ISSUE
51
SEP14

The Dental Probe

The Maltese Dental Journal

new

1 COMPLETE SENSITIVITY TOOTHPASTE

SPECIALLY DESIGNED WITH 7 BENEFITS**

Sensodyne® understands that dentine hypersensitivity patients have differing needs

Sensodyne® Complete Protection, powered by NovaMin®, offers all-round care with specially designed benefits to meet your patients' different needs and preferences, with twice-daily brushing.

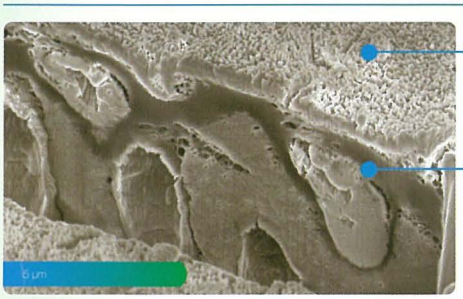
Sensodyne® Complete Protection:

- Is clinically proven to provide dentine hypersensitivity relief[1-3]
- Contains fluoride to strengthen enamel
- Helps to maintain good gingival health[4-6]

Sensodyne® Complete Protection, powered by NovaMin® – an advanced approach to dentine hypersensitivity relief

- NovaMin®, a calcium and phosphate delivery technology, initiates a cascade of events on contact with saliva[7-12] which leads to formation of a hydroxyapatite-like restorative layer over exposed dentine and within dentine tubules[7, 9-13].
- *In vitro* studies have shown that the hydroxyapatite-like layer starts building from the first use[7-9] and is up to 50% harder than dentine[9,14].
- The hydroxyapatite-like layer binds firmly to collagen within exposed dentine[10,15] and has shown in *in vitro* studies to be resistant to daily physical and chemical oral challenges[9,14-17], such as toothbrush abrasion[16] and acidic food and drink[14-17].

In vitro studies show that a hydroxyapatite-like layer forms over exposed dentine and within the dentine tubules[7,9,10,12,13]



Adapted from Earl *et al*, 2011 (A)[13]. *In vitro* cross-section SEM image of hydroxyapatite-like layer formed by supersaturated NovaMin® solution in artificial saliva after 5 days (no brushing)[13]

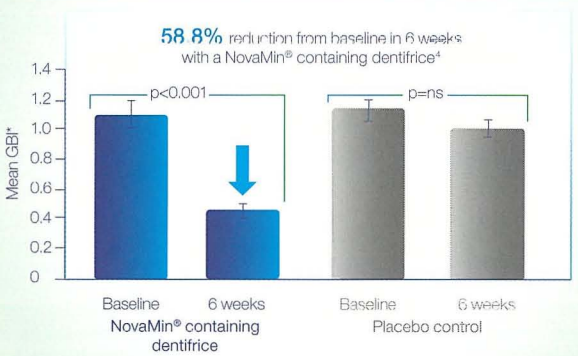
**With twice daily brushing.

Sensodyne® Complete Protection helps maintain good gingival health[4-6]

Good brushing technnique can be enhanced with the use of a specially designed dentifrice to help maintain good gingival health[18,19].

In clinical studies, NovaMin® containing dentifrices have shown up to 16.4% improvement in plaque control as well as significant reduction in gingival bleeding index, compared to control toothpastes[4-6].

Significant reduction in gingival bleeding index (GBI) over 6 weeks with a NovaMin® containing dentifrice[4]



Adapted from Tai *et al*, 2006[4]. Randomised, double-blind, controlled clinical study in 95 volunteers given NovaMin® containing dentifrice or placebo control (non-aqueous dentifrice containing no NovaMin®) for 6 weeks. All subjects received supragingival prophylaxis and polishing and were instructed in brushing technique. *GBI scale ranges from 0–3.

All-round care for dentine hypersensitivity patients[1-6]

gsk GlaxoSmithKline

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Editorial

DENTAL ASSOCIATION OF MALTA
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By Dr David Muscat

Dear colleagues,

Since the last edition we have been rather busy with events

I hope you all had a well deserved summer break. This year many young dentists got married and I will try to feature photos of their weddings if the pictures are sent to me in time and space permitting.

We have had some excellent events this year and we are proud of our achievements. My hat goes off to Lino and the rest of our committee. Please note that for events where dentists members of the Dental Association of Malta are invited it is not permitted to bring one's partner/wife/ husband/spouse/dental staff unless it is specifically mentioned in the invite. We ask for full co-operation from our esteemed members in this regard.

We are per capita one of the most active, successful Dental Associations worldwide.

Valletta cover picture kindly provided by Dr Noel Manche' taken during DAM sailing event on 10 September 2014.

Best regards,

David

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

RECENT/PLANNED EVENTS

21 MAY
Golf event at Royal Malta golf Club followed by dinner at Marsa Club

13 JUNE
Lecture by Dr Michael Boffa, Skin Specialist on Lesions of the lip at Victoria hotel followed by dinner sponsored by Butler.

23 JULY
Clay Pigeon shooting event at Maghtab followed by dinner at Charlie's Inn.

3 SEPTEMBER
Lecture by Professor Millar on Toothwear followed by dinner at Xara Lodge sponsored by Abbott.

10 SEPTEMBER
Sailing event followed by dinner at Paparazzi

NOVEMBER
Lecture – Diabetes link to Periodontal disease planned. Dr Cachia, Diabetic Consultant

DECEMBER
lecture on Paediatric dentistry planned – Dr Gabby Gatt.

5 DECEMBER
Christmas dinner – venue to be announced.

JANUARY
History of wine-making lecture planned.

MARCH
Orthodontic lecture planned – Dr Stefan Abela

On 10 September the DAM held its first ever sailing event on the Allegra skippered by Dr Patrick Vassallo; the Timeout skippered by Dr Mario Sant and the Bordeaux 11 skippered by Dr Tonio Cachia. After five hours at sea 27 dentists descended on Paparazzi in Gzira to unwind with a few beers and an excellent meal. A great day out indeed.

Advertisers are responsible for the claims they make in their ads and the opinion of the advertisers and editors of articles in the issue are not necessarily the opinion of the DAM.

BRUFEN®

Brufen Tablets 400mg
1200 - 1800mg daily in divided doses, up to a maximum of 2400mg

Brufen Granules 600mg
1200 - 1800mg daily in divided doses, up to a maximum of 2400mg

Brufen Retard 800mg
2 tablets taken as a single dose preferably in the early evening well before retiring to bed

Brufen Syrup: The daily dose of Brufen 20mg/Kg of bodyweight in divided doses
1 - 2 yrs: One 2.5ml spoonful (50mg) three to four times a day
3 - 7 yrs: One 5ml spoonful (100mg) three to four times a day
8 -12 yrs: Two 5ml spoonfuls (200mg) three to four times a day

Brufen Tablets 400mg , Brufen Granules 600mg, Brufen Retard Tablets 800mg, Brufen Syrup 500ml (100mg/5ml) Therapeutic indications: Brufen is indicated for its analgesic and anti-inflammatory effects in the treatment of rheumatoid arthritis (including juvenile rheumatoid arthritis or Still's disease), ankylosing spondylitis, osteoarthritis and other non-rheumatoid (seronegative) arthropathies.In the treatment of non-articular rheumatic conditions, Brufen is indicated in periarticular conditions such as frozen shoulder (capsulitis), bursitis, tendonitis, tenosynovitis and low back pain; Brufen can also be used in soft tissue injuries such as sprains and strains. Brufen is also indicated for its analgesic effect in the relief of mild to moderate pain such as dysmenorrhoea, dental and post operative pain and for symptomatic relief of headache, including migraine headache.**Posology and method of administration:** Adults: The recommended dosage of Brufen is 1200-1800 mg daily in divided doses. Some patients can be maintained on 600-1200 mg daily. In severe or acute conditions, it can be advantageous to increase the dosage until the acute phase is brought under control, provided that the total daily dose does not exceed 2400 mg in divided doses. Children: The daily dosage of Brufen is 20 mg/kg of body weight in divided doses. In Juvenile Rheumatoid Arthritis, up to 40 mg/kg of body weight daily in divided doses may be taken. Not recommended for children weighing less than 7 kg. Elderly: The elderly are at increased risk of serious consequences of adverse reactions. If an NSAID is considered necessary, the lowest effective dose should be used and for the shortest possible duration. The patient should be monitored regularly for GI bleeding during NSAID therapy. If renal or hepatic function is impaired, dosage should be assessed individually. For oral administration. To be taken preferably with or after food, with a glass of water. Brufen tablets should be swallowed whole and not chewed, broken, crushed or sucked on to avoid oral discomfort and throat irritation. A transient sensation of burning in the mouth or throat may occur with Brufen Syrup and Brufen Granules; ensure the syrup is thoroughly shaken before use and the granules are dissolved in plenty of water. **Contraindications:** Brufen is contraindicated in patients with hypersensitivity to the active substance or to any of the excipients. Brufen should not be used in patients who have previously shown hypersensitivity reactions (e.g. asthma, urticaria, angioedema or rhinitis) after taking ibuprofen, aspirin or other NSAIDs. Brufen is also contraindicated in patients with a history of gastrointestinal bleeding or perforation, related to previous NSAID therapy. Brufen should not be used in patients with active, or history of, recurrent peptic ulcer or gastrointestinal haemorrhage (two or more distinct episodes of proven ulceration or bleeding). Brufen should not be given to patients with conditions involving an increased tendency to bleeding. Brufen is contraindicated in patients with severe heart failure hepatic failure and renal failure Brufen is contraindicated during the last trimester of pregnancy. **Special warnings and precautions for use:** Undesirable effects may be minimised by using the lowest effective dose for the shortest duration necessary to control symptoms. Patients with rare hereditary problems of galactose intolerance, the Lapp lactose deficiency or glucose-galactose malabsorption should not take this medication. As with other NSAIDs, ibuprofen may mask the signs of infection. The use of Brufen with concomitant NSAIDs, including cyclooxygenase-2 selective inhibitors, should be avoided due to the increased risk of ulceration or bleeding. Elderly: The elderly have an increased frequency of adverse reactions to NSAIDs, especially gastrointestinal bleeding and perforation, which may be fatal. Paediatric population: There is a risk of renal impairment in dehydrated children and adolescents. Gastrointestinal bleeding, ulceration and perforation: GI bleeding, ulceration or perforation, which can be fatal, has been reported with all NSAIDs at anytime during treatment, with or without warning symptoms or a previous history of serious GI events. The risk of GI bleeding, ulceration or perforation is higher with increasing NSAID doses, in patients with a history of ulcer, particularly if complicated with haemorrhage or perforation, and in the elderly. These patients should commence treatment on the lowest dose available. Combination therapy with protective agents (e.g. misoprostol or proton pump inhibitors) should be considered for these patients, and also for patients requiring concomitant low dose aspirin, or other drugs likely to increase gastrointestinal risk. Patients with a history of gastrointestinal disease, particularly when elderly, should report any unusual abdominal symptoms (especially gastrointestinal bleeding) particularly in the initial stages of treatment. Caution should be advised in patients receiving concomitant medications which could increase the risk of ulceration or bleeding, such as oral corticosteroids, anticoagulants such as warfarin, selective serotonin-reuptake inhibitors or anti-platelet agents such as aspirin. When GI bleeding or ulceration occurs in patients receiving Brufen, the treatment should be withdrawn NSAIDs should be given with care to patients with a history of ulcerative colitis or Crohn's disease as these conditions may be exacerbated Respiratory disorders: Caution is required if Brufen is administered to patients suffering from or with a previous history of bronchial asthma since NSAIDs have been reported to precipitate bronchospasm in such patients. Cardiovascular, renal and hepatic impairment: The administration of an NSAID may cause a dose dependent reduction in prostaglandin formation and precipitate renal failure. Patients at greatest risk of this reaction are those with impaired renal function, cardiac impairment, liver dysfunction, those taking diuretics and the elderly. Renal function should be monitored in these patients. Brufen should be given with care to patients with a history of heart failure or hypertension since oedema has been reported in association with ibuprofen administration. Cardiovascular and cerebrovascular effects: Appropriate monitoring and advice are required for patients with a history of hypertension and/or mild to moderate congestive heart failure as fluid retention and oedema have been reported in association with NSAID therapy. Epidemiological data suggest that use of ibuprofen, particularly at a high dose (2400 mg/ daily) and in long term treatment, may be associated with a small increased risk of arterial thrombotic events such as myocardial infarction or stroke. Overall, epidemiological studies do not suggest that low dose ibuprofen (e.g. £ 1200mg daily) is associated with an increased risk of arterial thrombotic events, particularly myocardial infarction. Patients with uncontrolled hypertension, congestive heart failure, established ischaemic heart disease, peripheral arterial disease, and/or cerebrovascular disease should only be treated with ibuprofen after careful consideration. Similar consideration should be made before initiating longer-term treatment of patients with risk factors for cardiovascular events (e.g. hypertension, hyperlipidaemia, diabetes mellitus, smoking). Renal effects: Caution should be used when initiating treatment with ibuprofen in patients with considerable dehydration. As with other NSAIDs, long-term administration of ibuprofen has resulted in renal papillary necrosis and other renal pathologic changes. Renal toxicity has also been seen in patients in whom renal prostaglandins have a compensatory role in the maintenance of renal perfusion. In these patients, administration of an NSAID may cause a dose-dependant reduction in prostaglandin formation and, secondarily, in renal blood flow, which may precipitate overt renal decompensation. Patients at greatest risk of this reaction are those with impaired renal function, heart failure, liver dysfunction, those taking diuretics and ACE inhibitors and the elderly. Discontinuation of NSAID therapy is usually followed by recovery to the pre-treatment state. SLE and mixed connective tissue disease: In patients with systemic lupus erythematosus (SLE) and mixed connective tissue disorders there may be an increased risk of aseptic meningitis. Dermatological effects: Serious skin reactions, some of them fatal, including exfoliative dermatitis, Stevens-Johnson syndrome, and toxic epidermal necrolysis, have been reported very rarely in association with the use of NSAIDs. Patients appear to be at highest risk of these reactions early in the course of therapy, the onset of the reaction occurring within the first month of treatment in the majority of cases. Brufen should be discontinued at the first appearance of skin rash, mucosal lesions, or any other sign of hypersensitivity. Haematological effects: Ibuprofen, like other NSAIDs, can interfere with platelet aggregation and has been shown to prolong bleeding time in normal subjects. Aseptic meningitis: Aseptic meningitis has been observed on rare occasions in patients on ibuprofen therapy. Although it is probably more likely to occur in patients with systemic lupus erythematosus and related connective tissue diseases, it has been reported in patients who do not have an underlying chronic disease. Impaired female fertility: The use of Brufen may impair female fertility and is not recommended in women attempting to conceive. In women who have difficulties conceiving or who are undergoing investigation of infertility, withdrawal of Brufen should be considered.**Undesirable effects:** Gastrointestinal disorders: The most commonly observed adverse events are gastrointestinal in nature. Peptic ulcers, perforation or GI bleeding, sometimes fatal, particularly in the elderly, may occur. Nausea, vomiting, diarrhoea, flatulence, constipation, dyspepsia, abdominal pain, melaena, haematemesis, ulcerative stomatitis, exacerbation of colitis and Crohn's disease have been reported following ibuprofen administration. Less frequently, gastritis has been observed. Gastrointestinal perforation has been rarely reported with ibuprofen use. Pancreatitis has also been reported very rarely. A transient sensation of burning in the mouth or throat may occur with Brufen Syrup and Brufen Granules. Immune system disorders: Hypersensitivity reactions have been reported following treatment with NSAIDs. These may consist of (a) non-specific allergic reaction and anaphylaxis, (b) respiratory tract reactivity comprising asthma, aggravated asthma, bronchospasm or dyspnoea, or (c) assorted skin disorders, including rashes of various types, pruritus, urticaria, purpura, angioedema and, more rarely, exfoliative and bullous dermatoses (including Stevens-Johnson syndrome, toxic epidermal necrolysis and erythema multiforme). Cardiac disorders and vascular disorders: Oedema, hypertension and cardiac failure have been reported in association with NSAID treatment. Epidemiological data suggest that use of ibuprofen, particularly at high dose (2400 mg/ daily), and in long term treatment, may be associated with a small increased risk of arterial thrombotic events such as myocardial infarction or stroke. Other adverse events reported less commonly and for which causality has not necessarily been established include: Blood and lymphatic system disorders: Leukopenia, thrombocytopenia, neutropenia, agranulocytosis, aplastic anaemia and haemolytic anaemia Psychiatric disorders: Insomnia, anxiety, depression, confusional state, hallucination Nervous system disorders: Optic neuritis, headache, paraesthesia, dizziness, somnolence. Infections and infestations: Rhinitis and aseptic meningitis (especially in patients with existing autoimmune disorders, such as systemic lupus erythematosus and mixed connective tissue disease) with symptoms of stiff neck, headache, nausea, vomiting, fever or disorientation. Eye disorders: Visual impairment and toxic optic neuropathy. Ear and labyrinth disorders: Hearing impaired, tinnitus and vertigo. Hepatobiliary disorders: Abnormal liver function, hepatic failure, hepatitis and jaundice. Skin and subcutaneous tissue disorders: Bullous reactions, including Stevens-Johnson syndrome and toxic epidermal necrolysis (very rare), and photosensitivity reaction. Renal and urinary disorders: Impaired renal function and toxic nephropathy in various forms, including interstitial nephritis, nephrotic syndrome and renal failure. General disorders and administration site conditions: Malaise, fatigue.

Supply classification: POM.

Authorisation Holder: Abbott Healthcare Products Limited, Abbott House, Vanwall Business Park, Vanwall Road, Maidenhead, Berkshire SL6 4XE, UK.

Local representative of the Marketing Authorisation Holder: V.J. Salomone Pharma Ltd., Upper Cross Road, Marsa Tel.: +356 21220174.

Authorisation numbers: AA150/01402, AA150/01404-6. **Date of Revision of Text:** July 2014 **Date of Preparation:** August 2014

For further information about the product, please refer to the full summary of product characteristics.

Abbott
A Promise for Life

WEAR IS THE PROBLEM

TOOTH WEAR AND OCCLUSION

Professor Brian Millar
BDS,FDSRCS,PhD,FHEA,
King's College London

Tooth wear is an increasing problem and affects aesthetics, function and the occlusion. The lecture covered: case assessment, treatment planning, applying prevention, intervention strategies and techniques to restore teeth. Particular emphasis was given to methods of restoring the occlusion in horizontal and vertical dimentsions, using both adhesive and conventional techniques.

The key message to treating tooth wear is early detection, diagnosis, prevention. Treat while the enamel is still present as once into dentine the bond is not the same.Replace what is missing.Reduce sensitivity. Restore function and aesthetics. The maximum height one may build up occlusally is by 1.5mm,which will disclude the other teeth,allow mandibular repositioning and bring the patient back to central relation,followed by intrusion/ extrusion to correct the occlusion.

Long term composites can be replaced with indirect restorations. We are moving away from full mouth rehabilitation with porcelian crowns but good composites bonded on are the order of the day. One tends to be conservative and not cut the tooth down any more but add to it.Lab made composite veneers rather than porcelain veneers for instance- these are much easier to service.

This lecture provided useful tips and a deeper understanding to enhance the management of tooth wear and related occlusal problems.

There are atill places available for January 2015 at Kings. Please contact Professor Millar on Brian.millar@kcl.ac.uk or distancedentistry@kcl.ac.uk Consider a blended learning option. Obtain a MClinDentProsthodontics from KCL, a Russell Group dental institute. Study online with face to face training.

Dr David Muscat President DAM presenting the Probe to Professor Millar from Kings at the Xara Lodge on 3/9/2014 at the lecture on 'Tooth wear'. Also in the picture are Drs Ann Meli Attard and Annalise Camilleri who are both Masters students at Kings and helped organise the event which was attended by 75 dentists. This event was very kindly sponsored by Abbott agents for Brufen and Klacid

Professor Brian Millar
BDS, FDSRCS, PhD, FHEA

Professor of Blended Learning in Dentistry at King's College London and NHS Consultant in Restorative Dentistry at the King's College London Dental Institute at Guy's, King's and St Thomas' Hospitals.

Specialist in Prosthodontics and in Restorative Dentistry.

Over 30 years experience in practice and currently an active specialist clinician in both hospital and private practice, particularly in treating tooth wear, aesthetic and occlusal problems.

Experienced teacher to undergraduates and postgraduates and well-known provider of postgraduate education nationally and internationally at conferences through lectures, seminars, webinars and hands-on courses.

Published over 150 papers, supervised numerous PhD and Masters students, involved in setting up MOOCs with over 20,000 students.

As Programme Director for MClinDent (Prosthodontics) I look after over 100 postgraduate dentists. Recently set up the highly successful MSc programmes in Aesthetic Dentistry, Endodontics and Advanced General Dental Practice by blended learning at KCL Dental Institute.

Continues on page 8.

The *future* of composite *technology.*

Available now!

The fast posterior composite

- **Bulk placement** up to 4 mm due to Ivocerin®, the new light initiator
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ivoclar vivadent®
passion vision innovation

Non-stick effect for efficient contouring

Ivoclar Vivadent has developed the innovative modelling instrument OptraSculpt® Pad in order to meet the demand for efficient processing of highly-esthetic composites.

Despite the excellent mechanical properties of composite materials, their contouring remains a very demanding task for dentists even today. Highly esthetic composites, in particular, sometimes demonstrate a very adhesive consistency due to their filler composition, and they are thus more difficult to shape.

OptraSculpt® Pad is a contouring instrument with special foam pad attachments, which is designed for the efficient, non-stick forming and shaping of composites. It is especially suitable for the contouring of class III, IV and V restorations as well as of direct veneers.

Suitable for dental technicians:

OptraSculpt Pad is also optimally suitable for applying and modelling lab composites. Therefore, the efficient processing of composites is equally supported in dental labs.

Non-stick shaping and contouring

The non-stick attachments of OptraSculpt Pad enable composite materials to be shaped and contoured with ease, without leaving any unwanted marks. Thus, composite restorations with smooth and even surfaces are fabricated with utmost efficiency.

Shaping and contouring with OptraSculpt Pad

Shaping and contouring with a metal spatula

Smooth and even surfaces

Due to the special material of the pads, natural looking restorations are easily accomplished in only a few steps. The highly flexible synthetic foam pads optimally adjust to the anatomical contours and allow smooth modelling.

Result achieved with OptraSculpt Pad

Result achieved with a metal

Professional esthetic results

The reference scales on the instrument handle assist in the creation of esthetic and anatomically-correct restorations. The markings allow the clinical situation to be compared with the ideal average tooth width proportions and angular alignments in the upper anterior dentition.

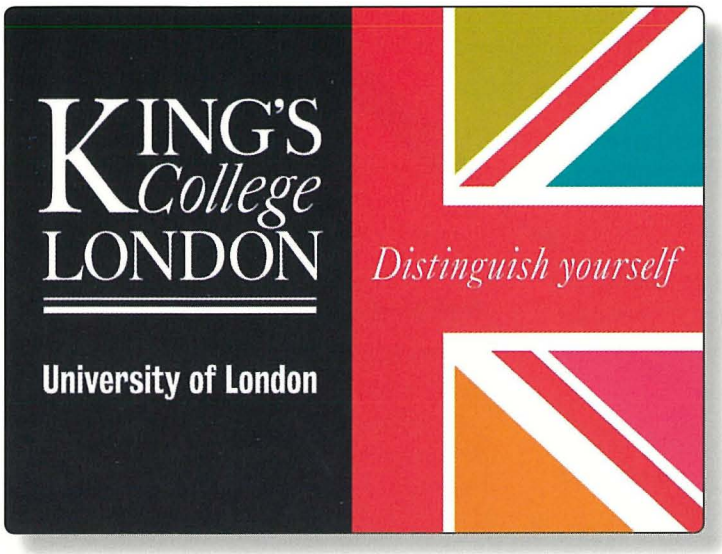
Reference scale 1

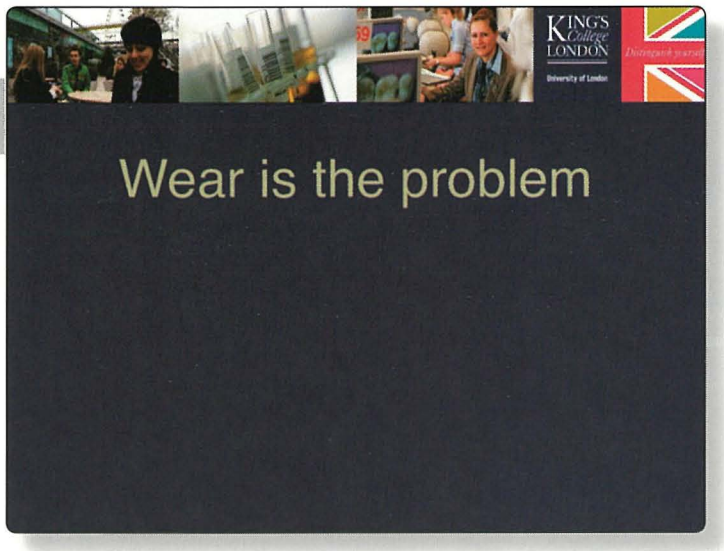
Reference scale 2

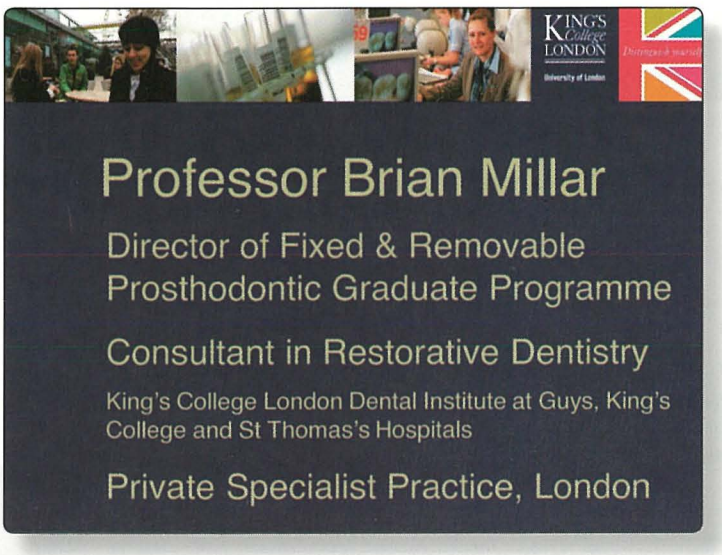
For further information, please visit www.ivoclarvivadent.com

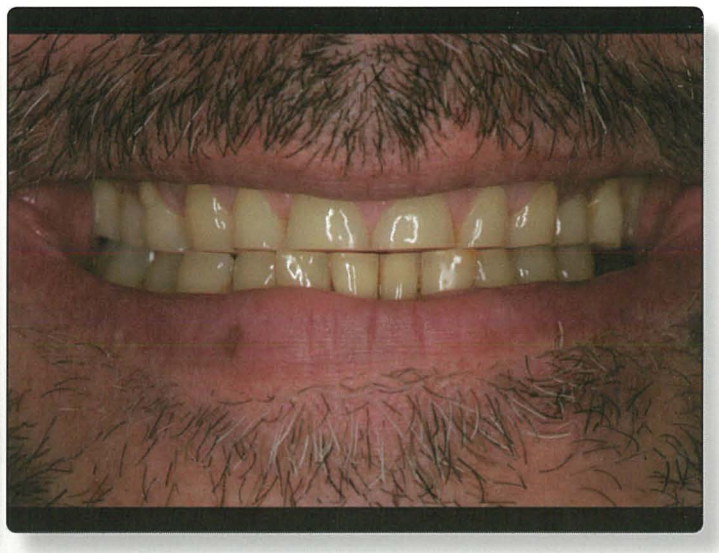
WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

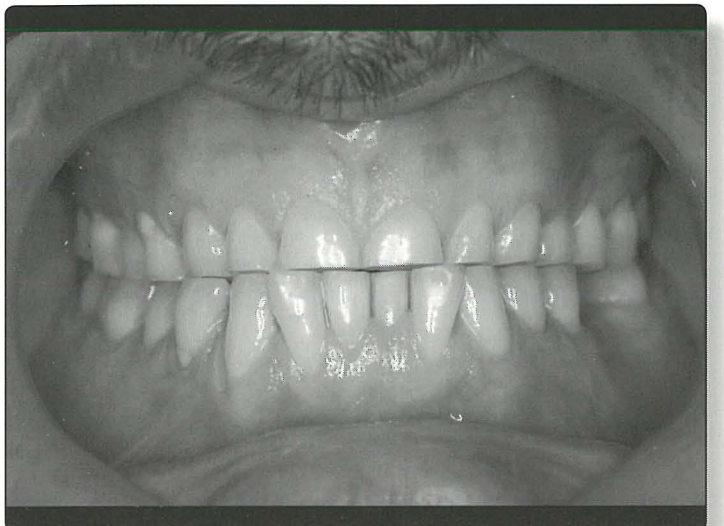
Continues from page 5.





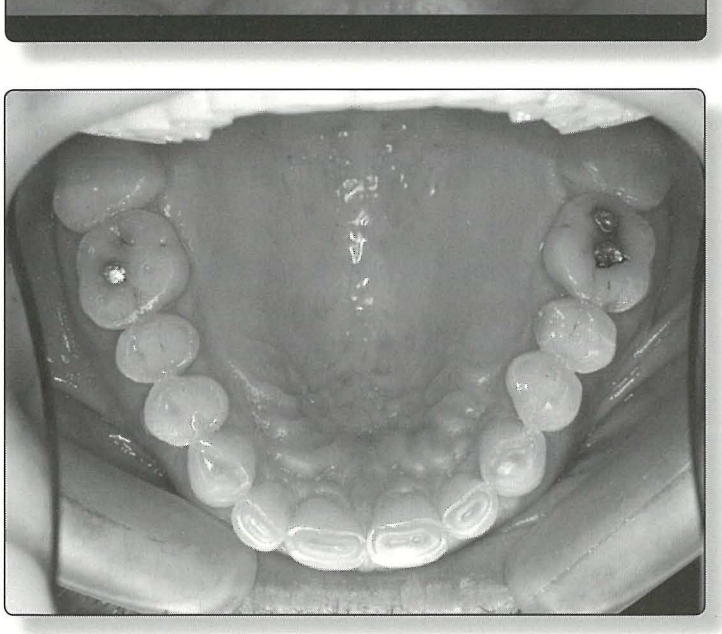






Aetiology – tooth wear

- Attrition
- Abrasion
- Erosion
- Malformation
- Fractures



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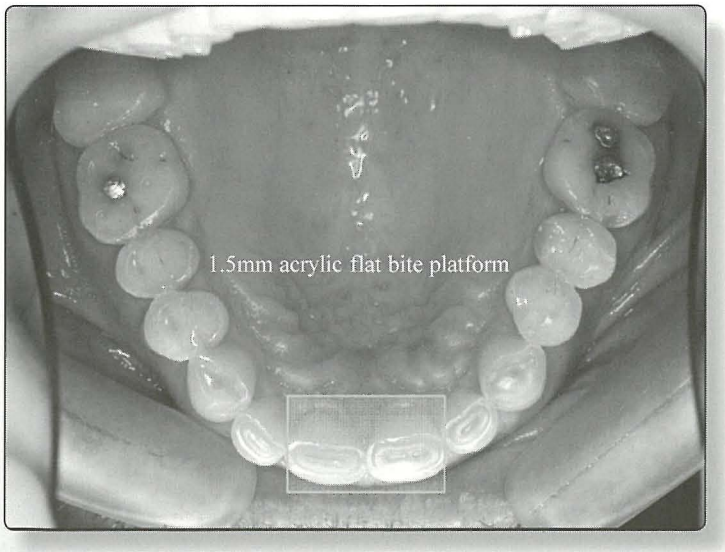


Aetiology – tooth wear

- Attrition
- Abrasion
- Erosion
- Malformation
- Fractures

Always apply a prevention strategy

Continues on page 10.

WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

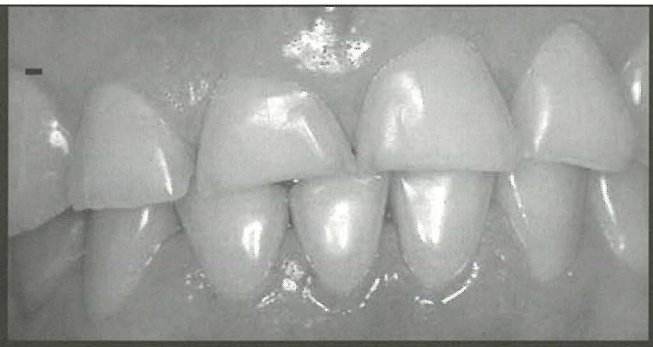
Continues from page 9.

Erosion

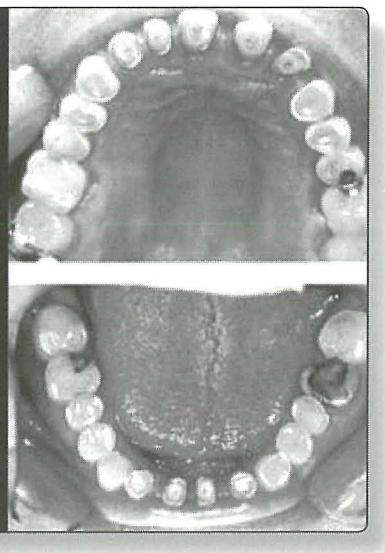
- Enamel rounding, matt, smooth, cervical concavities
- Non-interdigitating
- Differential wear
- Sensitivity
- Acid damage
  - Dietary
  - Gastric

Sensitivity

- This is not a problem in most patients with excessive tooth wear, as the teeth react to the exposed dentine and become less sensitive.
- Management:
  - Desensitising agents, toothpaste, ACP (Tooth Mousse, GC), chewing gum
  - Resin sealants, GIC, Biodentine

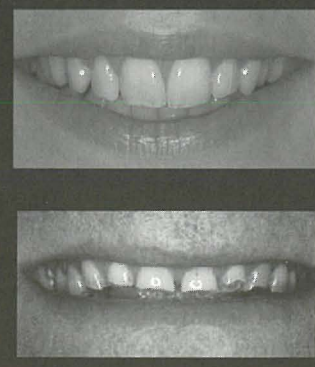


Attrition and erosion



Attrition

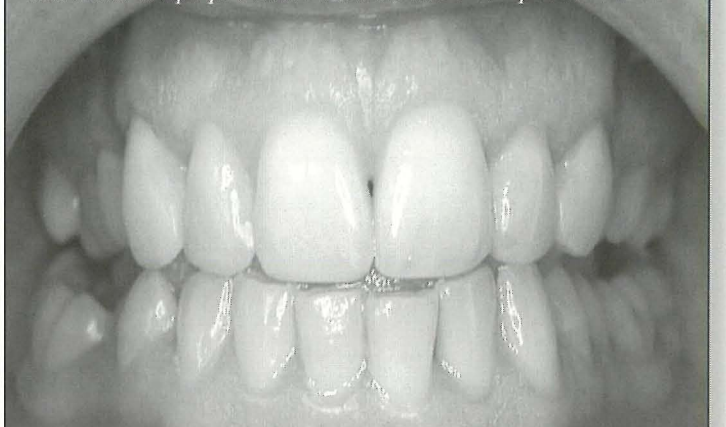
- Flat teeth
- Interdigitate
- Physiological
- Rarely sensitivity
- Bruxism



Normal wear

- Related to age and diet
- Could assume 20-100 µm per year which is 0.2-1 mm per decade
- Occlusal enamel is 2mm thick

Aesthetic shape problem? Non-invasive composite: Miris

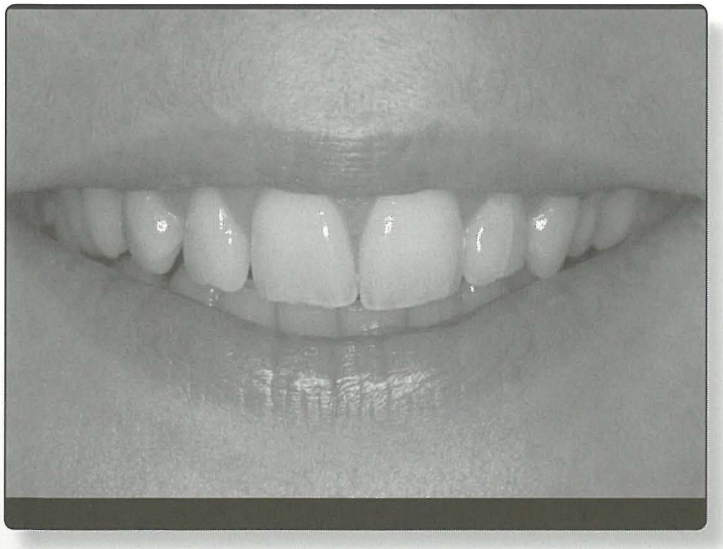


When to intervene

If the rate of wear is such that it is a source of concern or may affect the survival of the teeth

Management of tooth wear

- See it – look for it
- Diagnose – identify cause
- Monitor – photograph, models, measure
- Prevent – eliminate/reduce further wear
- Intervene – only if necessary
- Replace – what is missing



See it

- Loupes, light, dry teeth, models, photographs
- Symptoms – ongoing sensitivity
- Show patient and co-diagnose

Continues on page 12.

WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

Continues from page 11.

Make a Diagnosis

- Identify the cause
- Establishing the aetiology will help formulate appropriate prevention strategies

Prevention of Attrition

- Make patient aware
- Occlusal splint- be careful!
- Restoring posterior support

Monitoring

Rate of progression can be monitored by:

- Models- high density stone
- Intra-oral photographs
- Putty index sectioned across area of wear
- Records should be *named and dated*

Prevention of Abrasion

- Correction of toothbrushing technique
- Soft toothbrush
- Low abrasive toothpaste
- Cessation of object biting habits
- Polishing and glazing of porcelain

Prevention

Effective prevention involves

- Early recognition
- Patient education
- Setting goals
- Tailoring to individual needs
- Eliminating cause

Prevention of Erosion

- Reduce quantity and frequency of acids contacting tooth surfaces
- Enhance defence mechanisms- saliva

Continues on page 14.

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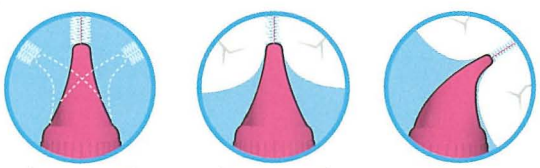

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WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

Continues from page 12.

Prevention of Erosion

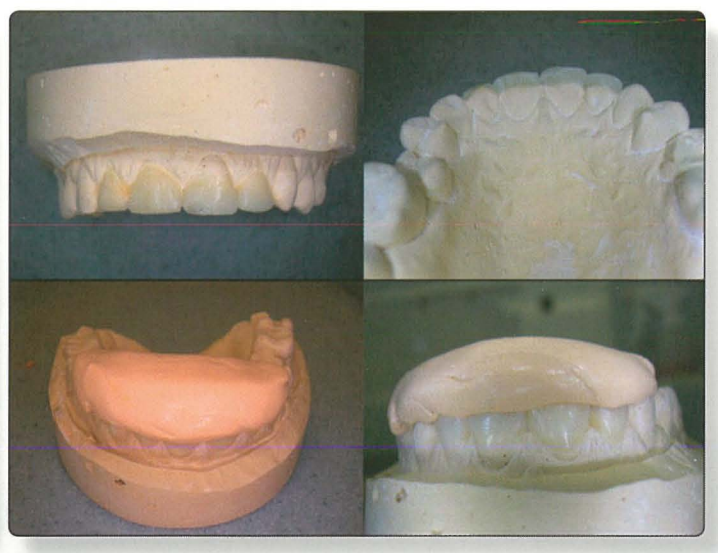
- Avoid brushing for 60 mins after erosive challenge
- Reduce dietary acids
- Consume cheese or milk to promote re-hardening of enamel
- Use of fluoride
- Collaborate with medical practitioner if gastric reflux identified

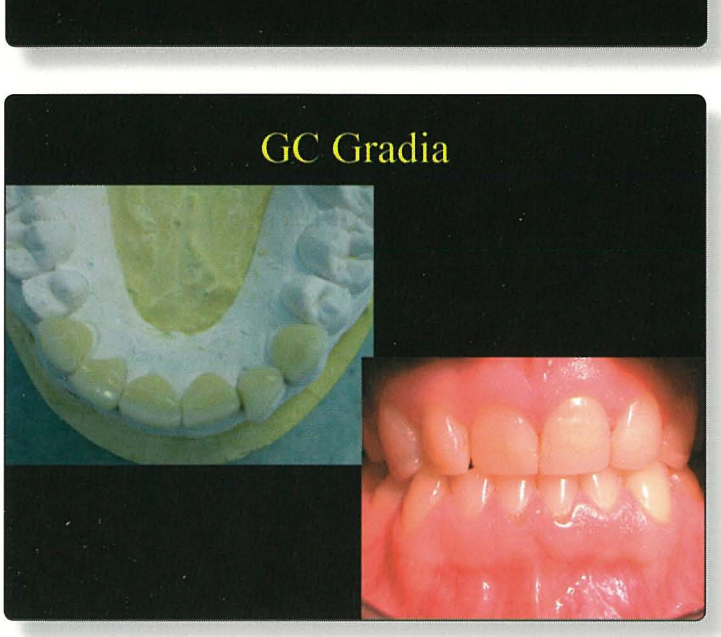
Recall and Reassess

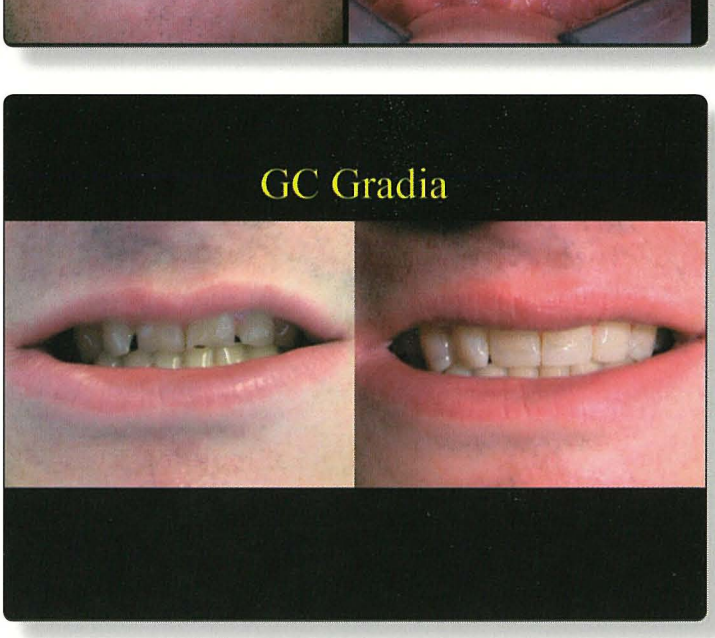
- Set an endpoint, when *you* will intervene
- Usually, when TSL hits the EDJ, restorative intervention becomes advisable

MI restorations

- Loss of OVD
  - If no change to ICP – use ICP
  - If ICP unusable – use CR
- Replace what is missing
- Occlusal adaptation ("Dahl")
- Maintain and repair







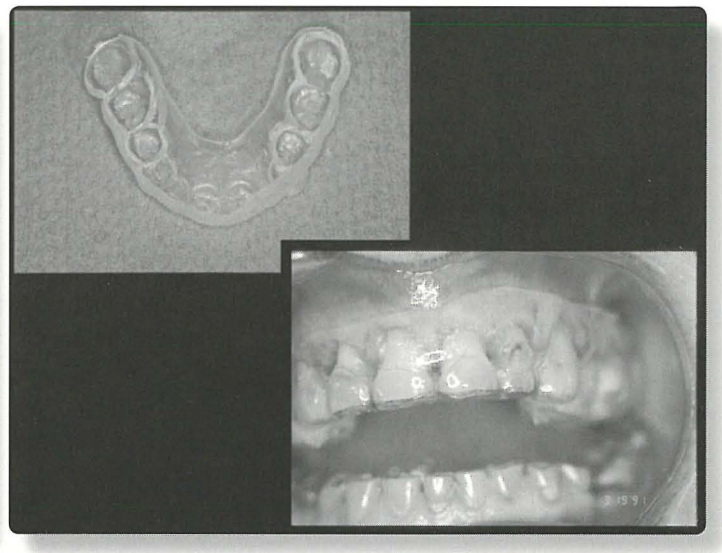
Continues on page 16.

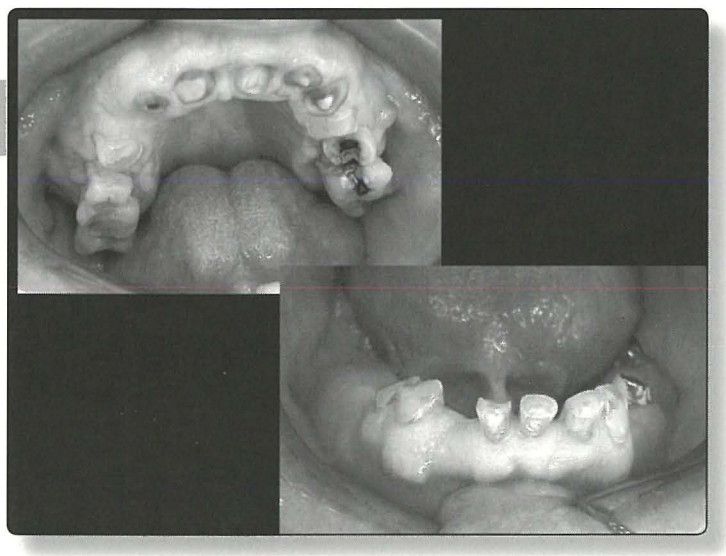
WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

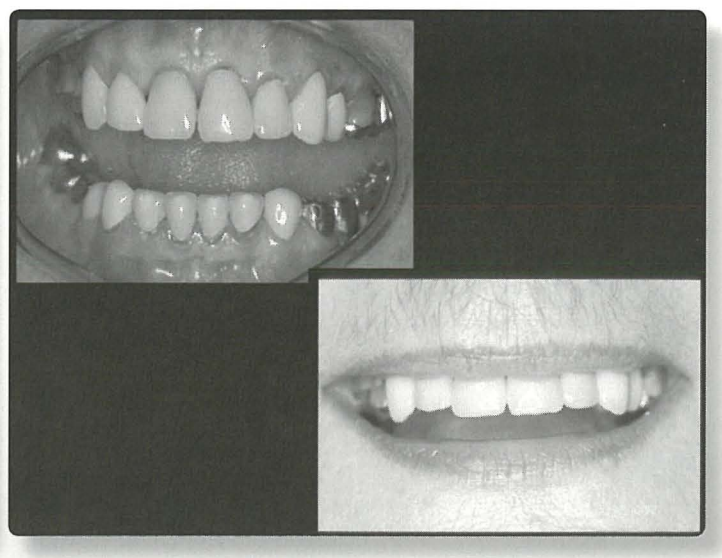
Continues from page 15.

Beware: Alveolar compensation

- Wear with no loss of OVD but lack of space, ie. alveolar compensation
- Crown lengthen?
- Does Dahl work?
- Difficult aesthetics, complex treatments







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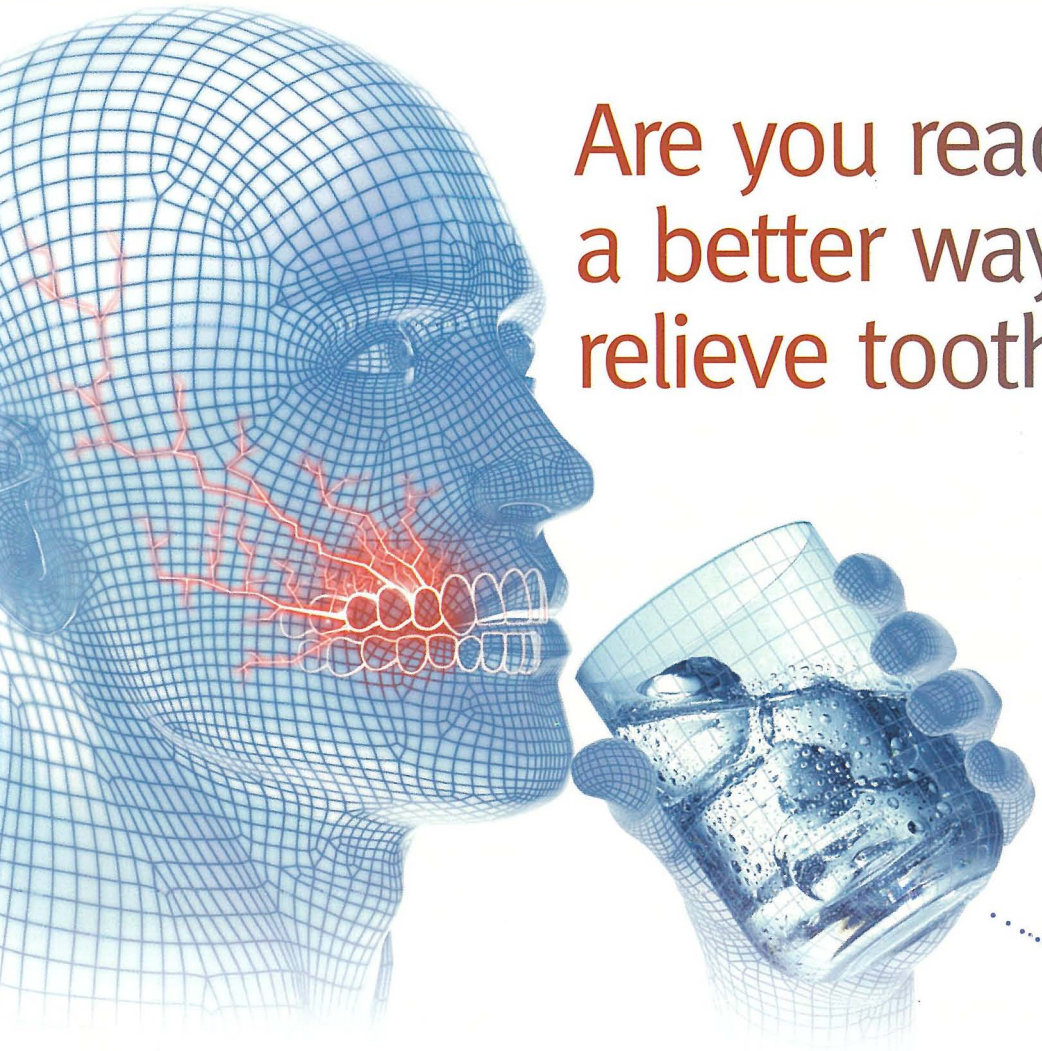
Are you ready for a better way to relieve tooth sensitivity?



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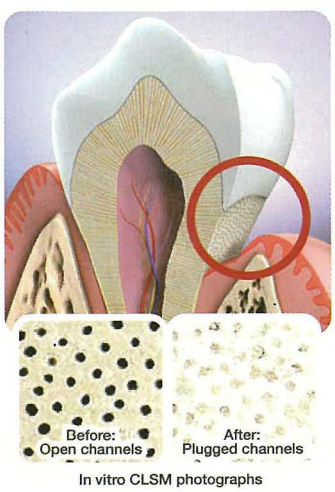

In vitro CLSM photographs

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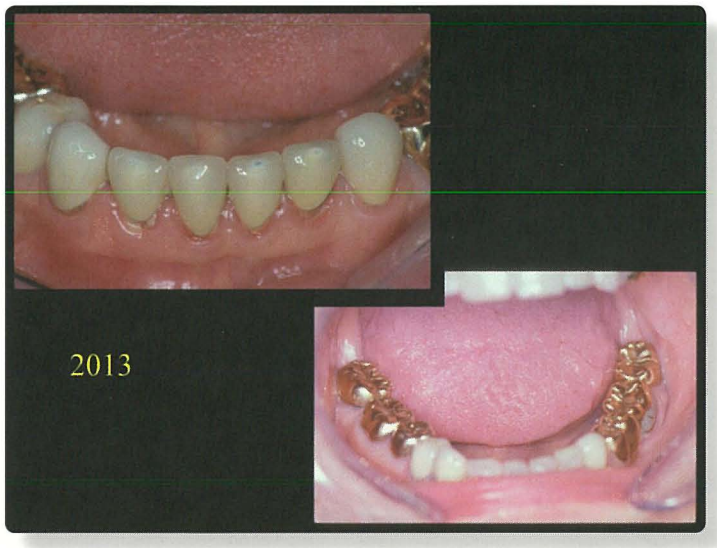
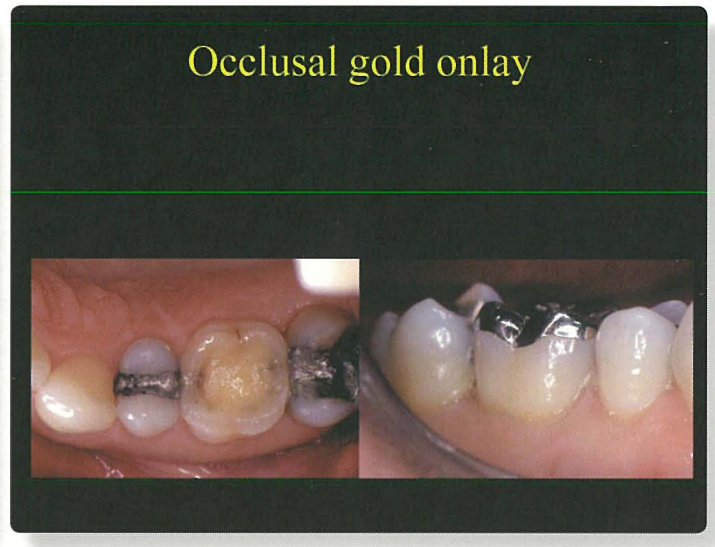
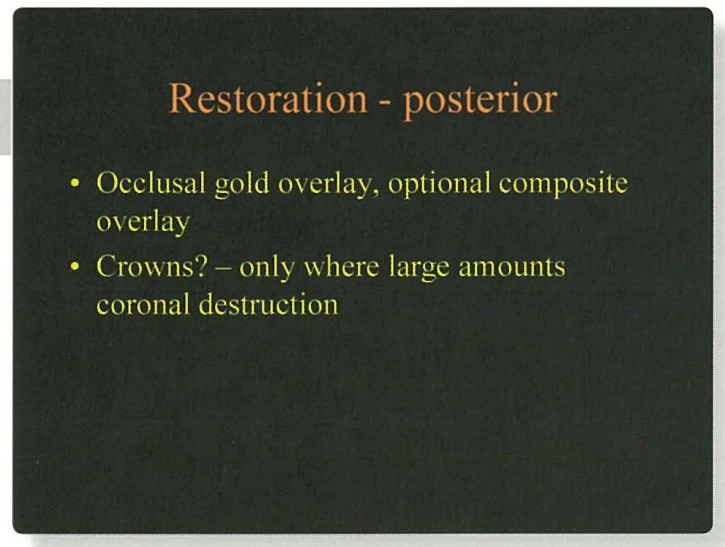
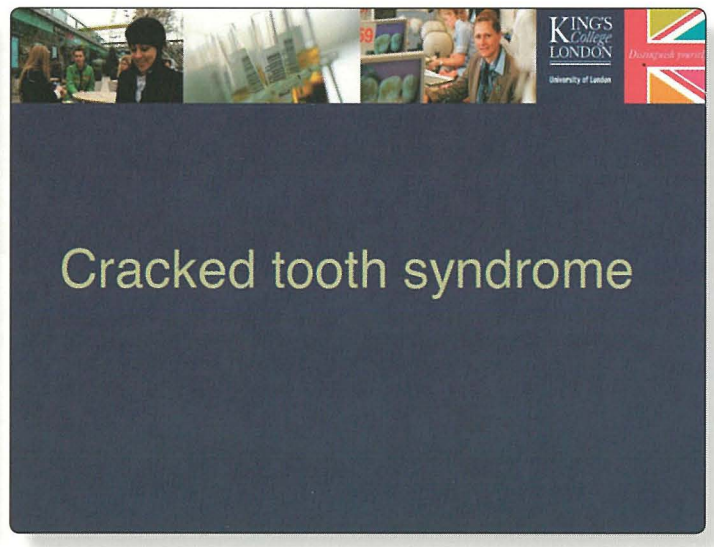
WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

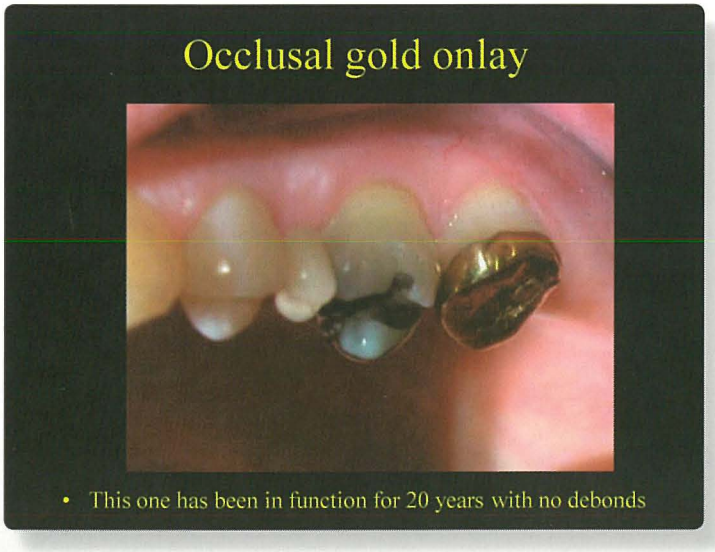
Continues from page 16.

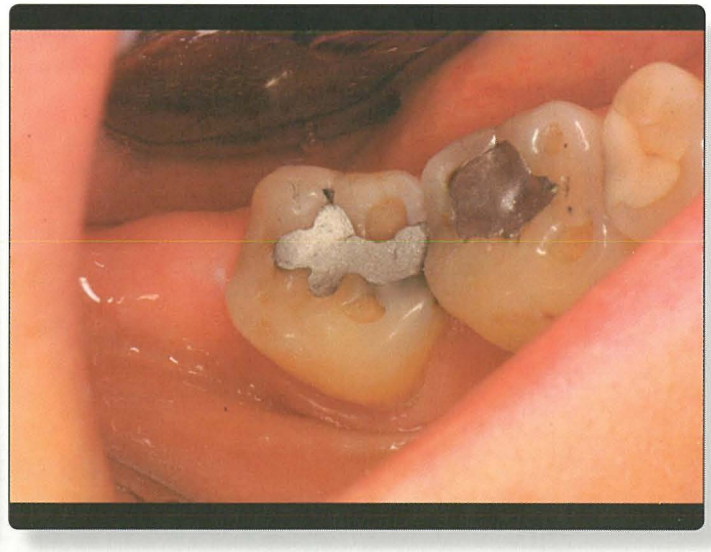


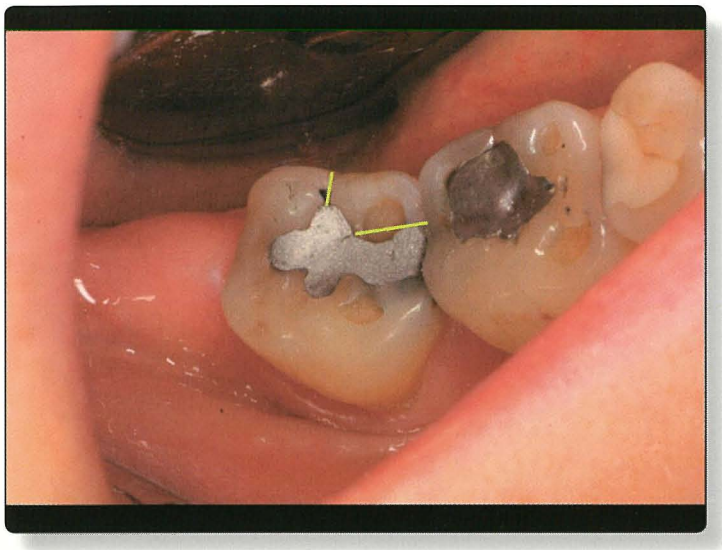


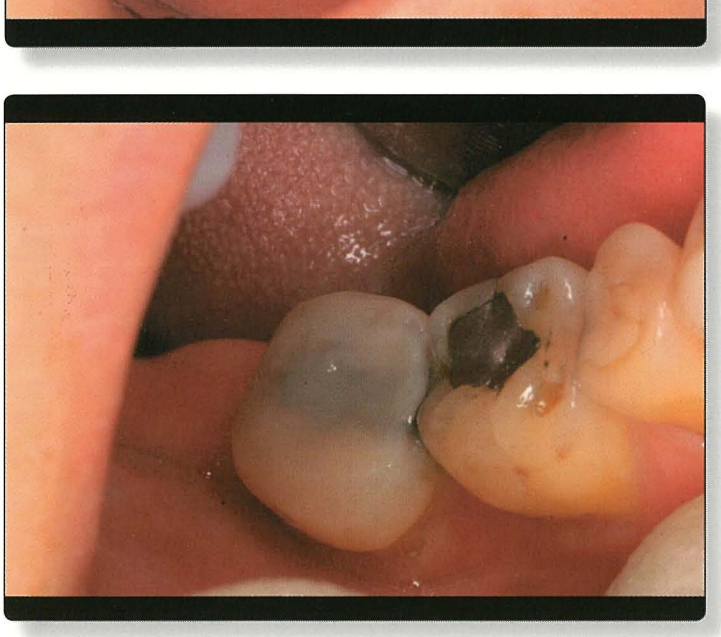


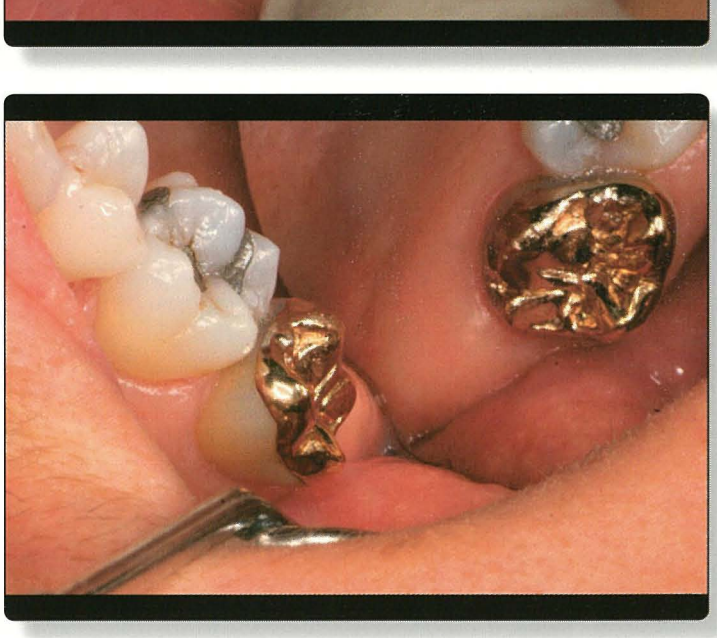


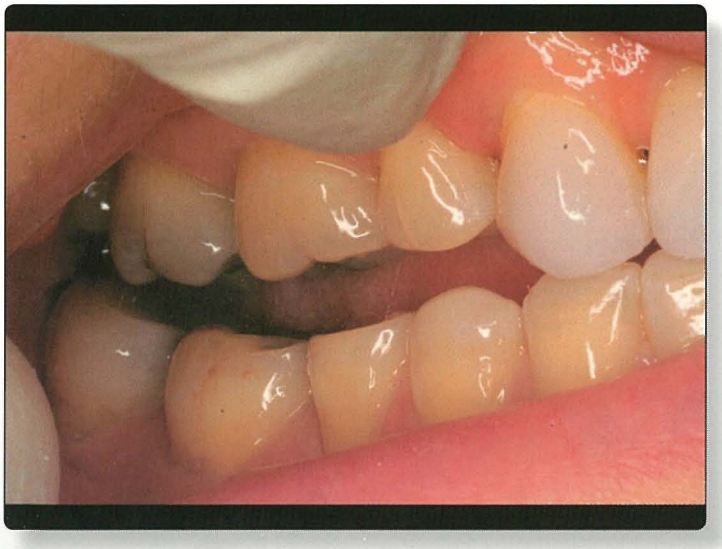












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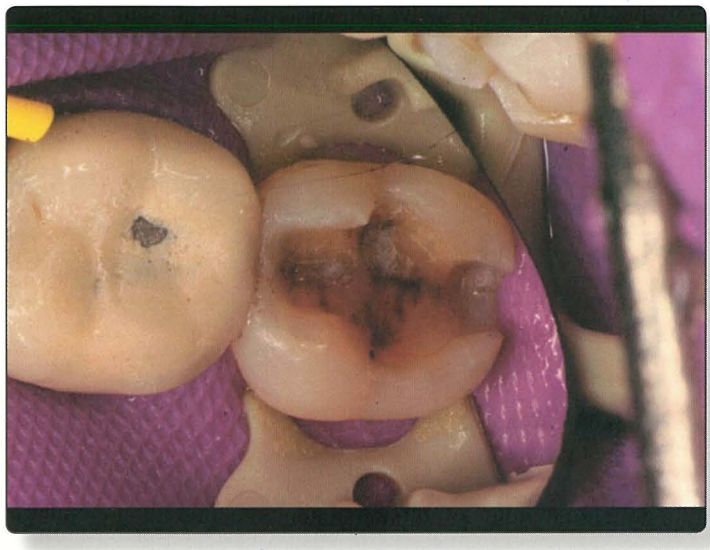
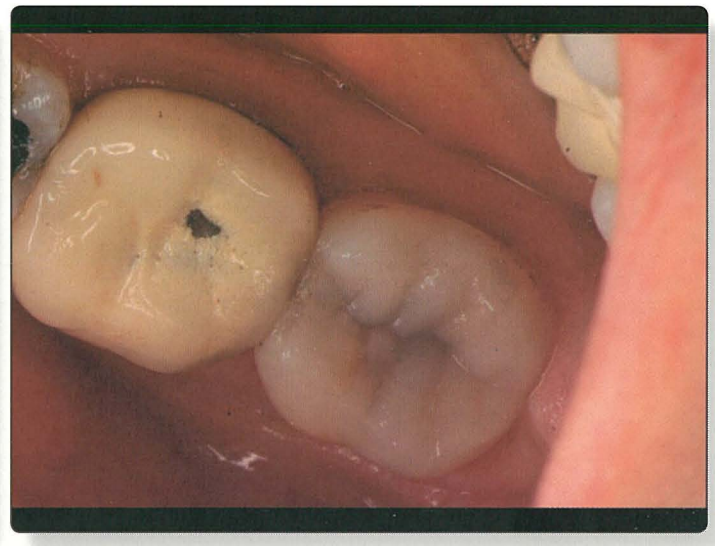
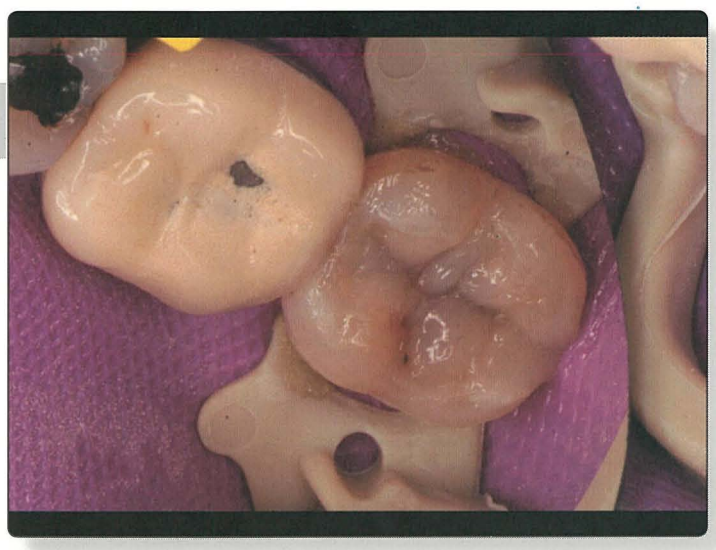
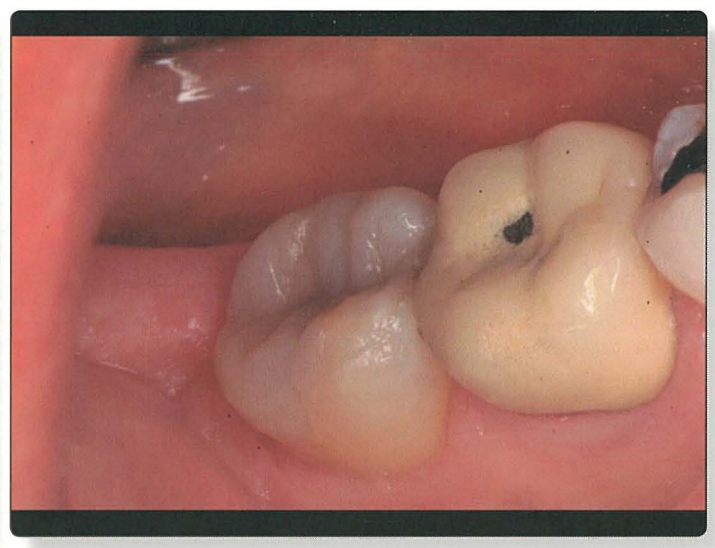
WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

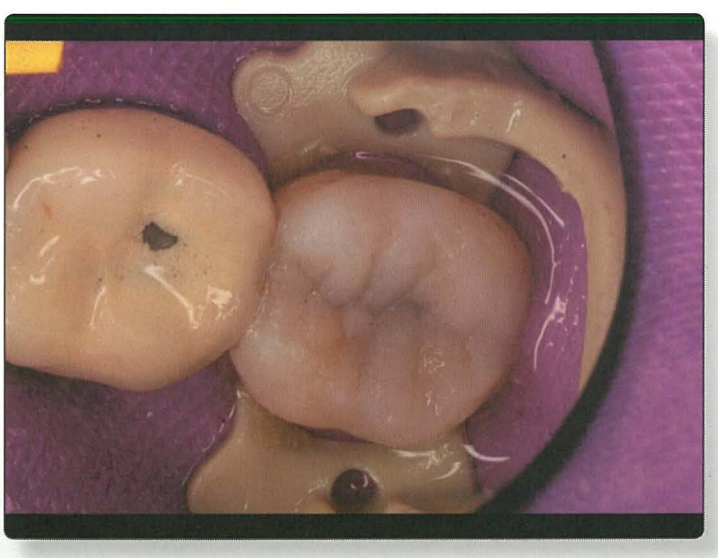
Continues from page 19.

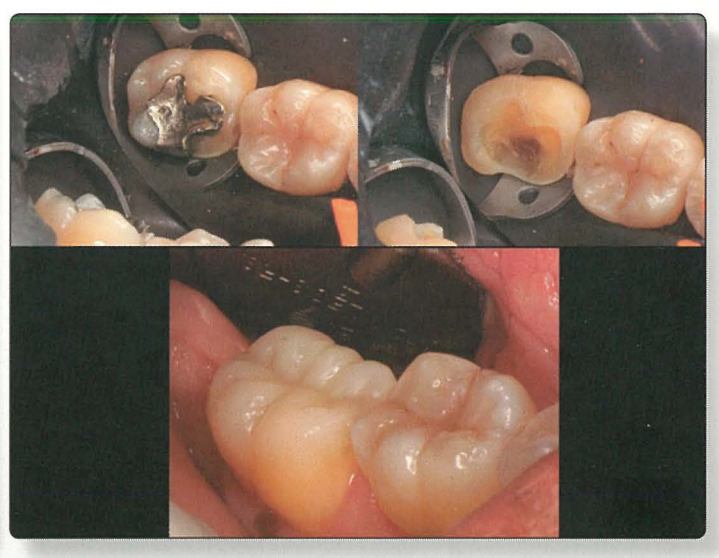


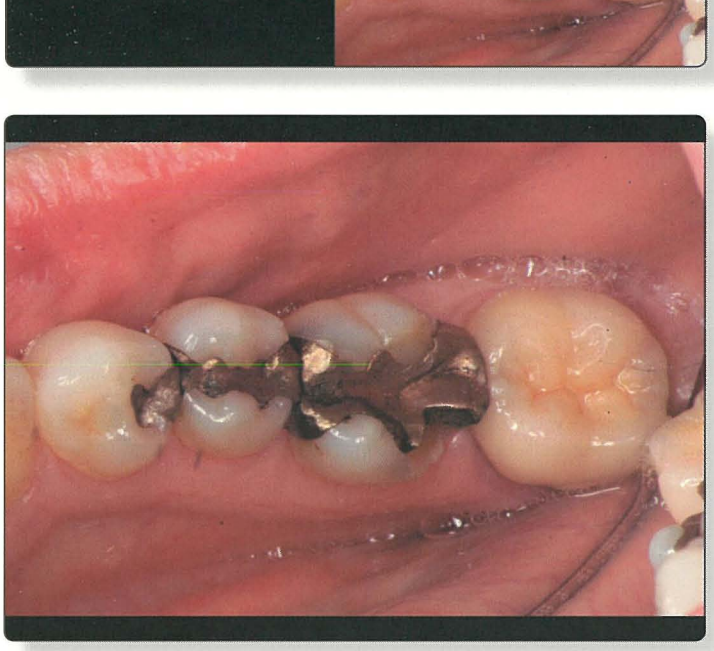












Believe in Dahl?

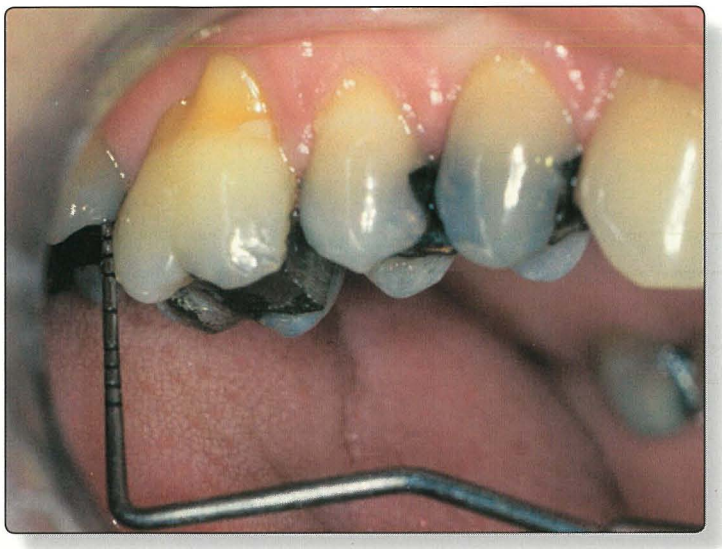
Believe in Dahl?

- Adhesive bridges
- Temporary crowns
- Mixed dentition
- Post-orthodontics
- Ageing
- Tooth wear
- Other applications....

Continues on page 22.

WEAR IS THE PROBLEM
TOOTH WEAR AND OCCLUSION

Continues from page 21.



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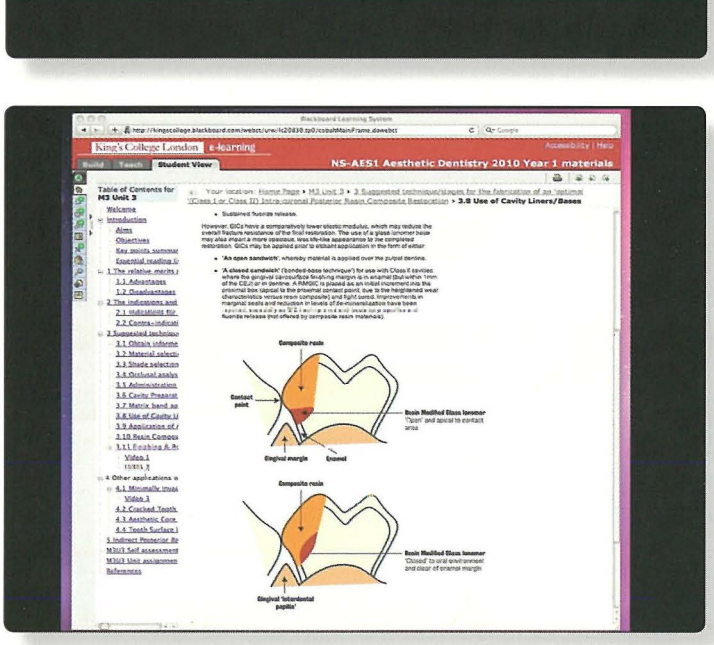
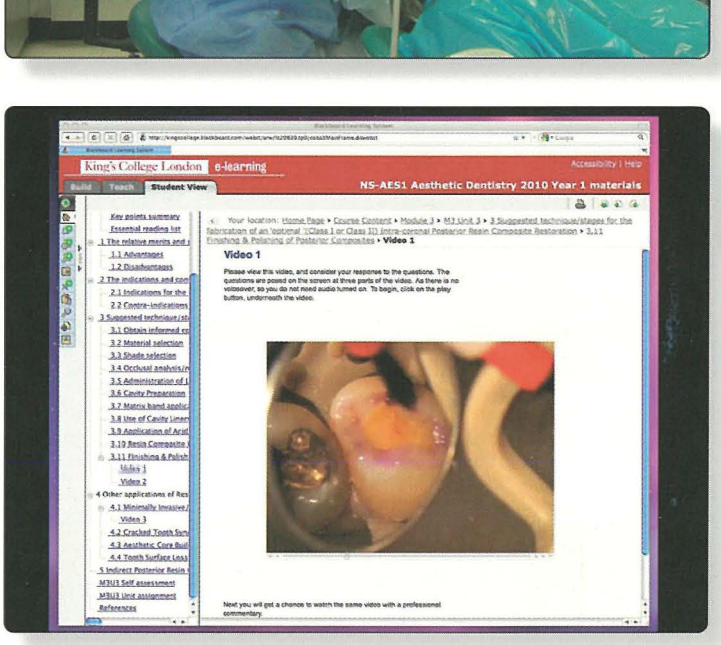
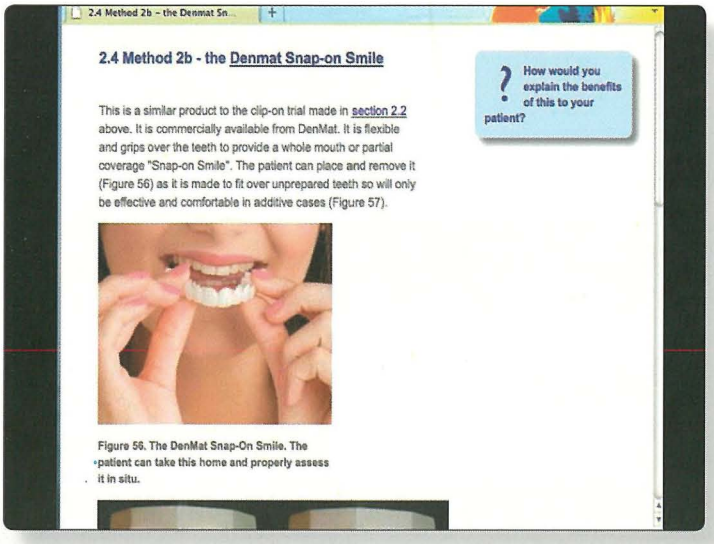
MSc Aesthetic Dentistry	2010
MSc Endodontics	2013
MSc Minimal Intervention	2014







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WEAR IS THE PROBLEM

TOOTH WEAR AND OCCLUSION

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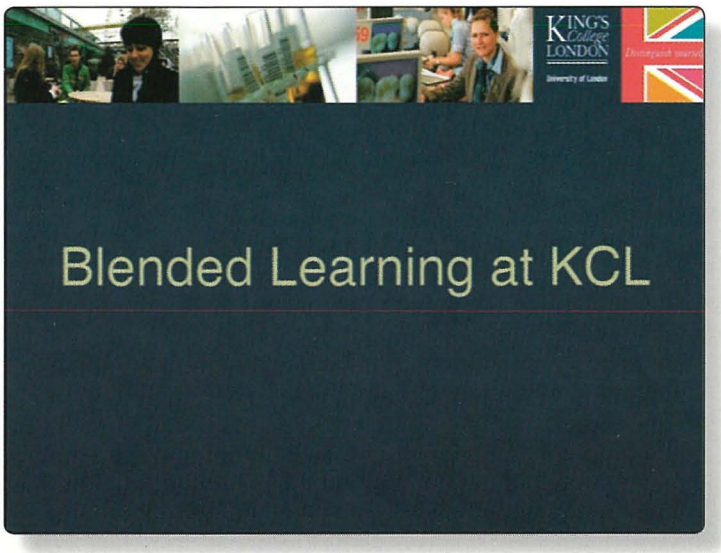

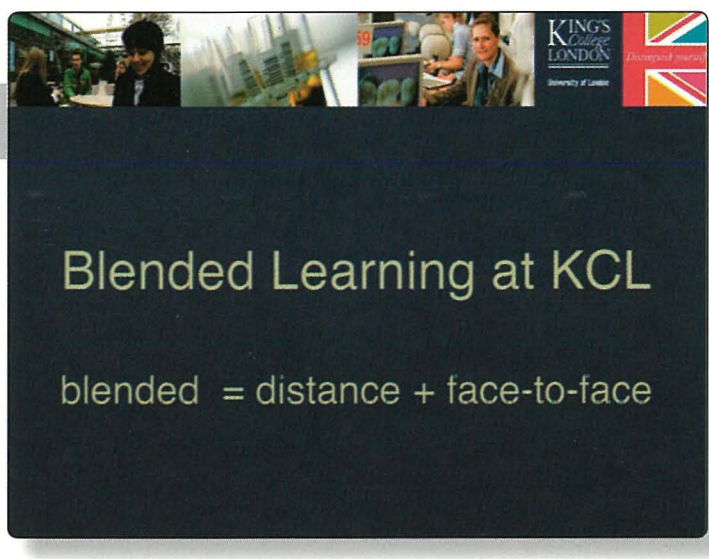

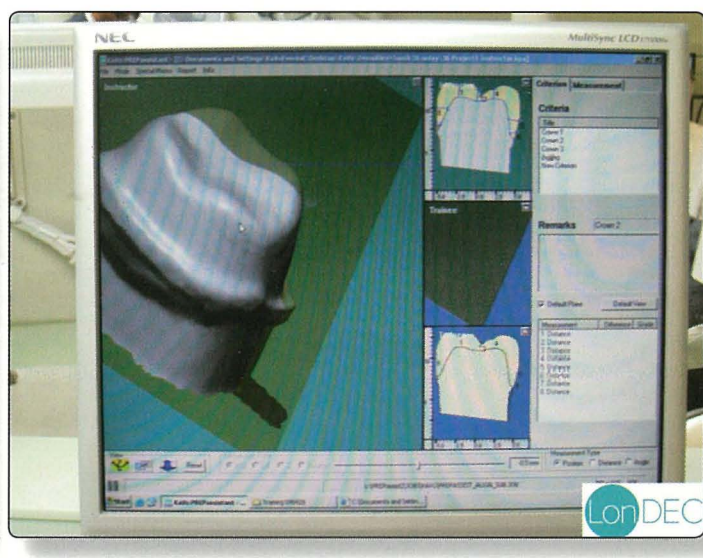

Don't be such a pain...

ARTICAINE – ENABLING LESS TRAUMATIC INJECTIONS

Brian J Millar BDS FDSRCS PhD FHEA.
Professor, Director of Distance Learning, Consultant in Restorative Dentistry, Primary Care Dentistry, King's College London Dental Institute at Guy's, King's College & St. Thomas' Hospitals, Bessemer Road, London SE5 9RW, UK

Articaine (4%) with epinephrine formulations appears to be a safe and effective drug for use with routine clinical dental procedures. Its adverse effects are very rare.

Articaine induced paresthesia after inferior alveolar nerve block is a controversial issue and is no greater than other local anaesthetics in use in the dental clinic. Articaine has rapid onset, and profound duration of action, due to its chemical structure. It is possible to replace the inferior alveolar nerve block technique by a buccal infiltration technique to minimise the risk of paresthesia).

Alternative methods of administration of 4% articaine to replace the inferior alveolar nerve block.

A proven technique is the supra-cresta injection which has been used by the author for many years. A recent evaluation in general practice indicated a high success rate and minimal patient discomfort.[5] Figure 1 demonstrates the injection site location in the base of the buccal papilla at 45°, a minimum distance of 3mm from the gingival margin, with 0.1-0.2ml articaine administered slowly over 20s while in contact with the bone.

This is a less invasive alternative to intraosseous injections with lidocaine or articaine formulations which have a reported success rate of 82% to 91% of the time, a technique which is also less popular[44-46] and requires expensive and complex equipment including handpieces, drills and syringes.[47]

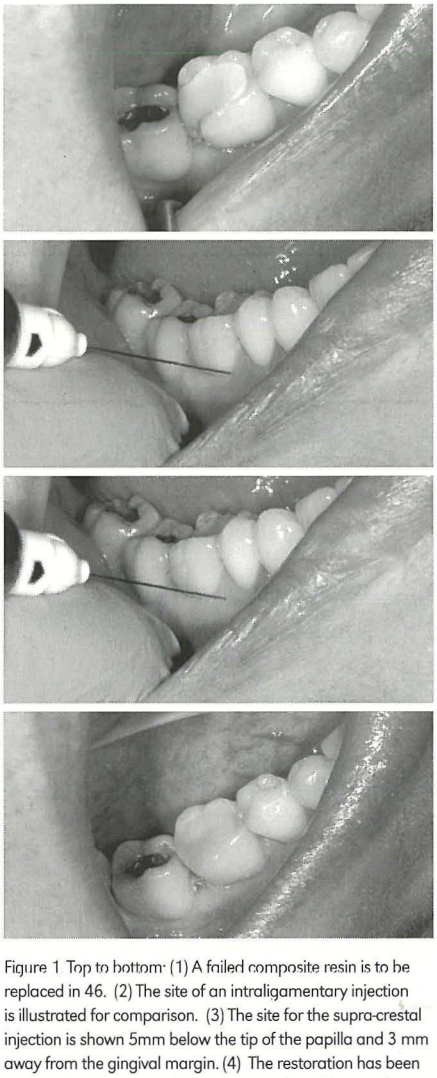

Figure 1 Top to bottom: (1) A failed composite resin is to be replaced in 46. (2) The site of an intraligamentary injection is illustrated for comparison. (3) The site for the supra-cresta injection is shown 5mm below the tip of the papilla and 3 mm away from the gingival margin. (4) The restoration has been replaced and the gingival blanching is still visible, providing useful haemostasis following trauma from the matrix band and wedge placement.

References

5 Doman S. An audit of the use of intra-septal local anaesthesia in a dental practice in the South of England. Primary Dental Care 2011 18(2) 143-147

44 Nusstein J, Reader A, Nist R, Beck M, Meyers WJ. Anesthetic efficacy of the supplemental intraosseous injection of 2% Lidocaine with 1:100,000 epinephrine in irreversible pulpitis. J Endod 1998; 24:487–91

45 Nusstein J, Kennedy S, Reader A, Beck M, Weaver J. Anesthetic efficacy of the supplemental X-tip intraosseous injection in patients with irreversible pulpitis. J Endod 2003; 29:724–8

46 Bigby J, Reader A, Nusstein J, Beck M, Weaver J. Articaine for supplemental intraosseous anesthesia in patients with irreversible pulpitis. J Endod 2006; 32:1044–7

47 http://www.youtube.com/watch?v=TXZnXJnXAIQ last viewed 05.06.2012

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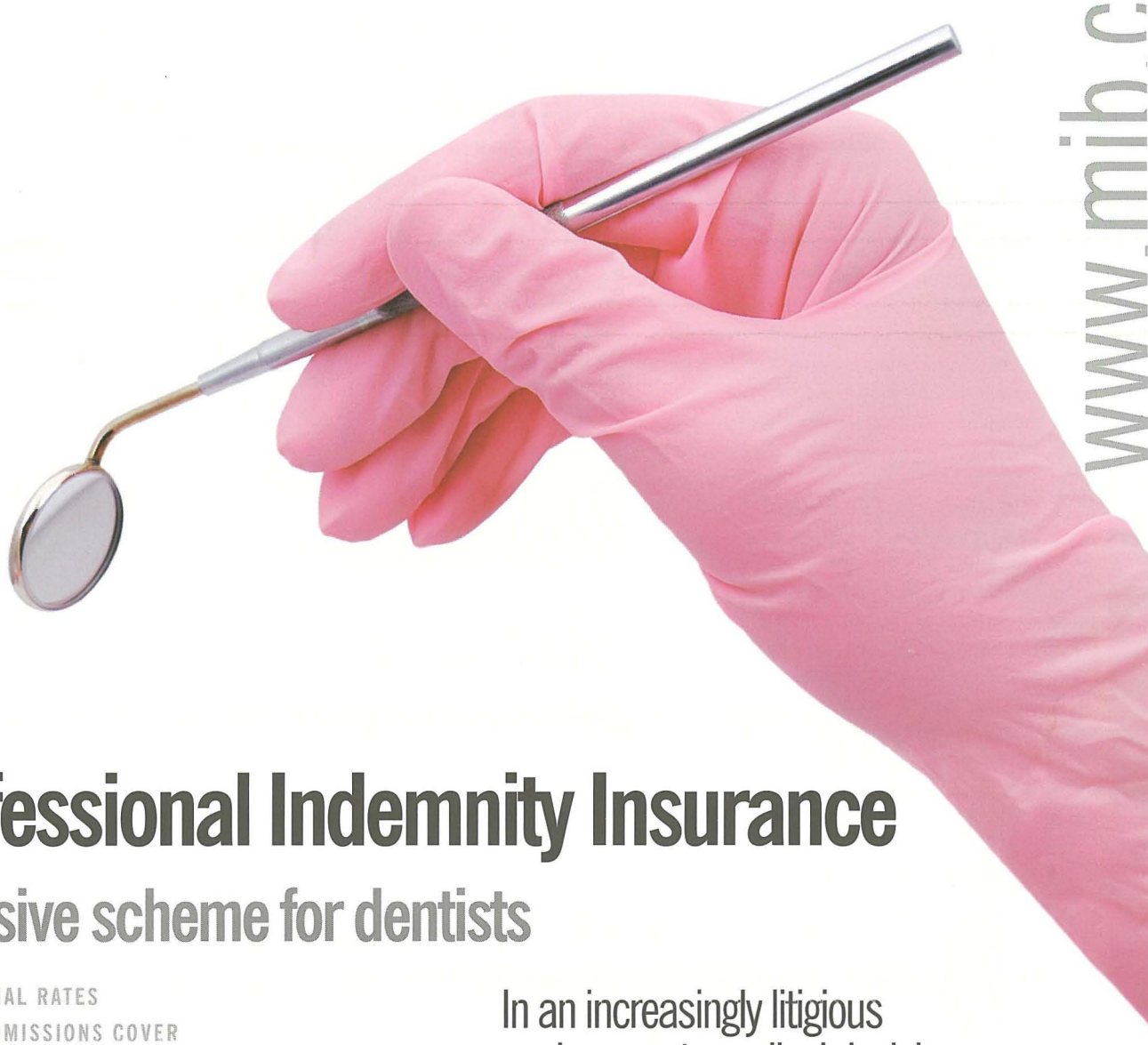

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THE DAM AT THE ROYAL GOLF CLUB MALTA

By Dr David Debono BChD (Hons)

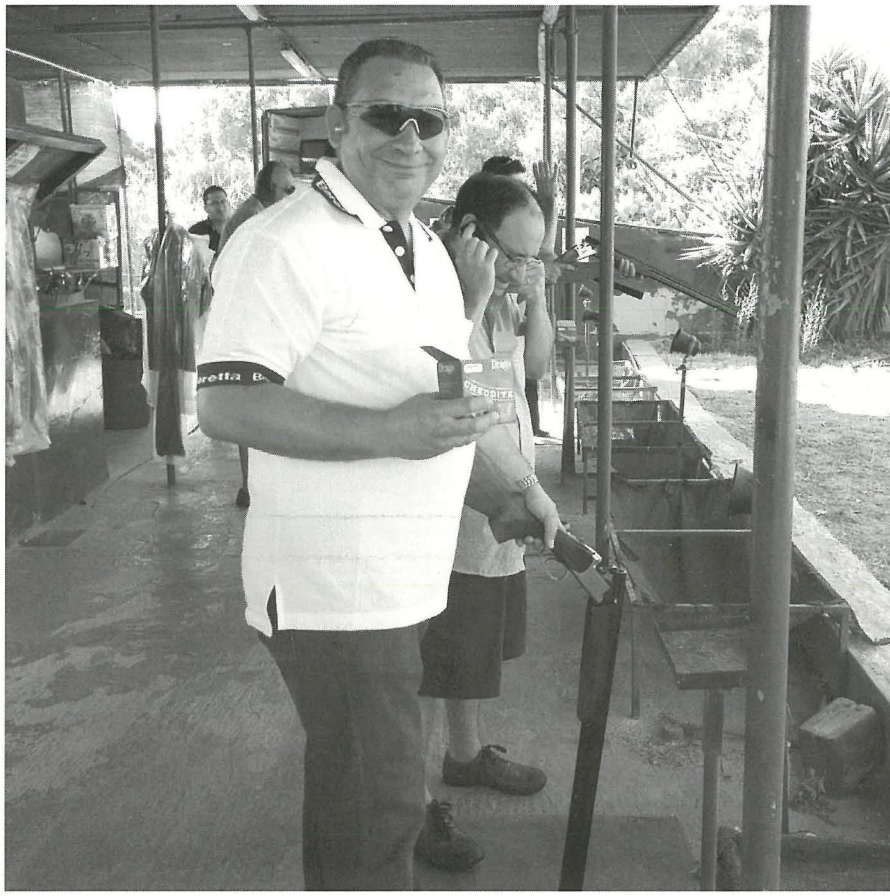
On a warm, sunny Wednesday afternoon in May, the Royal Malta Golf Club welcomed eighteen members of the DAM for an introduction to the wonderful game of golf. The Royal Malta Golf Club was founded in 1888 by Sir Henry D'Oyley Torrance and is one of just 62 Royal Clubs in the world. In June 2013 we celebrated our 125th anniversary and as Captain I had the privilege to greet and host 150 representatives of Royal Clubs from as far as New Zealand, Canada and South Africa. The fortnight of celebrations will remain an unforgettable experience.

I greeted my colleagues and introduced them to the Head Professional Mr Henning Schulze Doering who explained the principles of the golf swing and put them through some drills (excuse the pun). This was followed, at sunset, with a short team game on the course itself, precisely on the challenging par

3 guarded by bunkers, Hole 5.
And what better way to end the session than with a drink at the 19th Hole, followed by a delicious three course dinner. The participants expressed their enjoyment of the golf introductory session and commented on how much more difficult it actually is rather than how it seems to be whilst watching the pros on television
In order to play golf at a consistently high level one needs to develop technical, physical and mental skills over a long term.

However this does not preclude those who are less athletically gifted or a little short on time from enjoying the game of golf and the social life that it brings with it.

I enjoyed observing my colleagues in action and although I must admit that there were some signs of golfing talent amongst the participants, I strongly recommend that my colleagues stick to exhibiting their prowess at their clinics and perhaps include golf as a healthy escape from the stresses of the profession. DP



THE DAM CLAY PIGEON SHOOTING EVENT

On Wednesday 23rd July a group of dentists participated in a very well organised shooting event. The event was co-ordinated by Dr Noel Manche and Pierre Zammit at the Maghtab shooting range. We had four rounds of shooting with 25 shots per round. The best shots were Drs Alex Azzopardi, Noel Manche, Edmond Falzon, Dr Gaffarena and Dr Bernard Bezzina.

Of the other participants who shot for the first time Drs David Debono, Antoine Camilleri, John Vella Bardon, David Dalli, Roberto Cutajar and Kristian Vella did extremely well. The event was followed by a fenkata at Charlie's Inn in Salini . The event was so successful that we will be organising this as a yearly event on our calendar. DP

PAYMENT FORM

Please cut out this section and send with a cheque for 50 euro payable to **Dental Association of Malta** for your 2014 DAM membership – the best 50 euro investment ever!

TO:

The Treasurer, Dr Noel Manche,
The Dental Association Of Malta,
Federation Of Professional Associations,
Sliema Road,
Gzira.

NAME: ______________________________

ADDRESS: ______________________________

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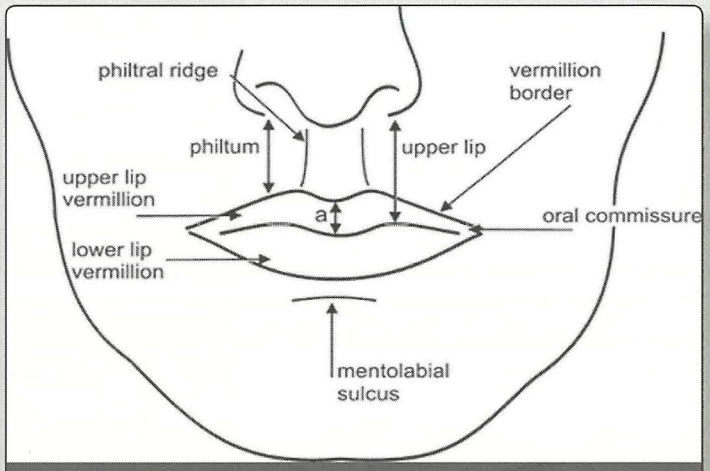
SKIN CONDITIONS OF THE LIPS
WHAT THE DENTIST MAY COME ACROSS

Lips: Normal Structure

- Extend from lower end of nose to upper end of chin
- Bundles of striated muscle (esp. Orbicularis oris)
- Skin on external surface & mucous membrane on inner surface with profusion of minor salivary glands
- Vermilion zone
  - Transitional zone between glabrous skin & mucosa
  - Found only in humans
  - Contains sebaceous glands but no hair or sweat glands
- Prominent stratum lucidum, thin corneum, numerous dermal papillae with rich capillary supply → reddish-pink colour; Basal layer melanocytes in dark-skinned individuals



Philtrum (L. philtrum, Gk. Φίλτρον)is the vertical furrow between the nose & lip; remnant of coalescence of facial parts in embryology

'Fordyce Spots'

- Ectopic sebaceous glands
- Appear in children >3y, increase during puberty & sometimes again in later adult life
- May be similar in oral mucosa & on penis
- Harmless!

Commissural Pits

- 1-4mm in diameter & depth; distinguish from simple dimples
- Present from infancy, show familial tendency (AD); Common, 12% of population in one study*
- May be associated with preauricular pits
- Harmless, occasionaly get infected and present as refractory angular cheilitis

*Baker B. Commisural lip pits. *Oral Surg* 1966;**21**:56

Lip-pits & Fistulae

- Congenital small, blind fistulae on the vermilion border esp. on lower lip
- Usually bilateral, symmetrical, just to one side of the philtrum.
- 3–4 mm in diameter, up to 2 cm deep & may communicate with underlying minor salivary glands.
- Isolated findings or associated with cleft lip and/or palate (Van der Woude syndrome - AD)
- Harmless; Consider surgical removal for cosmetic purposes

Hereditary Haemorrhagic Telangiectasia

- Syn. Osler-Rendu-Weber disease
- Familial (AD)
- Telangiectases on face, **lips**, **tongue**, **palate**, ears, hands, chest & feet
- Presents after puberty with epistaxis, GI, pulmonary & GU haemorrhage

Dr Michael J. Boffa
MD, FRCP(Edin), FRCP(Glasg), FAAD, CCST(Derm)(UK), MSc(Derm)(Lond), DGUM(Lond), DDerm(Lond)
Consultant Dermatologist & Senior Lecturer

Peutz Jeghers Syndrome

- AD
- Hamartomatous intestinal polyposis and mucocutaneous melanotic pigmentation
- Discrete, perioral (+/- perinasal & periocular) brown/bluish-black macules; Pigmented macules on lips in 98% of cases
- Oral brown or black macules, unlike the circumoral lesions, do not fade after puberty
- Intestinal polyps mainly in the small intestine may → intussusception, bleeding & malignant change (rare)
- Slightly increased risk of GI, pancreas, breast & reproductive organ carcinoma

Laugier-Hunziker Syndrome

- First described in 1970
- Acquired, non-familial, benign, macular melanotic macules on lips, buccal mucosae, perineal, perianal & palmoplantar
- Appears in adult life
- Differentiate from racial pigmentation, labial & oral melanotic macules, melanocytic naevi, melanoma, Peutz Jeghers syndrome & Addison's disease

Boffa MJ, Muston HL. Laugier-Hunziker syndrome. *Eur J Dermatol* 1997;**7**: 231-232

Addison's Disease

- Due to adrenocortical insufficiency → ↓cortisol
- MSH from anterior pituitary gland → Spotty or diffuse mucosal & lip & generalised hyperpigmentation (in primary AD)
- Asthenia, anorexia, weight loss & hypotension
- Fatal if untreated!

Angular Cheilitis

- *Acute or chronic inflammation of the skin and contiguous labial mucous membrane at the angles of the mouth*
- Triangular area of erythema and oedema at one or both angles of the mouth
- Linear furrows or fissures radiating from the angle of the mouth (rhagades) in more severe cases, especially in denture wearers.
- Usually due to mechanical/infective causes

- Oblique curved skin folds rub against each other → skin maceration & inflammation (intertrigo)
- Due to
  - Normal ageing process
  - Ill-fitting dentures/edentulous patients who do not wear a denture
  - Prognathism produces similar state of affair in the young

Angular Cheilitis - Aetiology

- Intertrigo due to mechanical factors
- Candida
- Staphylococci
- Hyperglycaemia/Diabetes
- HIV
- Nutritional deficiencies, (esp. of riboflavin, folate, iron and general protein malnutrition) may → smooth, shiny, red lips & angular stomatitis (*cheilosis*)
- Crohn's disease or orofacial granulomatosis

Continues on page 32.

SKIN CONDITIONS OF THE LIPS
WHAT THE DENTIST MAY COME ACROSS

Continues from page 31.

Treatment of Angular Chelitis

- Difficult & may need to be prolonged!!
- Attention to diabetic control essential
- Miconazole cr (has Gram+ve bacteriostatic action) (gel may be absorbed & may potentiate action of warfarin, phenytoin & sulphonylureas)
- +/- Miconazole/Hydrocortisone (Daktacort^{R}) cr (if prominent inflammation)
- +/- Barrier cr e.g. Zn & Castor oil cr (if prominent intertrigo)
- Oral Fluconazole 50mg bd x 2 weeks
- In persistent cases consider swab for c/s, oral iron & vitamin B12

Angular Cheilitis – Dental Aspects

- Ensure correct fitting of dentures to reduce intertrigo
- Advise re: elimination of candida beneath dentures (esp. upper denture) by overnight storage of dentures in candidacidal soln e.g. Hypochlorite, amphotericin lozenge solution
- Advise against aggressive dental flossing (recurrent trauma may rarely cause angular cheilitis)
- ?Surgery & collagen injections to restore normal commisural anatomy

Lichen Planus

- Reticular, Erosive & Bullous forms
- Rarely triggered by Hepatitis B & C, Drugs
- Vulvovaginal-Gingival Syndrome - The association of erosive LP of the vulva and vagina with desquamative gingivitis +/- erosive LP

Skin Cancer

Primary malignant tumours derived from the epidermis & its appendeges

- Non-Melanoma Skin Cancer
  - Intraepidermal Carcinoma
    - Actinic Keratoses
    - Actinic Cheilitis
    - Bowen's Disease
  - Basal Cell Carcinoma
  - Squamous Cell Carcinoma
- Melanoma

Basal Cell Carcinoma

- Commonest type of skin cancer
- Incidence: 25-140 per 100,000 per annum
- Aetiology
  - Actinic damage
  - Genetic factors
    - Skin Phototype
    - Gorlin's syndrome
    - Xeroderma Pigmentosum

Squamous Cell Carcinoma

- Incidence: 7-35 per 100,000 per annum
- Aetiology
  - Actinic damage
  - Genetic factors
    - Skin phototype
    - Xeroderma Pigmentosum
  - Immunosuppression
  - HPV infection
  - X-rays
  - Scars
  - Miscellaneous

Continues on page 34.

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SKIN CONDITIONS OF THE LIPS
WHAT THE DENTIST MAY COME ACROSS

Continues from page 22.

Cutaneous Melanoma

- Malignant tumour arising from the epidermal melanocyte
- Gk *melas* = black
- Within existing naevus or *de novo*
- *In situ* vs invasive
- **POTENTIALLY FATAL!**
- Mortality approx. 1:6 but depends greatly on tumour thickness
- Early diagnosis is key to improving survival

- Rare before puberty
- Steady rise in age-specific incidence from second decade onwards
- Slightly commoner in females in most populations studied
- Common sites:
  - Back (especially in males)
  - Legs (especially in females)

Risk Factors for Melanoma

- Red or fair hair, Freckles
- Fair skin & sun sensitivity
- Sunburn in childhood
- Total number of melanocytic naevi
- Family History of Melanoma

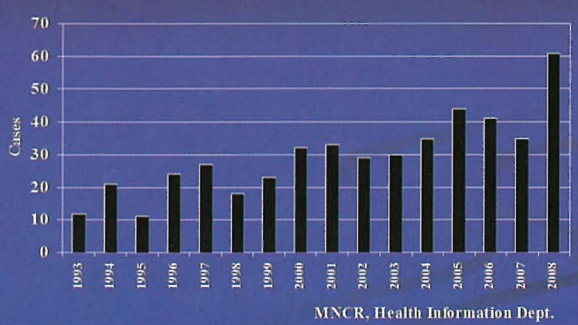
Melanoma Incidence Rates (in Males & in Females; per 100,000)*

Australia	42.4	31.6
New Zealand	34.8	32.7
South Africa	27.5	22.2
Sweden	13.1	13.1
Malta	5.74	6.46

*Age-standardised incidence rates using World Standard Population; Data from various sources;

Malta data from: Dalmas M, England K, Boffa MJ, Degaetano J, Gatt P. Cutaneous melanoma in the Maltese islands: 2000-2004. *Eur J of Cancer* 2007;43:1604-1610.

Malignant Melanoma Incidence in the Maltese Islands (Number of Cases)



Mucocoele (Mucous Cyst)

- Painless, dome-shaped, translucent, whitish-blue papules or nodules, usually in lower labial mucosa
- Due to escape of mucus into the lamina propria from a damaged minor salivary gland duct.
- Exclude salivary gland tumour with cystic change, especially when dealing with an apparent mucous cyst in the upper lip
- Treatment: Excision or cryotherapy

Urticaria/Angio-Oedema

THE MOST COMMON CAUSES OF URTICARIAL ERUPTIONS	
Drugs	Allergic: penicillin, cephalosporins, aspirin, toxoids, animal sera, polypeptide hormones (e.g. insulin), quinidine Direct histamine liberators: morphine, codeine, radio-contrast media
Foods	Fish, nuts, eggs, chocolates, shellfish, tomatoes, pork, strawberries, milk, cheese, spices and yeast Dyes and additives, benzoates and tartrazine
Infection	Focal sepsis (e.g. urinary tract), viral (e.g. hepatitis), *Candida*, protozoa
General	Lupus erythematosus, lymphoma, polycythaemia, macroglobulinaemia

Hereditary Angio-Oedema

- Autosomal Dominant
- Deficiency of C1-esterase inhibitor → recurrent, severe angiooedema associated with nausea, vomiting & colic (no pruritus or typical urticaria); MAY → FATAL AIRWAY OBSTRUCTION (esp laryngeal oedema)
- ATTACKS MAY BE TRIGGERED BY DENTAL TRAUMA e.g.
  - LA injection in gums
  - Pressure on soft tissues
- Require specialized Rx (danazol, tranexamic acid, Fresh frozen plasma, C1 esterase inhibitor concentrate)

Jurado-Palomo J *et al.* Management of dental-oral procedures in patients with hereditary angiooedema due to C1 inhibitor deficiency. *J Investig Allergol Clin Immunol* 2013;**23**:1-6.

Granulomatous Cheilitis

- Chronic lip swelling due to granulomatous inflammation
- Aetiology:
  - Familial; Associated with recurrent facial palsy +/- scrotal tongue (20-40%) - Melkersson-Rosenthal Syndrome
  - Crohn's disease
  - Sarcoidosis
- Usually starts in childhood or adolescence; Initial episodes of acute swelling resolve within days, later persist
- Management
  - Difficult!
  - Treat underlying disease if identified
  - i/l steroid injections
  - Clofazimine

Herpes Stomatitis

- Usually HSV-1 but may be HSV-2
- May be malaise, anorexia, irritability, fever, enlarged and tender anterior cervical lymph nodes, and diffuse, purple, boggy gingivitis
- HSV usually transmitted in saliva and can be shed in asymptomatic individuals
- With improving socio-economic circumstances and standards of hygiene, children less likely nowadays to be exposed to HSV so enter adult life without immunity. Primary herpetic stomatitis in adults is more severe

Recurrent Herpes Labialis

- Typical clinical history
- Presence of tender lymphadenopathy useful in doubtful cases
- Triggers:
  - Fever, viral infections
  - Sun exposure
  - Menstruation
  - Stress
  - Local (including dental) trauma
- Acyclovir: Topical & oral for severe cases & prophylaxis
- Contagious!

Lip Ulcer due to 'Calibre-Persistent Artery'

- Artery with a larger than normal diameter near a mucosal or external surface → pulsatile swelling → ulcer
- Similar lesions reported in gastric, oesophageal & intestinal mucosa
- May be mistaken for squamous carcinoma of lip
- Treatment: Surgical excision with ligation of artery

Vazquez L *et al.* Ultrasonography: A Noninvasive Tool to Diagnose a Caliber-Persistent Labial Artery, an Enlarged Artery of the Lip. *J Ultrasound Med* 2005;**24**:1295-1301

ENDODONTIC IRRI

PART TWO: ROOT CANAL IRRIGANTS

Irrigation is an integral part of endodontic treatment and should be considered the most important component in the elimination of bacterial contamination and biofilm removal from the root canal system after instrumentation. The qualities of an effective ideal irrigant are the ability to dissolve pulpal tissue remnants, penetrate into the dentinal tubules, bacterial decontamination, dissolve inorganic material, removes the smear layer, biocompatible with low to no toxicity, easy to use and of moderate cost.

The most widely used root canal irrigants in endodontics today are sodium hypochlorite (NaOCl), ethylenediaminetetraacetic acid (ETDA), and Chlorhexidine. There have been many other solutions used for irrigation such as local anesthetics, water, hydrogen peroxide, saline and iodine potassium iodine (IKI); however, these do not possess the attributes for an effective endodontic irrigant.

Sodium hypochlorite (NaOCl) appears to satisfy most of the requirements for an effective irrigant (Paragloiola et al. 2010, Zehnder 2006). NaOCl is the irrigant of choice due to is effective antimicrobial activity and organic tissue solvent action, it lubricates the canal and its effects are fairly quick. As an irrigant, NaOCl has been used in concentrations from 0.5 to 6% and there has been considerable disagreement over the use of different concentrations during root canal treatment.

Clinical studies have shown that low and high concentrations appear to be equally effective in reducing bacteria in the root canal system (Bystrom et al. 1981). NaOCl in higher concentrations has better tissue dissolving ability, but lower concentrations can be just as effective when used in higher volumes (Hand et al. 1978, Moorer et a.l 1982). NaOCl is reported to kill microorganisms in seconds and this antibacterial ability and its tissue dissolving capacity may be diminished within 2 minutes (Haapasalo et al. 2010). Therefore it is important to continuously replenish the NaOCl irrigant during instrumentation and irrigation of the root canal system. The optimal time for NaOCl in its varying concentrations to remain in the root canal system has yet to be determined.

While NaOC l possess may of the attributes of an effective irrigant, it does have highly toxic and corrosive side effects. Mishaps occurring during root canal irrigation with NaOCl have been described in the literature. These range from damage to patient's clothing, contact with patient's or provider's eyes, nose or mouth, leakage under the rubber dam, extrusion of the irrigant beyond the apical foramen, allergic reactions and the inadvertent use of the irrigant as an anesthetic solution (Hulsmann et al. 2007).

The main symptoms of NaOCl injection into the periapical tissues are immediate pain and edema of the soft tissues, bleeding from the root canal, ecchymosis of the mucosa and skin, reversible anesthesia and paresthesia, and airway obstruction (Pashley et al. 1985, Bowden et al. 2006, Markose et al. 2009). The corrosive nature of NaOCl can damage the metallic components of the dental operatory from the sink drains and pipes to the internal metal and some plastic components of dental units. It is important and prudent to flush sinks, dental units and evacuation systems with copious quantities of water after NaOCl use.

Ethylenediaminetetraacetic acid (EDTA) is often used as an irrigating solution to chelate and remove calcifications and the mineralized portion of the smear layer. Although EDTA does not have any appreciable antibacterial activity, it can contribute to the elimination of bacteria by its ability to remove the smear layer. EDTA is normally used at a concentration of 17%. Because EDTA aids in the removal of the smear layer and increase dentinal permeability, this action allows for deeper penetration into the dentinal tubules with NaOCl irrigation (Zehnder et al. 2005, Soares et al. 2010). Thus, in contemporary endodontic treatment, EDTA and NaOCl are often used in the initial and final irrigations of the root canal system (Ringel et al. 1982).

Chlorhexidine (CHX) is a wide spectrum antimicrobial agent that is active against Gram-positive and Gram-negative bacteria as well as yeasts (Greenstein et al. 1986). A 2% chlorhexidine solution has been shown to have better antibacterial efficacy than 0.12% CHX (Basrani et al. 2003). CHX lacks the ability to dissolve necrotic tissue limiting its usefulness to that of an antimicrobial irrigant. Some studies have reported the occurrence of a colored precipitate when NaOCl and CHX are combined (Basrani et al. 2007). This precipitate consists mainly of para-chloroaniline (PCA) which has been shown to be toxic with short term exposure in humans. The formation of PCA can be avoided by irrigating the canal system with saline after NaOCl and before using CHX.

QMiX is one of a new combination products introduced for root canal irrigation. QMiX contains EDTA, CHX and a detergent in a ready to use clear solution (Stojicic et al. 2012). QMiX has been shown to be a highly effective disinfecting solution when used following 6% NaOCl irrigation (Wang et al. 2012). QMiX should be used as a final rinse to prevent any precipitate from forming within in the canal system. Although no precipitate has been described when mixing

GATION AND IRRIGATION PROTOCOL

By Dr Dan Keir
Specialist Endodontist from Alaska

QMiX and NaOCl, saline should be used to rinse out the NaOCl to prevent any formation of para-chloroaniline (PCA). QMiX has been shown to be as effective as 17% EDTA in removing the smear layer from the canal wall after the use of 5.25% NaOCl.

MTAD and Tetraclean are two new irrigants that are a mixture of antibiotics, citric acid and a detergent. MTAD is a mixture of 3% doxycycline hyclate, 4.25% citric acid and 0.5% polysorbate (Tween) 80 detergent (Torabinejad et al. 2003). MTAD was the first irrigant capable of removing the smear layer and disinfecting the root canal system at the same time. Tetraclean is the same as MTAD except for a lower concentration of antibiotic and polypropylene glycol for the detergent.

The effect of these irrigants on the smear layer is attributed to both the doxycycline and citric acid since both of these solutions have been reported separately to remove the smear layer (Haznedaroglu et al. 2001). For consistent disinfection, the root canal space needs to be exposed to MTAD for 5 minutes as the final rinse.

The main goal of root canal treatment is to completely eliminate the root canal contents to produce an environment that can be adequately sealed to promote healing of the periapical tissues. Developing a rational irrigation sequence to achieve this result is important in achieving this goal. The following is a suggested irrigation protocol and sequence following root canal instrumentation.

Irrigation Protocol after root canal instrumentation:

1. Use Sonic, Ultrasonic or Manual agitation or the Apical Negative Pressure Technique with fresh NaOCl solution.
2. Next step is Smear Layer Removal with 17% EDTA or MTAD or Tetraclean or Saline
3. IF only saline is used for the Smear Layer Removal step, use QMiX as the final irrigant. Then rinse with saline.
4. After the Smear Layer Removal step with either EDTA or MTAD or Tetraclean, then rinse with NaOCl or rinse with saline followed by CHX.
5. Final rinse with saline

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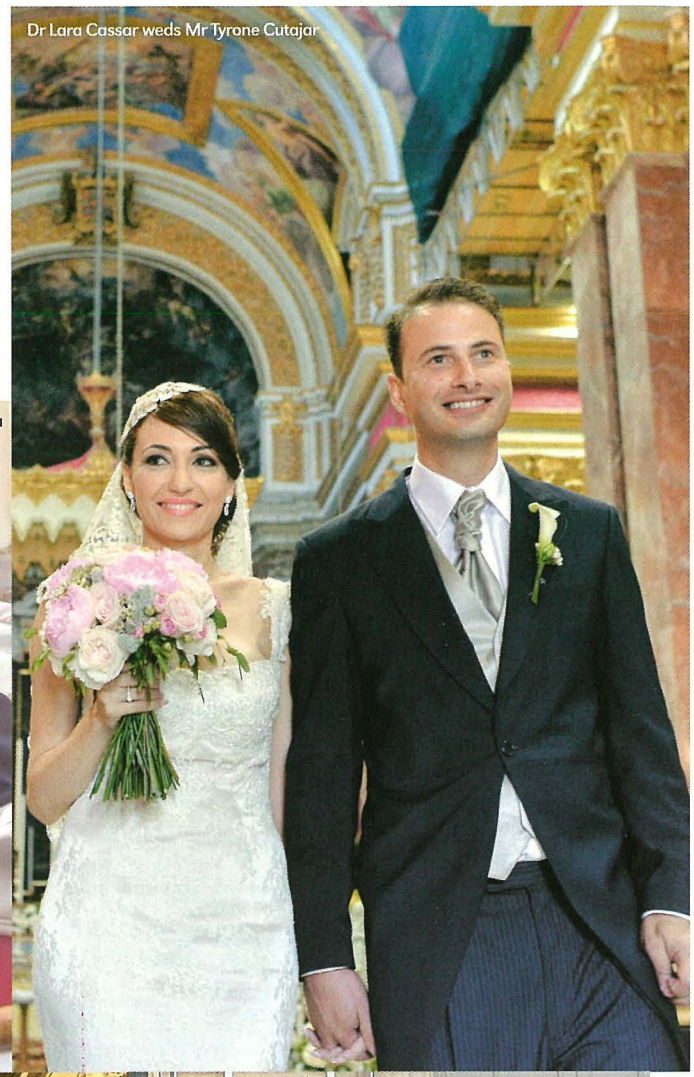
Weddings 2014

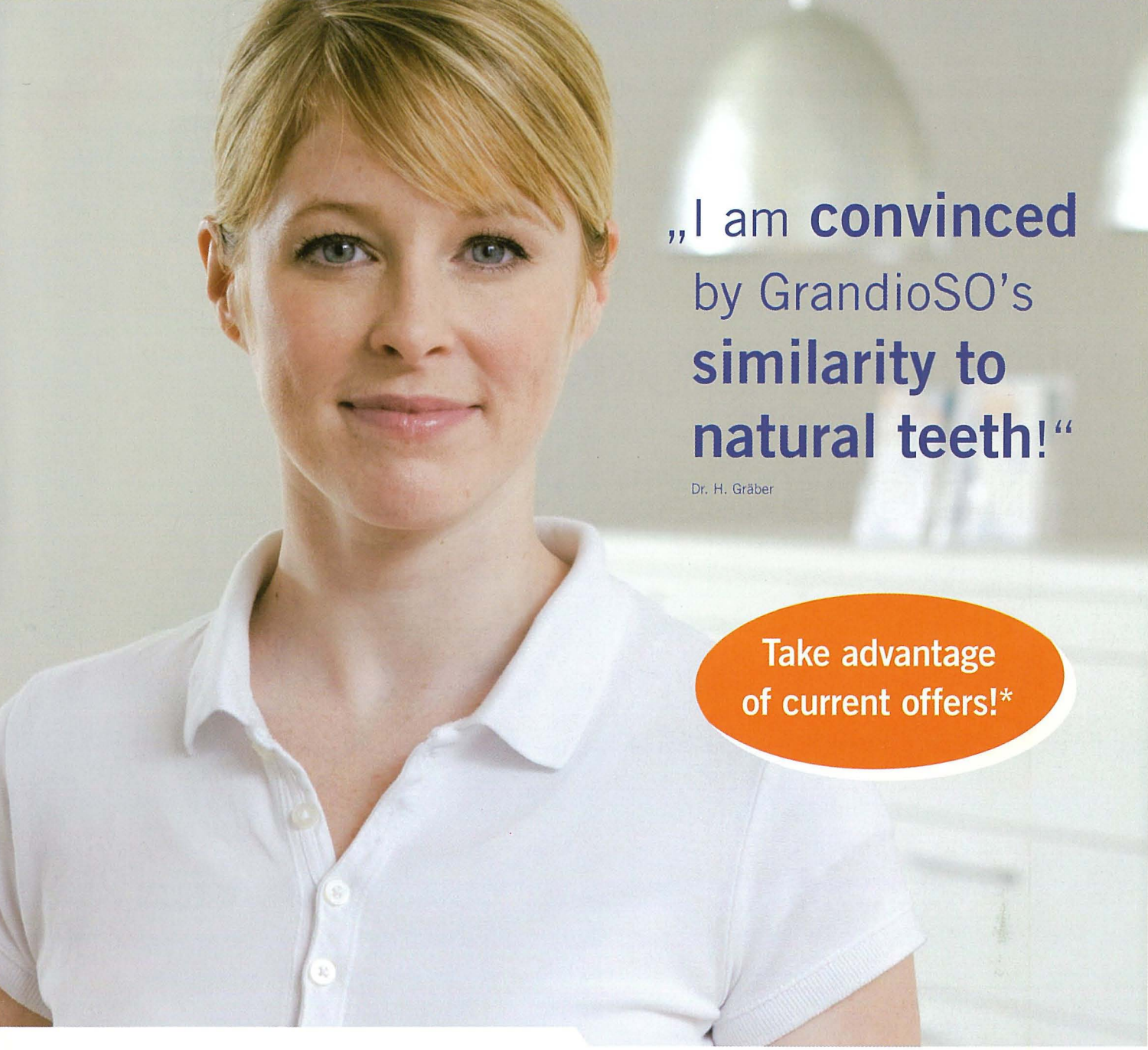

Dr Lara Cassar weds Mr Tyrone Cutajar


Drs Matthew and Monique Cachia


Dr Maria Abela weds Mr Andrew Cremona


Dr David and Mrs Elaine Mifsud


Dr Darien Cini weds Dr Amanda Vella



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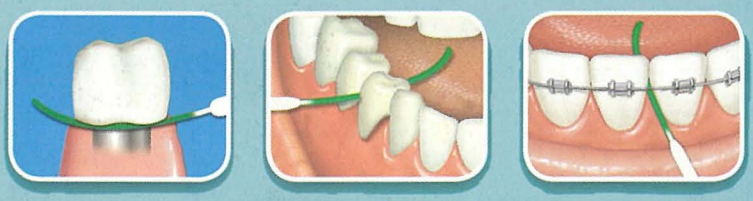

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