stem progenitor cells that have been detected.

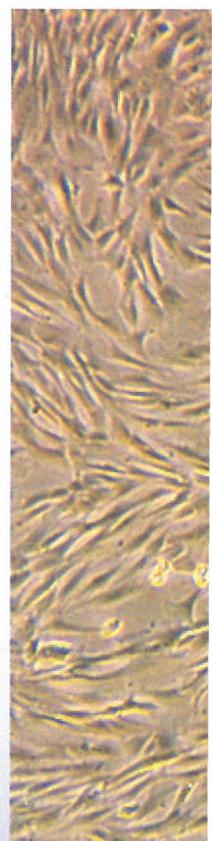
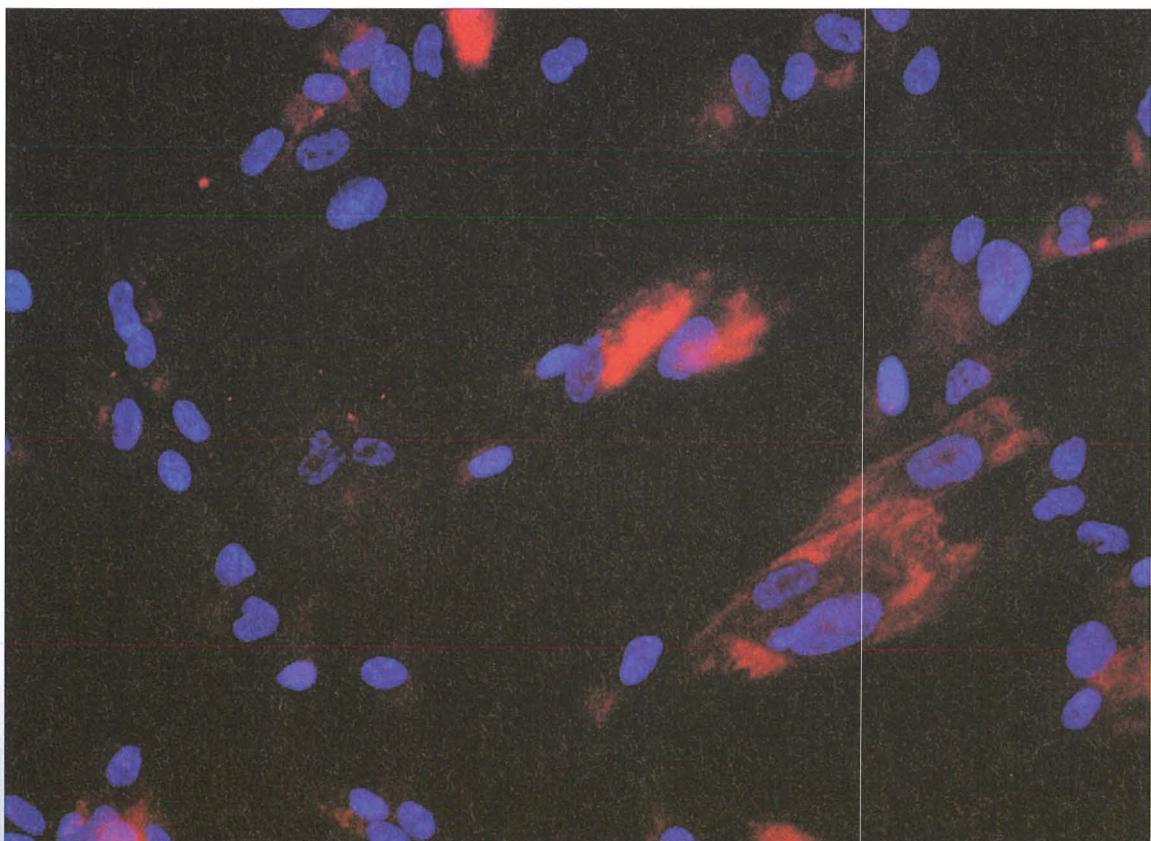
1. dental pulp stem cells-DPSCS
2. stem cells from exfoliated deciduous teeth -SHED

3. periodontal ligament stem cells- PDLSCS
4. Stem cells from apical papilla-SCAP
5. dental follicle progenitor cells-DFPCs

These cells have mesenchymal-stem cell-like (MSC) qualities including

1. capacity for self renewal
2. multilineage differentiation potential-osteogenic, adipogenic, neurogenic.

Bone marrow stem cells (BMMSCS)-stem cells derived from bone marrow can give rise to Osteogenic, chondrogenic, adipogenic, myogenic, neurogenic cells and other cell lineages similar to BMMSCS. Stem cells derived from bone marrow are the gold standard. Umbilical cord blood and adipose tissue are other sources. The first dental stem cell isolated from human pulp was in 2000 by Gronthos et al.



# TEETH

Featuring THE BIOEDEN LECTURE by Mr Jim Curtis  
and other recent research. Summarized by Dr David Muscat

Dental stem cells seem to be more committed to Odontogenic development. Bone marrow derived MSCs are described as a colony-forming unit fibroblasts.

Dental mesenchyme is called ectomesenchyme due to its earlier interaction with neural crest. Carinci identified subpopulations of stem cells from human pulp with osteogenic potential forming bone like tissue in vivo.

**SHED CELLS HAVE THE CAPACITY TO UNDERGO OSTEOGENIC AND ADIPOGENIC DIFFERENTIATION.** The clones appeared to induce bone formation by forming a template to recruit host osteogenic cells. This evidence shows that deciduous teeth not only provide guidance for the eruption of permanent teeth but are involved in inducing bone formation during the eruption of permanent teeth.

Dental follicle precursor cells isolated from follicles of impacted 8s have been shown to create a structure of fibrous or rigid tissue.

Periodontal ligament stem cells can differentiate into cementoblasts, osteoblasts collagen forming cells and alveolar bone regeneration. Stem cells from apical papilla can undergo odontogenic differentiation.

Umbilical cord blood has provided stem cells used to treat heart disease, strokes, diabetes, cerebral palsy. Dr Kurtzberg from Duke Medical Centre is trying to use cord blood from cerebral palsy patients to repair their own brain. In general embryonic stem cells have the ability to develop into any of the 220 cell types.

Dr Hans Clevers from the Royal academy of Utrecht recently found that stem cells for skin are found in hair follicles and that these cells

contain a high level of the Lrg6 gene which drives wound healing. Placing these cells around a wound produces excellent healing and regenerates the skin complete with glands and hair. Professor Zhang from the Wisconsin-Madison school of Medicine in the US has reprogrammed ordinary skin cells -giving them properties of embryonic stem cells.

Professor Heber-Katz from the Wistar institute in Philadelphia has found that humans have a 'tissue regeneration ability' -the gene p21 controls this. However this gene is controlled by gene p53 which is a cell division regulator and tumour suppressor. By switching off p21 one may unlock the ability for cell regeneration that we have lost through evolution.

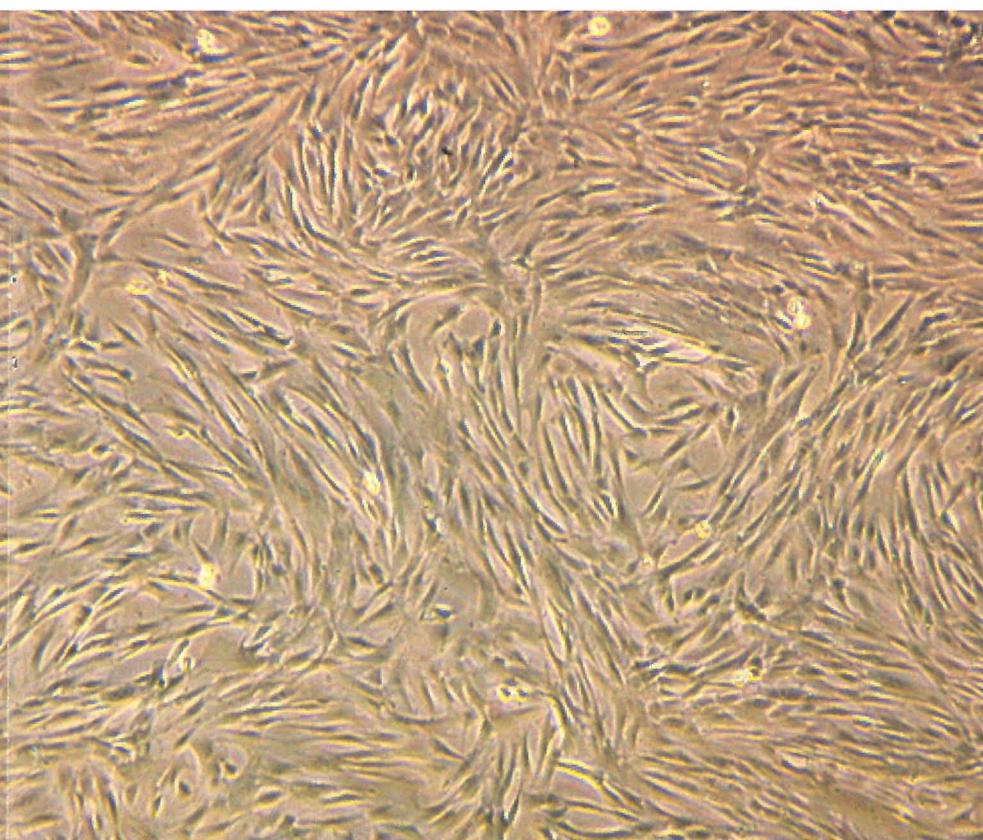
From one deciduous tooth one can obtain 150-200 stem cells, first which after harvesting for 20 days will become one million.

Bio Eden provides a complete collection kit with a tooth storage container and gel packs. The First 48 hours are critical. The tooth should be placed in milk and a courier should collect the pack asap.

When the lab receives the tooth the stem cells are isolated and evaluated and then divided into 2 parts, and cryo-preserved in separate locations. It is simple effective and non invasive. Although at the moment the work being done on stem cells from teeth is experimental , with research being carried out in 6 centres around the world, we can at least offer our patients hope.

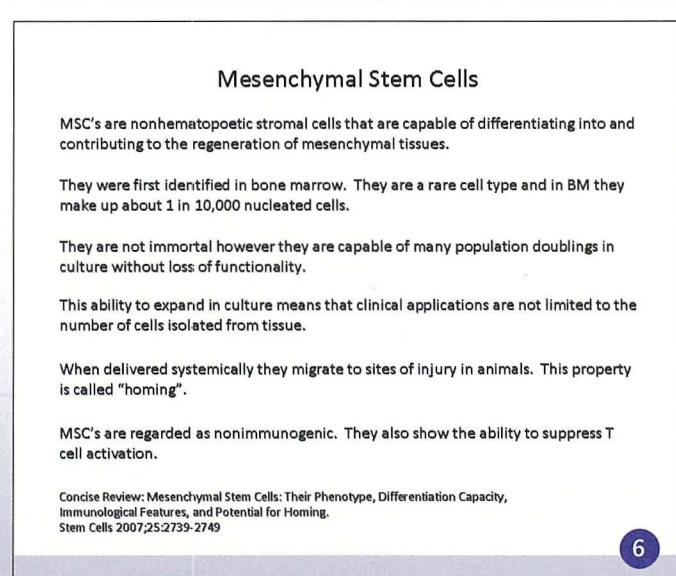
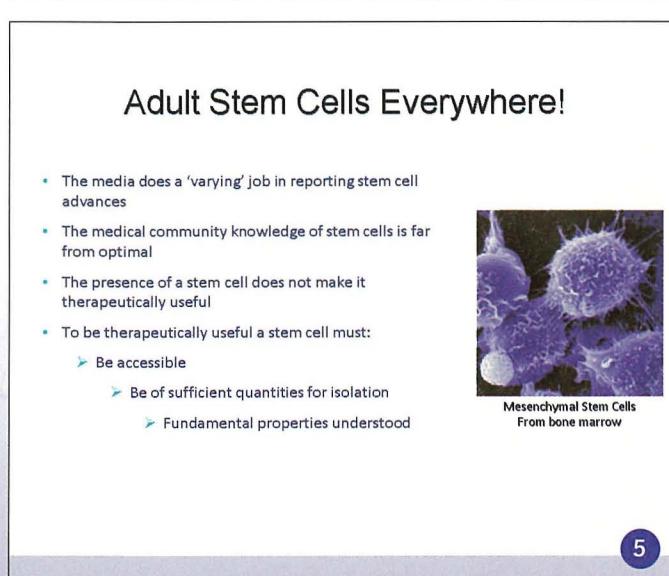
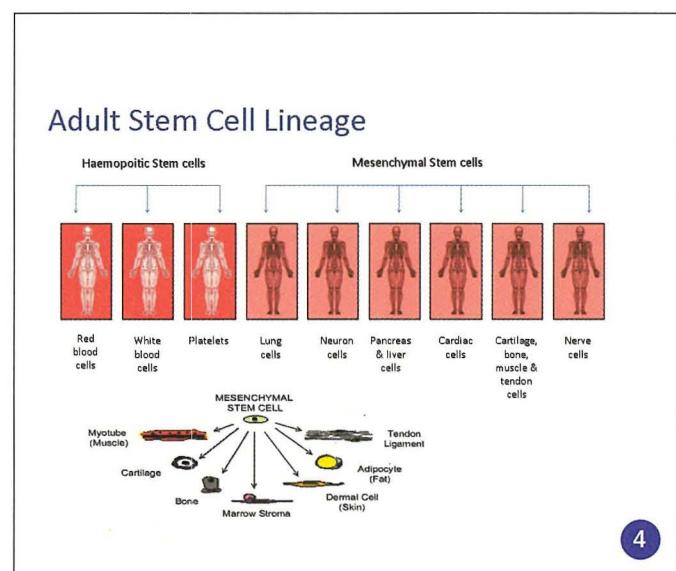
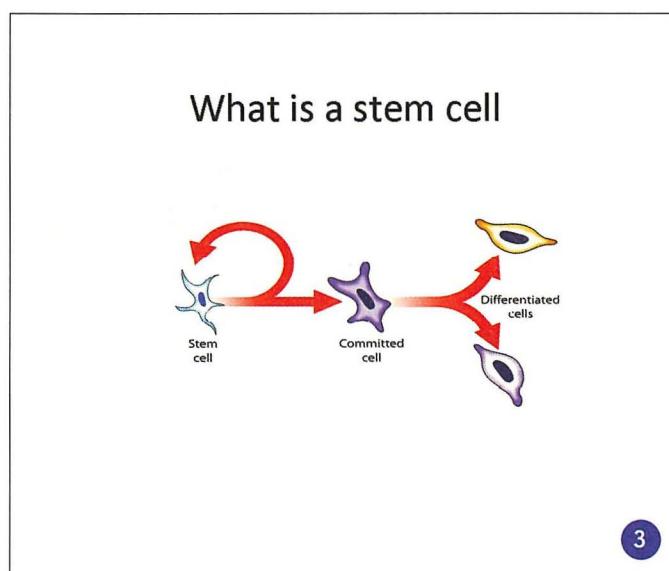
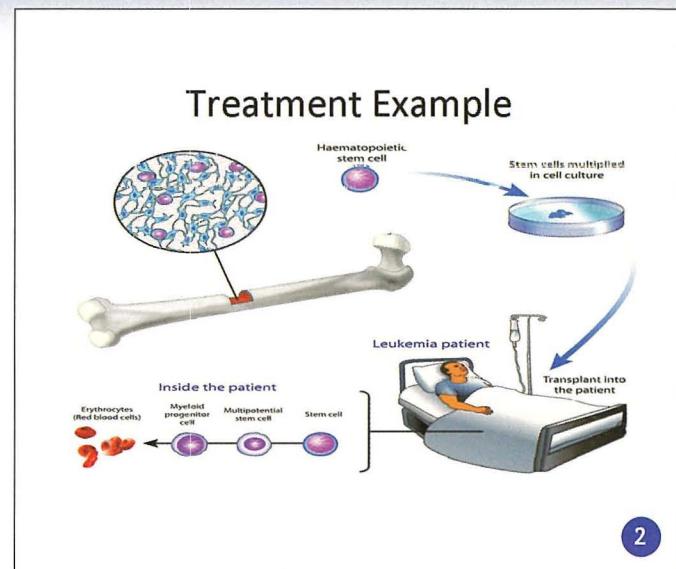
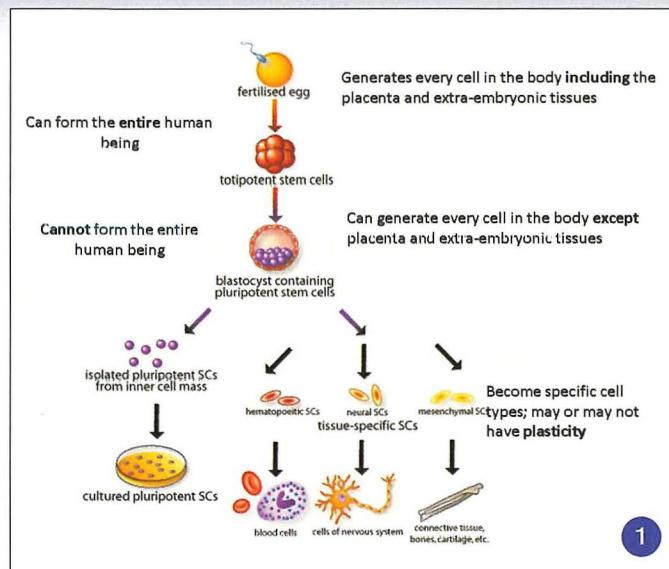
The cells are kept in liquid nitrogen for 20 years with a licence currently being negotiated for a further 20 years. There is another non invasive alternative to embryonic blood stem cells and invasive bone surgery.

*Continues on page 22*



# STEM CELLS FROM TEETH

Continues from page 21



You can't control time...



but you can control its effects with **Colgate Time Control**.

With the passing of time, your gums do not cover as much of your teeth as they used to. Receding gums put you at risk of developing root cavities and could lead to further problems. The solution... **Colgate Time Control**.

Colgate Time Control has been specially formulated to provide you with everyday protection against the signs of ageing in your mouth.



**Colgate Time Control** Gum & Teeth Protection, Refreshing Taste

# THE HELSINKI SCANORA CONFERENCE

By David Muscat

Drs. Joseph Xuereb and David Muscat went in search of three dimensional innovation and headed north to the land of the Northern lights. As they touched down on the icy runway and then emerged into the freezing Tundra they knew that this was to be no ordinary conference. This was cutting edge, state of the art and they were to be privy to one of man's most exciting technological achievements.

As they went down mental foramina with the 3D camera and explored frontal and ethmoid sinuses, traced nerves onto mandibles and maxillae, the powerful tools in their hands felt the more awesome.

As they witnessed the actual screw marks in the human bone, turned corners at TMJs and sliced through nasal conchae this was the real thing. As they pressed the flesh of the machines' inventors one could not but feel that this was the start of a new era-from now on there would be no looking back. Man can now achieve what he only once dreamt of -the perfect tool in his armamentarium-the three dimensional satellite in his clinic from which he can produce the most flawless and the most perfect of prostheses-with very little radiation exposure.

The nation famous for its racing drivers, mobile phones, blonde beauties, Lapland ,lakes, berries and mobile phones have got this one right.

King Gustav and Tsar Alexander would have been proud.

A series of lectures was presented detailing the use of Scanora in dental implantology, maxillotacial surgery, TMJ, periodontology, endodontics, orthodontics and ENT.

3D imagery uses very low radiation exposure. The Arithmetic reconstruction technique is used. This affords a smoother and softer image. The combined CBCT and panoramic unit provides a motorized movement with software architecture, and full Dicom-Digital Imaging Communication On support. You may switch between 2d and 3d. ALARA is very much in mind-as low as reasonably acceptable.

The latest improvements include patient stabilisation, benchmarking several new algorithms and continuous development with Cybermed, which makes clinical software.'On demand'.

One type of tomographic cut is equivalent to a panoramic exposure. The machine features the ART -Algebraic Reconstruction Technique. The Scanora takes only 12 seconds. Each single pulse duration is 0.0073 seconds. There is versatility, accurate patient positioning and stabilization, and the use of a rotating block-a single rotating movement is more precise. Laser lights are used for patient positioning. The

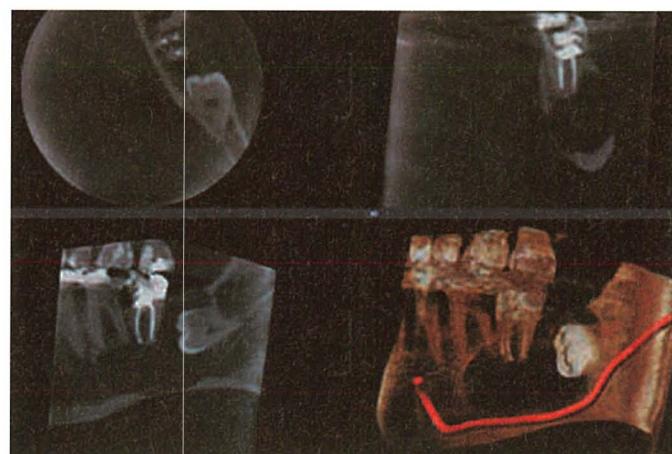
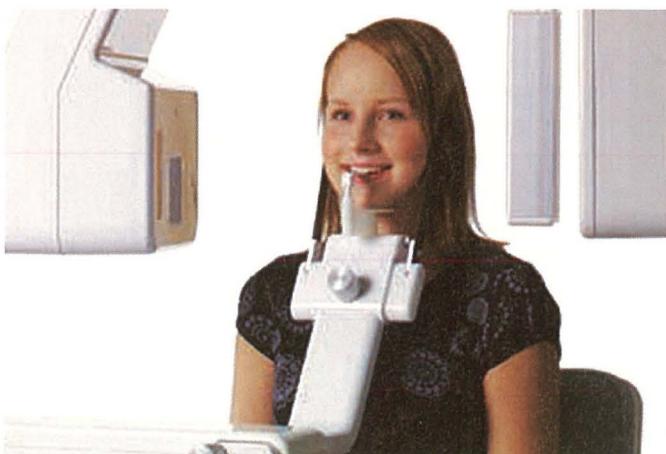
machine is first operated without an exposure so that the second time the patient does not move and knows what to expect. There are no calibrations required and you are getting a very low dose of radiation.

Clinical applications include:

- Removal of screws left during surgery
- Visualisation of fracture of coronoid process
- Endodontics-superimposed on sinus
- ENT- Snoring surgery, conchae, septoplasty ,surgery on recurrent sinusitis. The low radiation is an important factor when treating children.
- Frontal and ethmoid recesses can be seen .
- Cleft palate . Accuracy in diagnosis and models for surgical guides transferred by Cad Cam. The contrast resolution is better so segmentation is easier.

Cone Beams are now setting radiographic guidelines. There is only a 200 microns deviation so the radiograph is good for maxillary and orthodontic work. One cone beam can deliver all info needed. There is a better prognosis for 8s if you can see nerve in 3d.

An ICT scan is equivalent to 1600 days (in sun). A good 3d occlusal is equivalent to 2-5 days in sun. Accuracy is 200-400 microns.





#### Perio-Aid Treatment Mouthwash

Disinfection in dental interventions and in periodontal treatment.

##### composition:

Chlorhexidine digluconate	0,12g
Cetylpyridinium chloride	0,05g
Excipient q.s.	100g

#### Perio-Aid Maintenance Mouthwash

Antiseptic for daily use. Can be used after treatment phase or as a substitute for oral hygiene when normal brushing is not possible.

##### composition:

Chlorhexidine digluconate	0,05g
Cetylpyridinium chloride	0,05g
Excipient q.s.	100g



#### Perio-Aid Treatment Gel-Toothpaste

For patients with orthodontic appliances or implants, for periodontal maintenance and for patients at high risk for caries.

##### composition:

Chlorhexidine digluconate	0,12g
Excipient q.s.	100g

#### Perio-Aid Treatment Spray

Disinfection in hard-to-reach areas (tonsils, tongue dorsum) or in patients with special needs.

##### composition:

Chlorhexidine digluconate	0,12g
Cetylpyridinium chloride	0,05g
Excipient q.s.	100g



# EFFICIENT BEAUTY

Clarence P. Tam, HBSc, DDS critiques a microhybrid composite

Amaris is Voco's boutique advanced microhybrid composite, designed for those who want to take their anterior composites to a new level of combined beauty and efficiency of placement. As an advanced microhybrid with iso-fillers, it boasts true colour stability pre-and-post curing remaining true to the shade guide.

This predictability makes the product fun to use, especially for those starting out in composite veneers and complex anterior restorations.

Creativity is encouraged with the HO (High Opaque) and HT (High Translucency) shades, minimizing visual detection of restoration finish margins and maximizing chameleon effect. Paradoxically, beauty is defined as something that the eye does not detect.

## SPEED SHADING

The new shade guide is exceedingly basic and simple to use. Coined the Intelligent Shade Concept, the 15 colours were engineered to coincide with the visual parameters of natural tooth colour in CIELAB colour space, with some shades slightly outside this zone to compensate for needing increased opacity to block out the dark shadow of the oral cavity as well as increased translucency to define marked characteristics in a limited volume of placement.

Featuring five opaque shades (O1-05), these essentially replicate dentine shades without having to stock the typical arsenal seen in most practices. The chameleon effect is innate in the system.

Amaris has managed to use the natural opalescence and refractive index of enamel and dentine and replicate these in the respective translucent and opaque shades. The result is a truly invisible restoration.

## COMMAND PLACEMENT

Amaris eliminates the need for an instrument wetting agent to prevent composite "pullback" during placement. The material was beautiful to handle and followed the tip of my instrument with every stroke and compression. It did not coagulate into the dry smears I have seen with other composite systems, typically avoided only by using a wetting agent. It is a smooth, non-sticky system that allows sheer efficiency of placement and modelling.

## MECHANICAL AND COLOUR STABILITY

It is well known that certain foods and liquids such as chronic coffee or red wine intake may eventually discolour the superficial layer of composite. Silanization of the filler particles in Amaris minimizes the chance of this happening, as well as improves its physical properties. Transverse strength boasts a high value at 115-120 MPa, compressive strength stands at 367-375 MPa, and diametrical tensile strength is measured at 51 MPa.

Polymerization shrinkage is 2%, which is excellent for a material whose physical beauty and lustre is virtually on par with a microfill, whose polymerization shrinkage is typically in the 2.75%+ range. Surface hardness measured on the Micro-Vickers Scale is in the order of 100 units, and features superior surface abrasion-resistance and polishability characteristics. The material has a low surface roughness quotient that contributes to the maintenance of lustre over time.

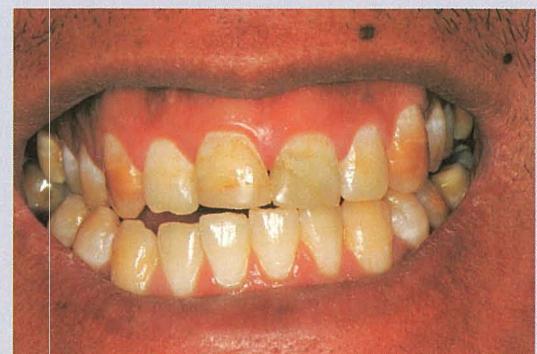


Figure 1: Initial situation: severe tetracycline staining on teeth 11, 12, 13 and 21, 22, 23.

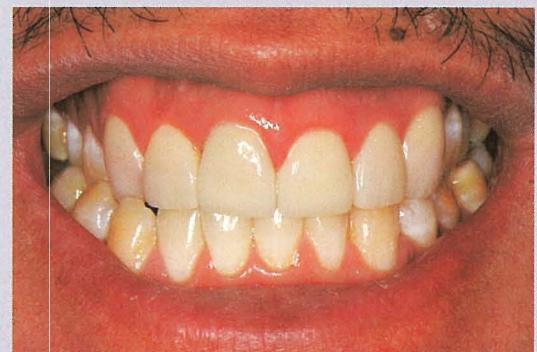


Figure 2: Final restoration: Teeth 11 and 21 were endodontically treated and as such were crowned with ceramic crowns. Amaris was used for the layered composite veneers to correct teeth 12, 13 and 22, 23.

## CONCLUSION

Amaris is a practical solution offering predictable aesthetics not only in the anterior sextant, but as a universal composite system. It has a long working time due to the material's lessened sensitivity to ambient and chair light.

It offers perhaps 95% of the lustre achievable by the best microfill composite, but in exchange, dependable physical properties that ensure that your patients keep on smiling long after other materials have lost their shine.

Amaris is the astute solution to predictable aesthetic composite restorations.

# THINK PINK... THINK AMARIS GINGIVA

## Testimonial on the material Amaris Gingiva by Dr Peter Tatton

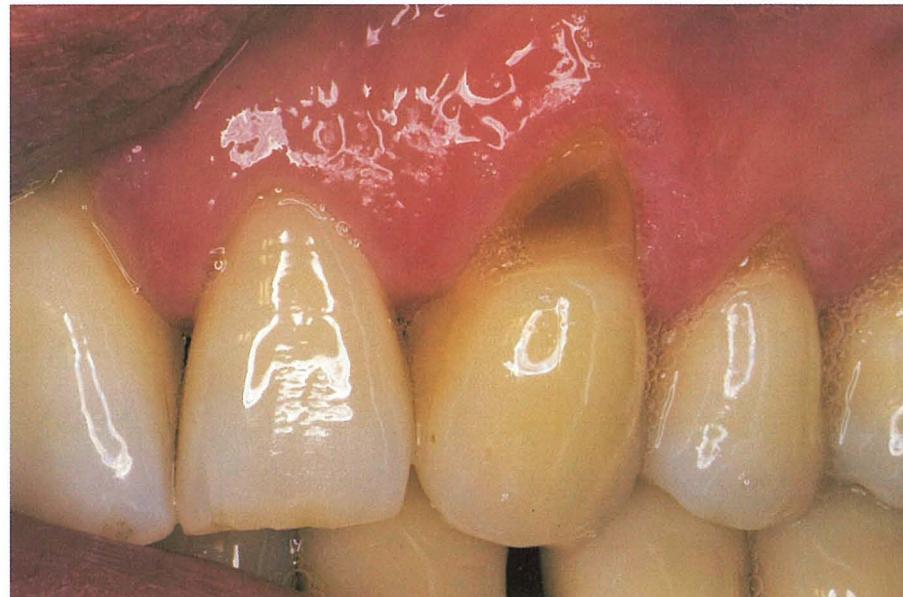
Voco's latest addition to its Amaris composite range, Amaris Gingiva, offers a new approach to overcoming the aesthetic problem of gingival recession.

The exposed – and frequently worn – cervical areas of teeth often lack a pleasing appearance when restored with conventional materials such as glass ionomer or tooth-coloured composite. It may well protect the underlying tooth from further wear, but does nothing to address "the long-in-the-tooth look" associated with ageing and loss of gingiva. This is where Amaris Gingiva offers a paradigm shift in treatment. By using a gingival shade to replace lost tooth substance, the integrity of the root is protected and its appearance improved.

Amaris Gingiva is straightforward to use. The system consists of a basic gingival-shaded composite and three opaques, which extend the range of gingival colour achievable.

When establishing the gingival colour, I find it helps to build up the wear cavity first with the basic gingival composite; this aids in visualising the final outcome and helps fine tune colour selection. With the composite temporarily in place, you can decide on whether an opaque is necessary by using the excellent opaque shade guide made from the actual composite materials used.

The wear area can then be restored totally with Amaris Gingiva, or a combination of convention and gingival Amaris composites. If an opaque is used it must be painted on sparingly. The gingival composite is then best built up in small layers and sculptured to reproduce the gingival form. I aim for minimal finishing to reduce gingival trauma. Amaris Gingiva has now become my material of choice when restoring cervical wear; it is simple to use and patients appreciate the lifelike results.



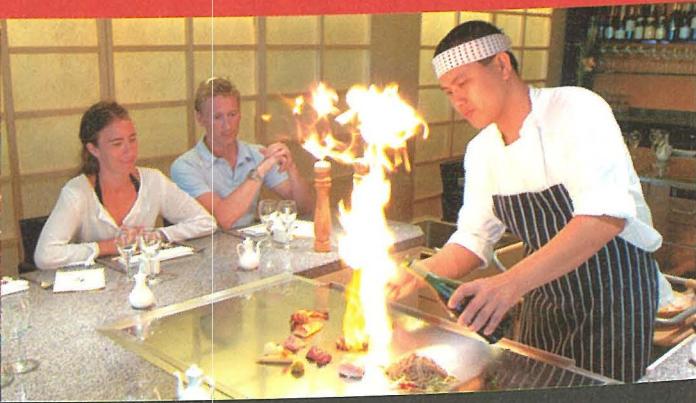
Initial situation on tooth 23



Cervical restoration with Amaris Gingiva

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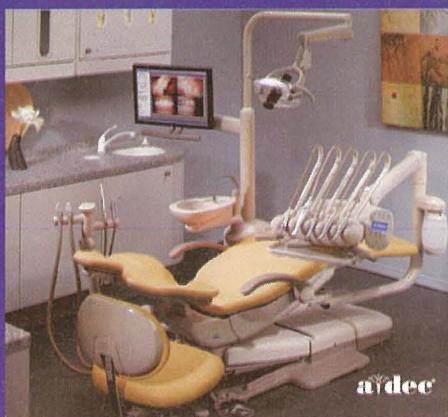
Fortina Spa Resort, Tigné Seafront, Sliema SLM 3012, Malta



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# ORGANIC REMEDIES RELATIVE TO DENTISTRY

By Dr David Muscat

## 1 HALITOSIS

- Chew parsley or cardamom seeds.
- Mouthwash with tinctures of thyme, sage, rosemary or peppermint diluted in water.
- Use linseed in warm water.
- Take ginger, cinnamon, thyme, rosemary tea.
- Drink 2 litres of warm water daily.
- Avoid bread, cheese, yogurts, red meats, junk food.
- Olive oil extract.

## 2 AGITATION

- Chamomile, lavender, rosemary, passionflower, rose skullcap.

## 3 CANDIDIASIS

- Chew licorice sticks
- Use mouthwash of sage, thyme, marigold.

## 4 HAYFEVER

- Elderflower or lemon tea.
- Ginseng, nettle and echinacea
- Regular nettle infusion

## 5 BLEEDING GUMS

- Mouthwash with echinacea, sage, marigold and thyme tinctures.
- Take echinacea tincture
- Apply powder of hawthorn and bilberry to the gingiva.
- Blueberry and strawberries protect against gum disease. (used since Roman times)

## 6 SHINGLES

- Lemon balm, lavender marigold, wild oats.

## 7 URTICARIA

- Aloe vera, chamomile, rose, coriander.

## 8 NEURALGIA

- Take ginger, lavender, licorice, passionflower, echinacea.

## 9 HEADACHE

- Cayenne pepper, lavender, liquorice, peppermint, rye, seaweed.

## 10 BOILS AND ABSCESSSES

- Take echinacea tincture (promotes healing and reduces inflammation)
- Use lemons as a topical treatment
- Figs used topically are good at drawing out poisons.
- Tea tree good for oral infections

## 11 WOUNDS

- Aloe vera, lavender, elm, lemon thyme

## 12 MOUTH ULCERS

- Mouthwash with lavender, chamomile or marshmallow, sage, echinacea or lemon balm.

## 13 ANTIDEPRESSANTS

- Brazil nuts, oats, avocado, St John's Wort.

## 14 TOOTHACHE

- Oil of cloves
- Oil of cinnamon and chamomile (sedative) on cotton bud and apply.
- Drink chamomile, hops or passionflower.
- Chew fresh ginger
- Apply bruised garlic near infected tooth.
- Peppermint is analgesic and antiseptic

## 15 BACTERIAL AND

### VIRAL INFECTIONS

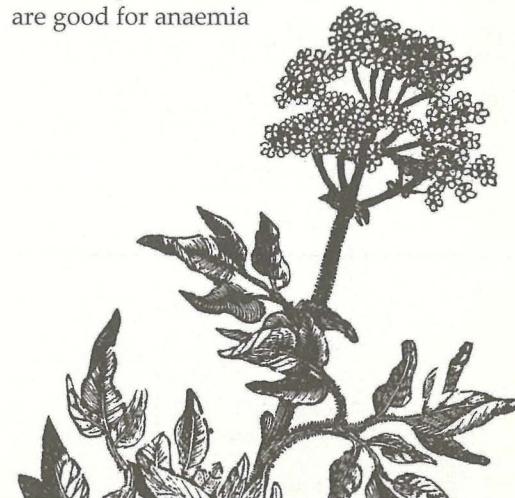
- Echinacea and raw garlic
- Ginger or cinnamon tea.

## 16 FEVER

- Echinacea, ginger, chamomile

## POINTS WORTH NOTING

- Black molasses prevent osteoporosis
- A chickweed compress can be used to treat nosebleeds
- Lemon balm reduces mucus
- Ginger inhibits coughing
- Cinnamon is an antiseptic
- Anise relieves muscle spasm
- Nutmeg promotes healthy skin
- Salmon can be used to treat behavioral problems (omega 3 fatty acids).
- Prawns and watercress (iodine) are good for thyroid.
- Tea is good for teeth (fluoride).
- Honey aids healing.
- Rock salts can be used to treat sore throats
- Comfrey heals tissue, bone cartilage.
- Pineapple helps patients recover after surgery.
- Eucalyptus is antiseptic and anaesthetic.
- Nettles, apricots and broccoli (iron) are good for anaemia



# FLUORIDE REVISITED

By Dr David Muscat.

With thanks to Dr Paula Vassallo for kindly providing fluoride data levels in Malta.

FLUORIDE is a natural element found in the earth's crust as well as in water and in air. It is also considered a nutrient.

In the mid 1940s communities put it in the drinking water to prevent decay. Half the children between 5 and 17 consequently never had a cavity in their permanent teeth. Fluoride is deposited across the tooth's entire surface.

## FLUORIDE

1. Makes teeth more resistant to decay by strengthening the tooth surface.
2. Interferes with bacterial growth.
3. Helps to repair early stages of tooth decay

Fluoridated water helps expose teeth to small levels of fluoride in the saliva. Fluoride strengthens deciduous teeth by building fluoride into their structure.

One seventh of the fluoride in food derives from fluoridated water used in food preparation and cooking. 75-90% of ingested fluoride is absorbed by the gut.

## TRACE AMOUNTS OF FLUORIDE

1 cup brewed black tea: 7.6mg.  
*Murray et al (1991) found with normal tea range 1-3 ppm*  
*Heavy tea drinkers 8mg-10mg per day.*  
1 cup cooked kale (seaweed): 0.205mg  
1 cup boiled spinach: 0.180mg  
1 medium apple: 0.093mg  
1 cup nonfat milk: 0.074mg

## OTHER SOURCES

- Beverages made with or reconstituted with fluoridated drinking water.
- Seafood -Bones of tinned fish up to 500ppm but may not be well absorbed (*Murray et al 1991*).
- Wine (F levels due to grapes treated with cryolite pesticide in the US)

- And grape juice for same reason above.
- Sulfuryl Fluoride is a pesticidal fumigant.
- Mechanically deboned chicken.
- Schools in the US - Fluoridated drinking water programmes in North Carolina, Kentucky and Indiana.
- Soy milk for babies

## THE PRO FLUORIDE LOBBY SAY 'LET THE EPIDEMIOLOGY INFORM PUBLIC HEALTH QUESTIONS'

Other public health measures

1. Iodised salt has iodine added. This prevents a high incidence of iodine deficiency and thyroid disease.
2. Folic acid fortification of bread prevents high incidence of Spina Bifida.
3. Chlorination of drinking water.
4. Vaccinations

## IN MALTA

Reverse Osmosis plants were introduced in 1987. According to the EU manual of dental practice (Version 4 -2008) now Malta has negligible fluoride in the water. In Gozo however, the level is at 0.6ppm.

## FIGURES

DMFT AT AGE 12 – 1.3 – Year 2005  
DMFT zero at age 12 – 49% – Year 2005.  
Edentulous at age 65 – 8% – Year 2002

Fluoride is absorbed through the stomach and the small intestine. Once in the bloodstream it rapidly enters mineralized tissue-bones and developing teeth. At usual intake levels, F does not accumulate in soft tissue.

The main mineral elements in enamel are crystals of Ca and P known as hydroxyapatite. F has a high chemical reactivity and small radius allowing it to either displace the OH ion, forming fluoroapatite, or to increase the crystal density by entering the space within the hydroxyapatite crystals.

## POINTS

1. Absorption of F in the form of monofluorophosphate is unaffected by Ca
2. Ca and Mg form insoluble complexes with F so they decrease F absorption
3. A diet low in chloride(salt) has been found to increase F retention by reducing urinary excretion of F.

## OPTIMUM RANGE OF WATER CONCENTRATION IN THE US

1. 1.2ppm colder climates
2. 0.7 ppm warmer climates.

When enamel is partially demineralised by organic acids, the F in saliva can enhance the remineralisation of enamel through its interactions with Ca and P. F in saliva inhibits bacterial enzymes resulting in less acid from cariogenic bacteria.

## CAUTION

- >2ppm discoloured, mottled or brownish enamel
- >8ppm bone disorders, kidney, liver, adrenal failure.

## DENTAL FLUOROSIS IS AN ABNORMAL CONDITION RESULTING FROM THE INGESTION OF TOO MUCH FLUORIDE CAUSING A WHITE OR BROWN MOTTLED APPEARANCE TO THE ENAMEL OF DEVELOPING TEETH.

On radiograph-the mottling appears as a whiter spot. Differential diagnosis from caries which would appear translucent  
Important-do NOT probe it.

## THE ANTIFLUORIDE LOBBY CLAIM

Fluoride:

1. Weakens the immune system
2. Creates systems that mimic fibromyalgia
3. Calcifies the pineal gland causing thyroid and endocrine problems
4. Causes Osteosarcoma
5. Acts as 'Trojan horse' carrying Al across blood brain barrier causing dementia and Alzheimer's disease.

### FLUORIDE LEVELS IN WATER – MALTA

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
ATTARD	18/08/06	0.11
B'BUGIA	14/08/06	<0.05
B'KARA	24/08/06	0.08
BAHRIJA	17/08/06	0.21
BAI7AN	18/08/06	<0.05
BIDNUJA	10/08/06	0.24
BINGEMMA	10/08/06	<0.05
BIRGU	24/08/06	<0.05
BUJIBEL	01/08/06	<0.05
CIRKEWWA	23/08/06	<0.05
COSPICUA	24/08/06	<0.05
DINGLI	17/08/06	0.23
FGURA	01/08/06	<0.05
FLORIANA	02/08/06	0.12
GH.TUFFIEHA	10/08/06	<0.05
GHARGHUR	22/08/06	0.06
GIAXAQ	11/08/06	<0.05
G'MANGIA	16/08/06	<0.05
GUDJA	11/08/06	0.05
GZIRA	22/08/06	<0.05
HAL FAR	14/08/06	<0.05
HAMRUN	16/08/06	<0.05
IKLIN	04/08/06	<0.05

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
ISLA	24/08/06	<0.05
KALKARA	01/08/06	<0.05
KIRKOP	09/08/06	<0.05
KORDIN	11/08/06	<0.05
LUJA	18/08/06	0.17
LUQA	07/08/06	<0.05
LUQA	07/08/06	<0.05
MANIKATA	10/08/06	<0.05
MARSA	02/08/06	0.07
MDINA	18/08/06	0.22
MELLIEHA	23/08/06	<0.05
MGARR	10/08/06	0.05
MOSTA	04/08/06	<0.05
MQABBA	09/08/06	0.07
M'SCALA	01/08/06	<0.05
MSIDA	16/08/06	<0.05
MTARFA	17/08/06	0.22
M'XLOKK	14/08/06	<0.05
NAXXAR	04/08/06	<0.05
PAOLA	11/08/06	<0.05
PEMBROKE	22/08/06	<0.05
PIETA'	16/08/06	<0.05
QAWRA	23/08/06	<0.05

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
QORMI	07/08/06	0.06
QORMI	07/08/06	<0.05
QRENDI	09/08/06	<0.05
RABAT	18/08/06	0.29
SAFI	09/08/06	0.06
ST GWANN	22/08/06	<0.05
SIGGIEWI	03/08/06	0.05
SIGGIEWI	09/08/06	0.77
SLIEMA	22/08/06	<0.05
ST JULIANS	22/08/06	<0.05
ST PAUL'S BAY	23/08/06	<0.05
ST VENERA	16/08/06	<0.05
ST LUCIA	11/08/06	<0.05
SWIEQI	22/08/06	<0.05
TA' XBIEX	22/08/06	<0.05
TARXIEN	11/08/06	<0.05
VALLETTA	02/08/06	0.17
XGHAJRA	01/08/06	<0.05
ZABBAR	01/08/06	<0.05
ZEBBIEGH	10/08/06	<0.05
ZEBBUG	07/08/06	0.05
ZEJTUN	14/08/06	<0.05
ZURRIEQ	09/08/06	0.08

### FLUORIDE LEVELS IN WATER – GOZO

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
FONTANA	07/08/06	0.32
GHAJNSIELEM	07/08/06	<0.05
GHARB	07/08/06	0.67
GHASRI	07/08/06	0.6
KERCEM	07/08/06	0.62
M'FORN	07/08/06	0.62

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
MGARR	07/08/06	0.05
MUNXAR	07/08/06	0.64
NADUR	07/08/06	0.37
QALA	07/08/06	0.25
RABAT	07/08/06	0.27
SAN I AWRFN7	07/08/06	0.64

SITE NAME	SAMPLING DATE	FLUORIDES MG/L F-
SANNAT	07/08/06	0.61
XAGHRA	07/08/06	0.33
XEWKJJA	07/08/06	0.6
XLENDI	07/08/06	0.39
ZEBBUG	07/08/06	0.63

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# THE DAM AUGMENTIN QUIZ AT TARRAGON

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1. Does Augmentin cover BOTH aerobic and anaerobic pathogens? Yes
2. Is Augmentin a bactericidal antibiotic? Yes
3. What is the dose, in mg, of amoxicillin and of clavulanate in an Augmentin 625mg tablet? 500mg, 125mg
4. What is the dose, in mg, of amoxicillin and of clavulanate in an Augmentin 1G tablet? 875mg, 125mg
5. What is the STANDARD daily dosage of Augmentin tablets? 1g BD  
What is the HIGHER daily dosage of Augmentin tablets? 1g TDS
6. Are the 2 dosages of Augmentin 1g x 2 daily and Augmentin 625mg x 3 daily clinically and bacteriologically equivalent? Yes
7. An antibiotic dosage regimen with a bd dosing increases compliance compared to a dosage regimen with a tid dosage regimen. True or False? True
8. The root of the tarragon was used in medieval times to cure which painful ailment? Toothache
9. Should you give antibiotic cover to a patient with
  - a. prosthetic cardiac valve - Yes
  - b. congenital heart disease - Yes
  - c. previous infective endocarditis - Yes
  - d. mitral valve prolapse - No
  - e. coronary bypass - No

Eleven dentists answered all correctly so one was pulled from a hat – Alfred Magri Demajo won this. He will win vaccines of his choice..

A GREAT TIME WAS HAD BY ALL!

# DISPOSABLE GLOVES AND ALLERGIES

An appraisal by Dr David Muscat

Due to the advent of Aids gloves are used much more extensively. There is a 17% incidence of latex glove allergy in health care workers.

25-30% of atopic (those with other allergies or asthma) health care workers may become sensitized. The cornstarch powder becomes a source of aerosolized latex protein which sensitizes via inhalation. Gloves must act as a suitable skin barrier. They must be comfortable and of reasonable cost. Latex is the cheapest-cheaper than vinyl or nitrile. In a study by Dr Donald Beezhold

Body sweat makes latex proteins soluble and allows skin absorption. He suggested the use of cornstarch powder be eliminated. Latex is obtained from shaved tree bark but it has to be soaked in chemicals otherwise it will harden into gum. Sulphur is used as a primary vulcanizing agent.

Substituted phenols are used as antioxidants. Synthetic rubber is made from styrene and butadiene which are found in petroleum.

## THE IDEAL LATEX GLOVE

should be powder free, very low in extractable latex protein and the smallest concentration of residual chemicals.

These Maltese adages are fitting (pun) here 'L-irhis gholi' and 'iz-zalza għola mill-huta'. Don't go for the cheapest. Not all gloves are created equal. Do not store gloves in areas of excessive heat or light or ionizing radiation as they will deteriorate. When gloves are removed, wash hands to remove powder and chemicals. Avoid touching hands, nose or mouth when wearing latex or immediately after glove removal.

## GLOVE REACTIONS

### 1. INSTANT DERMATITIS

- Skin irritation not involving the whole bodies' immune response.

- May cause a break in the skin which will afford easier entry of the sensitizing latex protein and result in a latex allergy.

### 2. TYPE 4 ALLERGY

- Delayed cutaneous hypersensitivity, mediated via T cells. Onset 6-18 hours after contact. It is local and limited to the skin contacted.

### 3. TYPE 1 ALLERGY

- Immediate reaction/within 30 minutes.
- Circulating IgE antibodies to proteins in natural latex.
- Rhinitis, conjunctivitis, asthma
- Cutaneous, mucosal, parenteral or aerosol (inhalation of powder).

NON LATEX gloves eg. VINYL can be used for short procedures not involving exposure to body fluids. Vinyl leaks more than latex (study by Korniewicz et al).

NITRILE gloves are made from synthetic latex with no latex proteins. They are 3 times more puncture-resistant than latex and easy to slide on with a low resistance to friction, a high flexibility and superior solvent resistance.

However they can also be allergic if cornstarch is used or if same accelerators used.

## GRADING OF GLOVES

1. Gloves are graded 1-3 depending on their protective qualities. Gloves getting a Medical grade mean they provide greater protection. They are tested to FDA requirements
2. Next level is the high risk category used for health care workers in front line such as paramedics. There is a high level of testing.
3. Next is the utility grade eg. used for painting ASTM graded-American society of testing and materials.



31-33 Strada Reale

# Pen pictures of 19th century dentists in Malta

## MATTHEW COLE YEO

By George. E. Camilleri

Matthew Cole Yeo arrived from Marseilles in Malta on 15th February 1851 on the "Medina". In his 1852 advertisement, Yeo described himself as a Surgeon Dentist from 96 New Bond Street, London. The Malta address given was 42 South Street Valletta which actually was a lodging house run Mr. G. Muir.

It was common from visiting dentists to start practising from their lodgings or hotel. He stressed that he intended to settle in Malta and besides having testimonials from the leading members of the profession, promoted a superior mode of making artificial teeth as well as a new stopping, which does not discolour or oxidise.

At that time the local papers were strongly advertising Mr. Howard's White Succadeneum, prepared by Thomas Howard, Surgeon Dentist, 17 George Str., Hannover Square, London.

By the following year Yeo had moved to 42 Strada Reale, Malta's leading

street, later to 32 and finally to 52 Strada Reale in 1855. In 1859 he went for 4 months to England and on his return he advertised that he had the Patent right of use for the new system of artificial dentistry utilising Vulcanite Rubber compound instead of gold as a denture base.

In 1851 Nelson Goodyear in the United States had patented an improved method to produce hard vulcanite suitable for denture use.

There appears to have been some rivalry between Yeo and a Maltese dentist, Alessandro Preziosi who, in 1860, also emphasised his use of vulcanite dentures without however mentioning the requisite patent.

In 1864 the Goodyear Dental Vulcanite Company was founded and every dentist had to obtain an expensive licence to use the material and pay a royalty for each denture made. The following year Yeo again went to England "for a change of

air as well regarding some very important improvement in the new system of Dentistry".

Accompanying him on his return on the "Demetrius" from Liverpool was a young dentist, Jenkin who joined his practice.

We know little of Yeo's family life. His wife, Mary Ann died aged 51 years on 4-6-1870 and was buried at ta' Braxia, whilst his daughter Georgina Caroline married William Lamplush Hervey of Carlisle, in 1872.

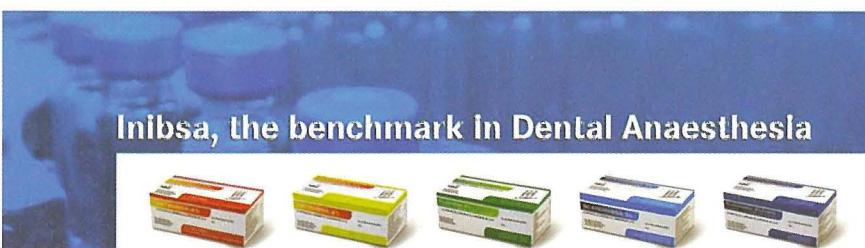
He died on the 30th March 1873 and was buried next to his wife at ta' Braxia Cemetery. His estate, valued at under £900, was administered by Rev. George Wisely a Methodist minister, and William Hardman, two leading members of the British community in Malta.

Mr. T. Jenkin and later his son carried on in this practice till 1937. These three gentlemen between them ran this dental practice for 85 years.

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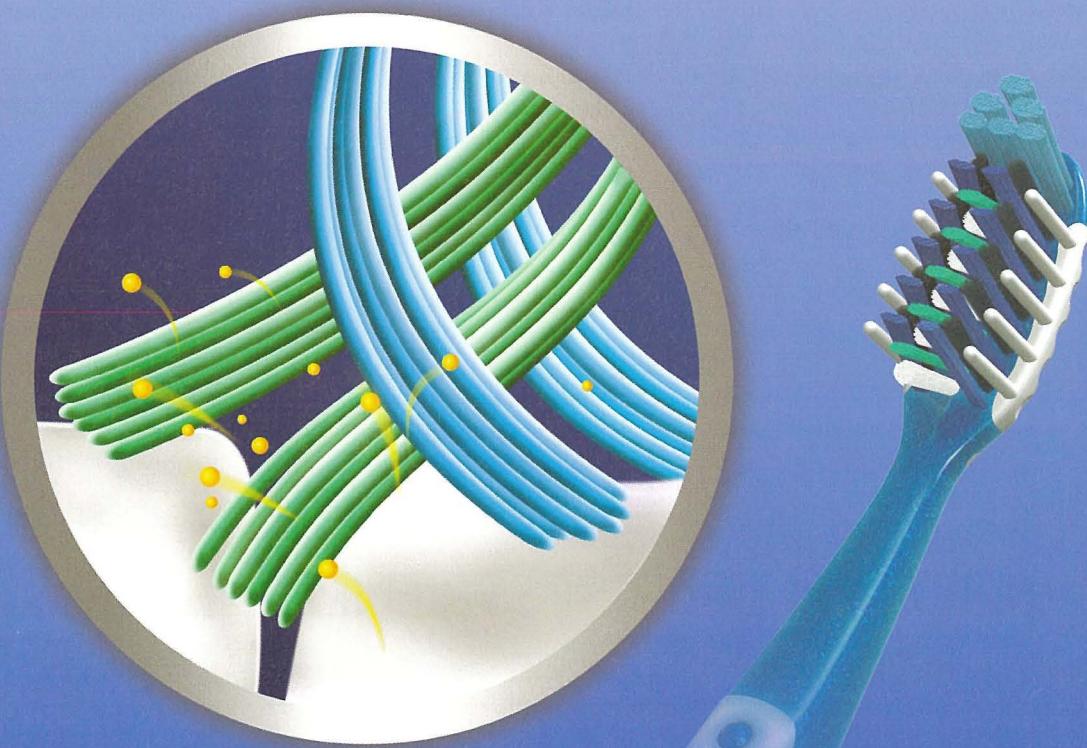
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# EXPERT

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# WISDOM TEETH

By Dr David Muscat

The earliest wisdom teeth recorded are those from a woman in the Magdalenian period in Europe in 10000-18000BC.

Our ancestors used to need the third molar to grind down plant tissue to compensate for our inability to digest cellulose in cell walls

The PAX 9 gene and to a certain extent the AX1NZ and the MSX1 genes are responsible for the presence of the third molars.

Nearly 100% of indigenous Mexicans have no wisdom teeth. However only 0.2% of Bantu speaking peoples (Niiger-Congo origin) have no wisdom teeth.

Many years ago most people had large jaws which would accommodate them.

In Dutch, wisdom teeth are 'verstandskies' which means 'far standing.'

In Turkish they are '20 yas disi' meaning 'the 20 year tooth.'

In Korean they are 'sa-rang-nee' meaning 'the pain of first love.' 18-20 years is the age of the first love.

In Arabic they are 'Dars-al-a'qel' meaning 'the tooth of the mind.'

In Japan they are 'oyashirazu' meaning 'unknown to the parents' as the child would have left home by then.

In Indonesia they are 'gigi bungsu' - 'The youngest child.'

In Thailand 'fan'khut' - 'the huddling tooth.' as it fights for space.

In Spain 'mucla de juicio' and in Portugal 'dente de siso' and in Italian 'dente del giudizio' all meaning the 'molar of judgement'.

In Maltese there are 2 versions. The first is 'darsa tal-ghaqal' - the tooth at the coming of age. The second however is 'darsa tal-ghaqad' which means 'the molar that joins' as it completes the set of molars.

In Hebrew it is called 'shen bina' which literally means wisdom teeth.

In Latin the wisdom tooth is 'dens sapientiae'.

## CURRENT PROTOCOL ON REMOVAL OF ASYMPTOMATIC IMPACTED WISDOM TEETH

- In Israel - Yes
- In Latin America or eastern Europe - No
- In the UK the national institute for health and clinical excellence, which appraises NHS cost-effectiveness has said that third molars that are free from disease should not be operated on.
- In the US the American association of Oral and Maxillo-Facial surgeons recommends the removal of all asymptomatic 8s as a prophylactic measure.

At the age of 9 the crown of the third molar starts to form and will emerge at age 20. The roots will be solidly planted by age 40. Early humans had large jaws and a much tougher diet.

Impacted 8s can cause gum disease, crowding, caries, cysts. They are best removed before orthodontic treatment.

Since they are the last teeth to develop they have to fight for space. Wisdom teeth may cause pain, swelling, jaw pain, halitosis, bad taste and a headache or jaw ache.

Impactions may be horizontal, vertical, mesio-angular, disto-angular. The soft tissue operculum can be washed out with hydrogen peroxide.

Post operative complications include bleeding/oozing, dry socket (alveolar osteitis) and nerve damage to inferior alveolar nerve or lingual nerve - usually with the bone drill.

Numbness, infections, damage to sinus and weakening of jaw bone are other possible post-op complications.

Post operatively one is asked not to smoke, spit, blow one's nose or drink with a straw or play a musical instrument-anything that will dislodge the blood clot from the socket.

The Japan Institute of advanced Science and technology has managed to harvest stem cells from extracted 8s.

## CARBOCO - A DENTIST'S FRIEND

An appraisal by Dr David Muscat

If there is one material a dentist should always have in his surgery it is Carboco.

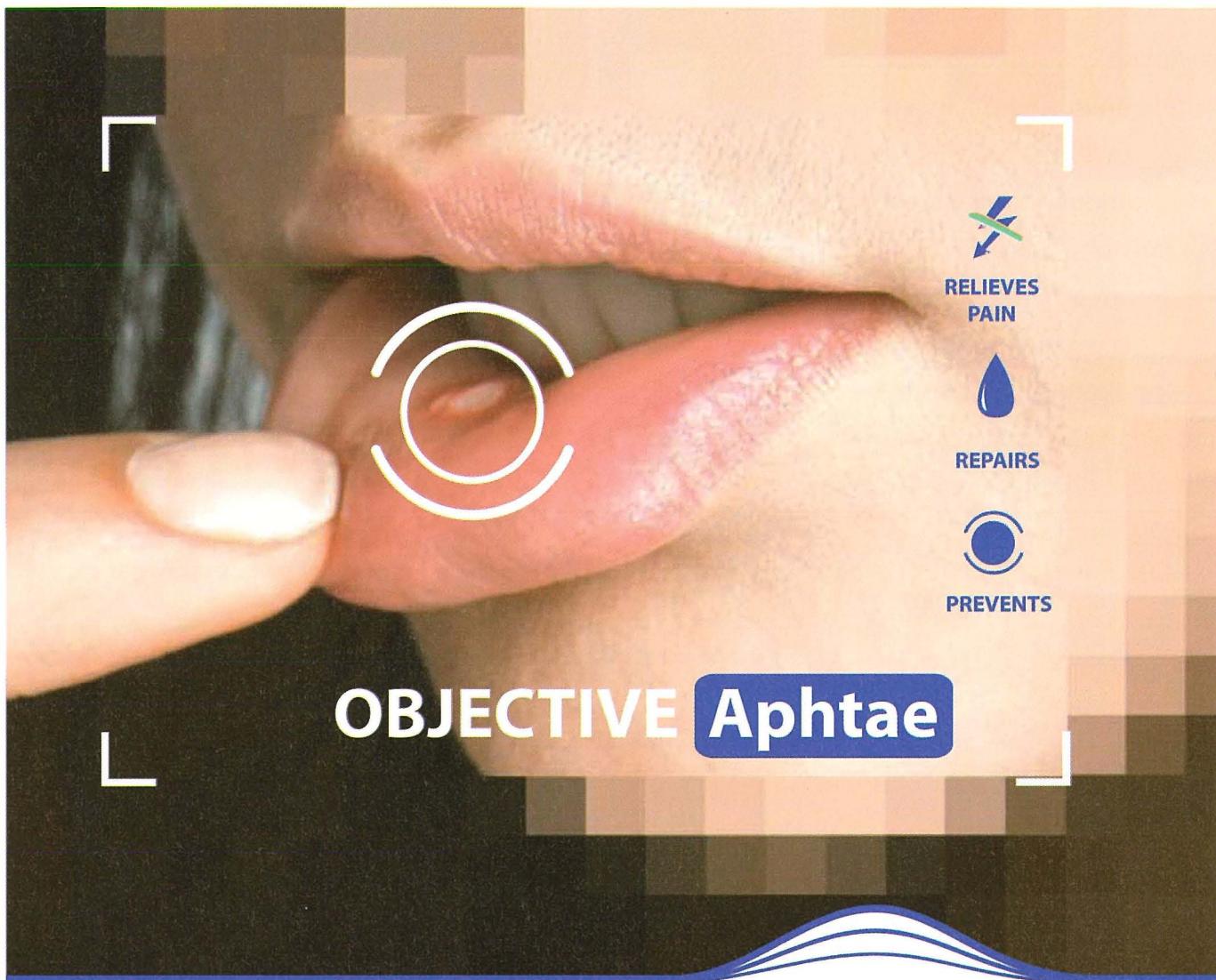
This is my favourite in between visits temporary filling when I opt to carry out a 2 visit endodontic procedure. The material sets hard, and it oozes confidence. This is not going to break and it is not going to come out. It will not leak in between visits and the

tooth will be protected from fracture. A zinc carboxylate cement does what you expect it to do-stick to dentine. If mixed correctly it has low acidity so it can also be used as a lining material.

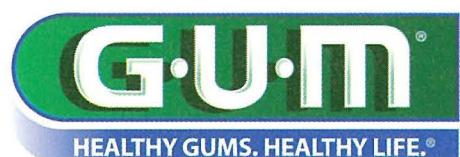
I sometimes used it as a second liner instead of zinc phosphate cement. Carboco is mixed in the proportion of 2 scoops powder with 3 drops of liquid. DO NOT INCREASE THE

AMOUNT OF LIQUID when using as a luting cement-this will result in an increase in acidity and affect the pulp. Carboco also contains magnesium oxide and zinc oxide.

Carboco can also be used to 'mould a tooth shape' over a prepared tooth for a crown if your temporary plastic crown breaks whilst waiting for the permanent crown.



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in 1955. Today, Crest is among the most trusted household brands.. Crest's dream is to lead the way in the passionate pursuit of perfect oral health so that everyone can have a healthy, beautiful smile for life.



The Crest brand has reached major milestones over the past couple of years which, for the first time, have made a healthy, beautiful smile affordable and accessible to everyone.

In January 2004, Crest introduced a new seven day whitening regimen, Crest Whitestrips Premium which was clinically proven to remove fourteen years of stain build-up in just seven days to bring irresistibly whiter and more youthful smiles.

It had never been easier or faster to incorporate whitening into a beauty routine than with Crest Whitestrips Premium. Another variant was launched

in the same year; Crest Vivid White, a unique combination of highly effective cleaning and polishing ingredients and a stain removing/protective coating ingredient. The product whitens teeth in three ways: it polishes away surface stains, helps lift away hard-to-reach surface stains, and helps protect teeth from new stains. Crest has always had the consumer's best interests at heart, with a variety of choice that the product line has to offer, be it protection, whitening, or cavity protection.

Crest is a brand that has continually pushed to improve oral health and is among the most trusted household brands for a reason – it works.

The Oral-B brand is a worldwide leader and includes manual and power toothbrushes for children and adults, as well as oral irrigators, oral care centres and inter-dental products, such as dental floss. It is because of this reason that Oral-B toothbrushes are used by more dentists than any other brand in the world.



Oral-B means a clean and healthy smile. The product line covers all aspects of dental care, from antimicrobial protection and deep cleansing to whitening and gum stimulation and protection.

It is a brand dedicated to your smile, pushing boundaries and supplying the necessities for oral and dental health.

Committed to the customer's well-being, Oral-B supplies crucial information about oral health care, recommending that brand users have regular check-ups and ask their dentist for an inter-dental cleaning

plan – an individual diagram which shows the areas of your mouth which special attention, outlining the importance of regular check-ups. Regular visits should be scheduled for the whole family, including children over three years old.

Regular check-ups ensure that your teeth remain healthy, that any dental problems will be quickly and painlessly solved, that a professional cleans your teeth and customers receive valuable advice on keeping their teeth healthy and looking great.

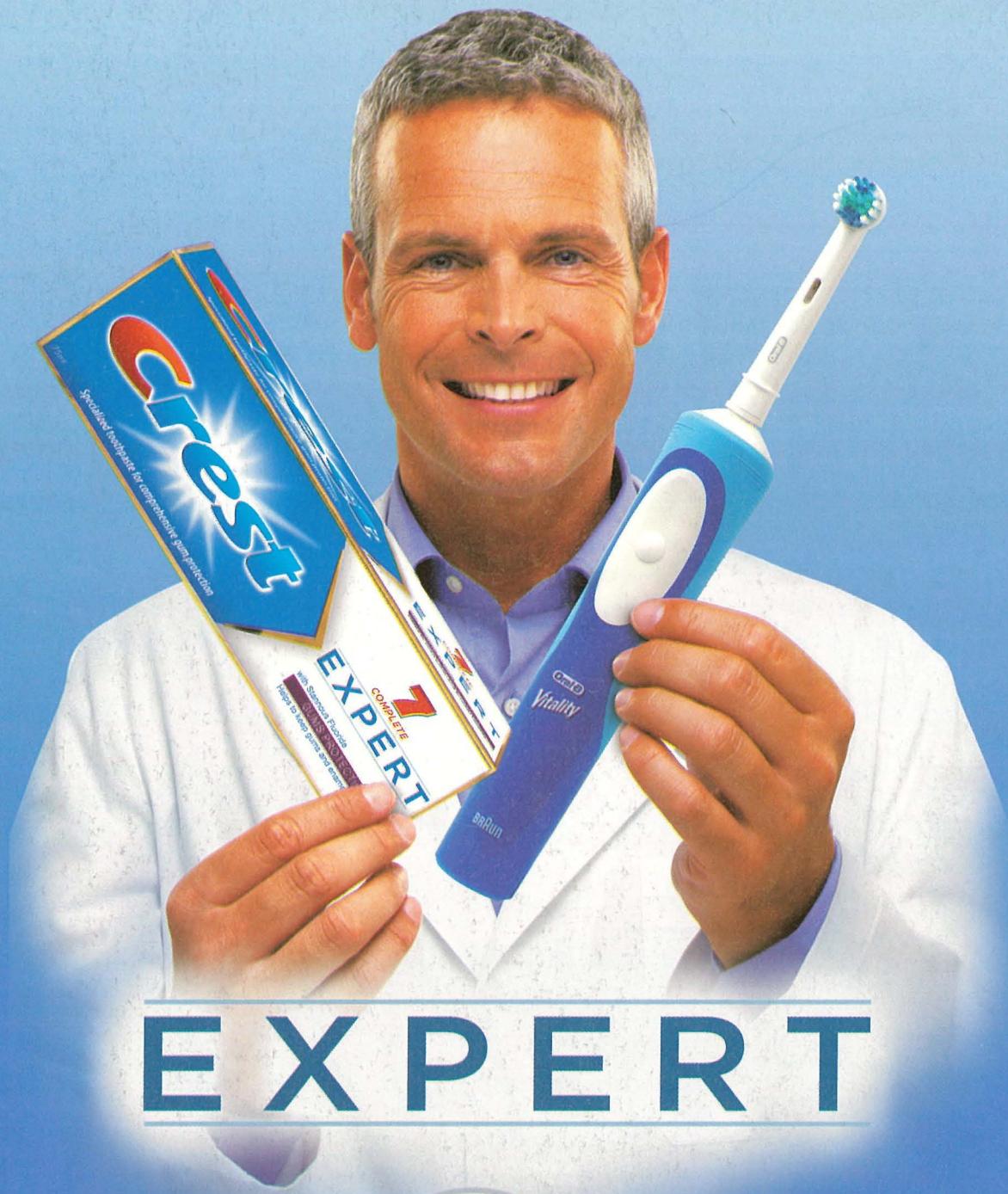
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