

# Dental Review™

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Issue 38 - 2013

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**Welcome** to the 38<sup>th</sup> issue of **Dental Review**. Once again, a blend of perhaps the obvious, but with some items we would never consider. We probably assume all our new instruments are sharp and don't give a lot of thought to water when it naturally contains a great deal of fluoride. But read item 3 and keep drinking the coffee!

Best wishes,

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## Use of a new, simple, laboratory method for screening the antimicrobial and antiviral properties of hand sanitizers

**Authors:** Baban B et al

**Summary:** As using human volunteers is time-consuming, these authors aimed to develop a simple laboratory method for screening the antimicrobial/antiviral activity of hand sanitizers. A Rapid Agar Plate Assay was developed to simulate skin. The plates were treated with an ethanol sanitiser or quaternary ammonium containing hand cream. They were inoculated with *S. aureus* or *E. coli*, or two types of noroviruses. The ethanol sanitiser was more effective against the noroviruses than the bacteria.

**Comment:** This is a good refresher on hand cleanliness. Most dentists wash hands for less than 15 seconds with soap and water. Wearing gloves creates a warm moist environment for bacterial multiplication, and examination gloves often contain microscopic imperfections. Ideally, we should wash with soap and water, use an alcohol-based sanitiser and wear sterile gloves if doing anything invasive. Sanitisers are everywhere; they are at the checkouts at Countdown supermarkets in Dunedin and during a recent visit to Japan, I found them in every restaurant and on every hotel floor.

**Reference:** *Am J Dent* 2012;25(6):327-31

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### Oral tori are associated with local mechanical and systemic factors

**Authors:** Morrison MD, Tamimi F

**Summary:** In the mouth, the commonest bone overgrowths are torus palatinus and torus mandibularis. Both grow slowly and continuously. Their prevalence is 12 to 15% and they often occur together. The authors identified 236 patients with tori and 211 with no form of torus, with 100 meeting selection criteria. Those with tori had a higher prevalence of tooth attrition and temporomandibular joint disease, suggesting a link between mechanical stresses and ectopic bone formation.

**Comment:** Mysteriously, mandibular tori were also related to penicillin allergy. While this paper and its findings may all sound a bit obscure, if we knew more about how tori form we might be able to use this knowledge to augment alveolar ridges. Tori stop growing when teeth are absent, something else to ponder.

**Reference:** *J Oral Maxillofac Surg* 2013;71(1):14-22

[http://www.joms.org/article/S0278-2391\(12\)01148-2/abstract](http://www.joms.org/article/S0278-2391(12)01148-2/abstract)

### Coffee, tea, and fatal oral/pharyngeal cancer in a large prospective US cohort

**Authors:** Hildebrand JS et al

**Summary:** The strongest risk factors for oral and pharyngeal cancers are tobacco and alcohol, but previous studies have indicated that coffee intake is related with a reduced risk of these cancers. These researchers investigated caffeinated and decaffeinated coffee and tea using a prospective cohort study of cancer, which started in the USA in 1982. Among over 968,000 people studied there were 868 deaths from these cancers during the 26 years of follow-up. Intake of over 4 cups of caffeinated coffee each day was associated with a 49% lower risk of death from these lesions. This decline was dose-related. No relationship was found with tea drinking.

**Comment:** Good news, something which is enjoyed daily might be good for us. The problem now is to discover the biological basis of the protective effect. Coffee contains a variety of antioxidants, polyphenols and other compounds and is widely consumed all over the world. Just over 3% of the study group reported drinking no tea or coffee.

**Reference:** *Am J Epidemiol* 2013;177(1):50-8

<http://aje.oxfordjournals.org/content/early/2012/12/09/aje.kws222.abstract>

### Aesthetic perception and factors associated with dentofacial midline awareness

**Authors:** Guo C et al

**Summary:** Having the dental midline coincident with the facial midline is an important aspect of a pleasing smile, but getting this correct may be an orthodontic challenge. Perhaps it is not noticed or appreciated by the patient? The face of a female model aged 24 was photographed and the dentition digitally removed and modified to create a series of images with midlines deviated by between 0.5 and 5 mm to both left and right. An electronic questionnaire was then given to 222 orthodontic patients aged 12 to 39 years (mean age 20). Discrepancies to 0.38 mm were barely discernible. The detectable value was 1.33 mm and a 'tolerable' value 2.63 mm. These values were influenced by the observer's level of education, orthodontic history and malocclusion.

**Comment:** Nobody is completely symmetrical but symmetry of the face is considered an important feature of beauty. The assessor's age and gender did not influence results. This is a clever, computer-based experiment that might be modified for investigating other dental anomalies.

**Reference:** *Aust Orthod J* 2013;29(1):96-104

[http://www.aso.org.au/aoj/AOJ\\_docs/Past\\_issues/Vol\\_29\\_No\\_1.htm#12](http://www.aso.org.au/aoj/AOJ_docs/Past_issues/Vol_29_No_1.htm#12)

### Assessing significance of sharpening brand-new scaler

**Authors:** Matsui K, Onaka K

**Summary:** The authors assessed the sharpness (grab force) of 120 Gracey-type curette blades from five manufacturers. Two instruments were made in the USA, two in Japan and one in the EU. Instruments were then sharpened with a handle-based profiling sharpener. Sharpening increased the grab force of 85 blades (mean increase 21%) and resulted in a decrease in 35 (mean decrease 7%).

**Comment:** We probably all consider that what we buy is ready to go, straight out of the box, but it's only recently that some of our instruments have started to come in presterilised packets. Here's another job for us; sharpening scalers before use. I wonder who the manufacturers were and how widely these findings would apply to other sharp things in dentistry?

**Reference:** *Bull Tokyo Dent Coll* 2013;54(1):1-8

[https://www.jstage.jst.go.jp/article/tdcpublication/54/1/54\\_1/article](https://www.jstage.jst.go.jp/article/tdcpublication/54/1/54_1/article)

## Dental Review

**Independent commentary  
by Associate Professor  
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### Risk assessment-based individualized treatment (RABIT): a comprehensive approach to dental patient recall

**Author:** Teich ST

**Summary:** How relevant are 6-month recalls, with our current assessments of caries risk? Periodontal disease, the edentulous patient and the need to screen for oral cancer also need consideration. RABIT attempts to create a patient-centred recall that integrates all risks, based on electronic health records. It individualises the recall period based on the course of treatment given and considerations at close of active treatment. The author hopes that the software industry will incorporate the concepts in their practice management packages.

**Comment:** Organising a 6-month recall visit was suggested as early as 1879, was promoted by toothpaste commercials in the 1930s and then became standard among dental insurance companies. However, there is no scientific evidence for it, with many patients worldwide receiving the same care (exam, scaling and polishing) almost irrespective of oral condition. A mechanism that suggests recalls based on multiple risk factors sounds helpful, but at present may not satisfy insurance company requirements and so far does not include endodontic risks.

**Reference:** *J Dent Educ* 2013;77(4):448-57

<http://www.jdentaled.org/content/77/4/448.abstract>

### Minimally invasive microsurgical management of the necrotic, immature apex tooth: Case report and treatment recommendations

**Authors:** Antonis C, Agapi Z

**Summary:** Faced with a non-vital tooth with a wide open apex, these authors decided to leave the crown intact and instead address the problem surgically. After raising a flap and removing a periapical lesion, the lumen of the immature apex was prepared using a 5 mm ultrasonic retrotip and then a size 25 ultrasonic file was used for deeper penetration. Chlorhexidine was applied to disinfect the prepared surfaces and the huge root-end cavity was filled with MTA.

**Comment:** In planning the case extraction and an implant was the primary treatment option; revascularisation was not recommended due to the age of the patient/lesion. The crown had only slight discolouration. In New Zealand at the moment the price of MTA is about three times the cost of gold, so judging from the radiographs this patient probably got great value for money!

**Reference:** *Quintessence Int* 2013 Mar 27. [Epub ahead of print]

<http://qi.quintessenz.de/index.php?doc=abstract&abstractID=29511/>

### A randomised controlled trial to investigate the effects of dehydration on tooth colour

**Authors:** Burki Z et al

**Summary:** If teeth dry out they may appear whiter as enamel opacity increases. In this experiment, 20 subjects with intact maxillary central incisors had their tooth shades measured with a VITA Easyshade device before dehydration and after rubber dam isolation for 10, 20 and 30 minutes. One tooth acted as control. The teeth were then rehydrated over 30 minutes. Ten examiners, postgraduates, prosthodontists and technicians also assessed digital photographs of the teeth. Almost all colour coordinates showed significant differences as they dehydrated, the test teeth becoming lighter. The panel of examiners considered the teeth the same colour at the start of the experiment and different after dehydration.

**Comment:** In a previous study, colour was the main reason (89%) for patient dissatisfaction with appearance of teeth. Almost every procedure dehydrates teeth to a degree and altered colour may give rise to shade matching problems. Shade matching must be at the beginning of appointments (and certainly not when a green, blue or purple dental dam is on!). In the experiment, the colour vision of the panel was checked before the study. This paper provides a good review of tooth colour assessment.

**Reference:** *J Dent* 2013;41(3):250-7

<http://tinyurl.com/m8b9vuh>

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## Child Health Research Review

**Child Health Research Review** contains a selection of recently published papers with commentary on important research and how it can potentially impact current practise. The commentary is provided by paediatric medical specialists based at the Starship Children's Hospital and covers various specialist areas including Gastroenterology/Hepatology, Nephrology, Neurology, Developmental Paediatrics, Diabetes and Endocrinology, Infectious Diseases and Respiratory.

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### Caries detection and diagnosis, sealants and management of the possibly carious fissure

Author: Deery C

Summary: What to do with darkly-coloured and possibly carious fissures is sometimes a clinical conundrum. In a single examination we are unable to say if a lesion is progressing, regressing or staying stable, but 40 years of research now suggests that sealants can be safely put on non-cavitated lesions. Indeed, we will all have been sealing in caries at some point. Today's sealants are the latest in a line of materials developed in the late 1960s. Diagnosis and management is explained very well here, with excellent illustrations.

Comment: Some typing and spelling errors crept into this paper, which is unusual for the BDJ. I was amused by etching the enamel surface for 2,030 seconds (33 minutes) and I hope this doesn't turn up in answers to third year exams in November. Nevertheless, this paper offers an excellent revision of the caries process, diagnosis and current biological management of this disease.

Reference: Br Dent J 2013;214(11):551-7

http://www.nature.com/bdj/journal/v214/n11/full/sj.bdj.2013.525.html



New Zealand Dental Therapists' Association (Incorporated)

Dental Review is also made available to Dental Therapists through the kind support of the New Zealand Dental Therapists' Association

### Defluoridation techniques implemented by the government of Karnataka, India – the current situation

Authors: Iyer K et al

Summary: In 2004 in India, the rural water supply was estimated to involve 3.7 million hand pumps dependent on ground water. While reducing many water borne diseases, problems such as excessive groundwater fluoride levels (up to 8 ppm) emerged. This study looked at Karnataka, a state where various defluoridation units were installed across 11 districts and 128 villages. Of 100 reverse osmosis plants visited, 77 were found to be defunct, only one of two solar-based units was working and no devices based on activated alumina were functional.

Comment: A lack of skills at village level to operate units suitable for Indian conditions is to blame; most of the osmosis units failed within a month of installation. While in New Zealand we are in a state of high excitement over reduction or elimination of fluoride from our water, elsewhere in the world many communities have other difficulties to tackle.

Reference: Comm Dent Health 2013;30(2):127-8

http://www.cdhjournal.org/view.php?article\_id=552&journal\_id=50

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# Oral Health Research Review

Another useful summary from Research Review takes a closer look at general oral health. This quarterly publication is ideal for those working as hygienists or dental therapists or for anyone with a keen interest in evidence-based oral health management. Expert commentary supplied by Dr Jonathan Leichter, DMD, Cert Perio (Harvard), University of Otago.



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