

# Dental Review™

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Issue 9 - 2008

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

## Welcome to the latest edition of Dental Review.

There was considerable feedback to Edition 8, with readers enthusiastically reporting the success of the gold restorations in their mouths and about the endurance of the gold work that they had provided for members of their families. Perhaps gold does not get the attention it deserves as an alternative to amalgam? Tooth preparations for gold are still taught in Dental Schools. A key motivator for this is that many of the concepts for gold restorations also apply to tooth-coloured indirect materials which are very popular. How many gold inlays and onlays are made in New Zealand today? Perhaps there are readers out there who could enlighten us?

Kind regards,  
Nick Chandler

### Associate Professor Nick Chandler

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## Tooth bleaching and pit and fissure stain

**Authors:** Falconer DS et al

**Summary:** This experiment used 96 extracted molar teeth to determine whether tooth whitening had an effect on occlusal pit and fissure stains. Two commercial carbamide peroxide solutions (10% and 22%) were used, in trays with and without reservoirs. Water was the control. Three dentists scored the shades during the experiment. Both bleaching systems lightened the shade and the presence of reservoirs did not influence the results.

**Comment:** Not all stained fissures are carious, but staining is a factor in caries diagnosis. There are high levels of disagreement among dentists when detecting caries of occlusal surfaces. Bleaching has the potential to influence our accuracy in accurately diagnosing caries. The change in readings from instruments like the DIAGNOdent would be an area for further study.

**Reference:** *American Journal of Dentistry* 2008;21:71-73.

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### Orthodontic extrusion with magnets: A case report

**Authors:** Mehl C et al

**Summary:** Orthodontic extrusion is among methods of managing subgingival crown-root fractures. Tooth movement may be performed with conventional fixed orthodontic appliances or with magnets. In this report the patient has undergone extensive fixed prosthodontic rehabilitation and has lost the post core crown from a maxillary canine. It was remade, but without a ferrule, and debonded twice. Magnetic extrusion aimed to achieve adequate clinical tooth height to achieve a ferrule and without affecting the biological width.

**Comment:** 2 x 3 mm samarium-cobalt magnets were used in a thermoformed splint with a 1 mm space between the magnets. This space had closed in 7 days and the magnets were reoriented four times for the extrusion of 4 mm. Final restoration took place after a 2 month retention period. Intrasulcular incisions were performed at each magnet repositioning appointment to maintain the original gingival level.

**Reference:** *Quintessence International* 2008;39:371-379.

### Influence of timing of coronal preparation on retention of two types of post cores

**Authors:** Saygili G et al

**Summary:** Cast metal and ceramic post/cores were cemented with a glass ionomer or dual-cure cement into extracted teeth. After a delay of either 15 minutes or 24 hours the cores were prepared axially for 3 minutes and occlusally for 1 minute. The forces required to remove the posts were then recorded.

**Comment:** Several authors have recommended that no adjustments should be made to cores after cementation because vibration may have a negative influence on retention. Most glass ionomer cements set in 2 to 8 minutes, but their ultimate properties develop very slowly. However, in this experiment both cement types featured lower retention at 15 minutes than at 24 hours. Core shapes should be optimized before cementing post/cores into place.

**Reference:** *American Journal of Dentistry* 2008;21:105-107

### Severe tissue necrosis following intra-arterial injection of endodontic calcium hydroxide: a case series

**Authors:** Sharma S et al

**Summary:** Two cases are reported in which an injectable syringe technique was used to introduce calcium hydroxide into molar teeth as a root canal dressing. The first tooth was a mandibular second molar and the material distributed to the external carotid bed. The second patient had the material flow from the palatal root of a maxillary second molar into the infraorbital artery.

**Comment:** Nonsetting calcium hydroxide paste is the most popular root canal dressing in countries all around the world. This paper is entitled a case series, rather than a case report, which is a worry, but fortunately only two patients are described. The use of an injection system appears to be the problem; spinning the material into teeth with a measured Pastinject device is usually recommended. The older Lentulo type devices remain popular but have a greater tendency to fracture.

**Reference:** *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008;105:666-669.



**Independent commentary by Associate Professor Nick Chandler of the Department of Oral Rehabilitation, University of Otago**

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## Dense hydroxyapatite inserted into postextraction sockets: a histologic and histomorphometric 20-year case report.

**Authors:** Mangano C et al

**Summary:** Hydroxyapatite (HA) granules have been used for the promotion of bone formation in periodontal defects, alveolar ridge and sinus augmentation, and in craniofacial surgery. The authors report a patient who had HA placed in three mandibular extraction sockets and a provisional denture made. He was lost to follow-up for over 20 years and then returned wanting implants. This required ridge remodeling, and some of the HA/bone tissue was removed with bone cutting forceps and sent for histological analysis. This revealed that 39% of the particles were surrounded completely by bone and others (56%) were partially surrounded by bone. Only a small number were surrounded by fibrous connective tissue.

**Comment:** This patient allowed a somewhat unique look at the long-term results of this treatment. The absence of an immune response or a foreign body reaction indicate the steady long-term biocompatibility of the material, and the very promising stability of alveolar ridge height.

**Reference:** *Journal of Periodontology* 2008;79:929-933.

## Age as a risk factor for third molar surgery complications

**Authors:** Chuang S-K et al

**Summary:** Some 8748 third molar teeth were removed from 4004 patients over a one year period. Surgical complications arose in 155, and there were 654 subsequent problems. The commonest was alveolar osteitis ('dry socket') and inferior dental nerve injury. Other problems were trismus and infection. Patient age above 25 years was associated with more complications.

**Comment:** While 20% of patients experienced a problem only a small number were considered serious and most were postoperative. The patients were all treated by specialists, and would involve lower numbers considered by general dentists as being straightforward. The authors comment that there were no deaths, no unplanned transfusions and only one jaw fracture.

**Reference:** *Journal of Oral Maxillofacial Surgery* 2007;65:1685-1692.

## Caries-preventive effectiveness of a fluoride varnish: a randomized controlled trial in adolescents with fixed orthodontic appliances

**Authors:** Stecksén-Blicks C et al

**Summary:** This study investigated the effect of topical fluoride varnish (0.1% F) on white spot lesion (WSL) formation in adolescents wearing maxillary fixed orthodontic appliances. The subjects were 273 12- to 15- year olds treated with the varnish or a placebo every 6 weeks. Two examiners scored before and after photographs of the subjects. The incidence of WSL in the fluoride group was 7.4% compared to 25.3% in the controls. This represented a risk reduction of 18%.

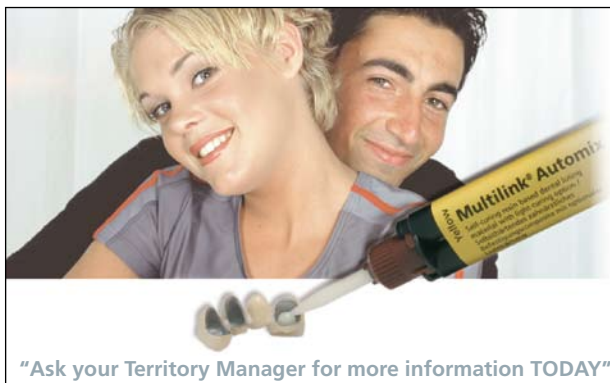
**Comment:** Professional application of fluoride is extremely popular in several countries in Europe. In this study the examiners were instructed to score sites as healthy or unhealthy rather than doubtful, and this and the use of photographs rather than live clinical examination may mean the incidence was slightly underreported. The authors recommend fluoride varnish application as a routine measure in orthodontic practice.

**Reference:** *Caries Research* 2007;41:455-459.

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### Sex differences in denture satisfaction

**Authors:** Pan S et al

**Summary:** Some 256 edentulous patients (mean age 72 years) were randomly assigned to receive conventional complete dentures or a mandibular implant overdenture. They were assessed 6 and 12 months later. At the 6 month review females with complete dentures rated their general satisfaction, ability to chew and aesthetics significantly lower than the males. The findings were the same at 12 months. Men and women in the implant overdenture group rated general satisfaction and the sub-category assessments similarly.

**Comment:** Men and women differ in their responses to many medical conditions and treatments, and there are few studies of sex differences in studies investigating oral prostheses. They may be explained in either physical or psychological terms. Seventy five percent of these patients were very dissatisfied with their lower dentures at the start of the study. This paper is further evidence supporting mandibular 2-implant overdentures as the first choice treatment for edentulous patients.

**Reference:** *Journal of Dentistry* 2008;36:301-308.

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### A six year evaluation of cracked teeth diagnosed with reversible pulpitis: treatment and prognosis

**Authors:** Krell KV et al

**Summary:** Some 8175 patients were seen over a 6 year period with cracked teeth and reversible pulpitis (RP) for the possible diagnosis of cracked tooth syndrome. Almost 800 of the teeth had cracks, and crowns were placed on the 127 with RP. Of these teeth 27 were considered to have necrotic pulps or irreversible pulpitis 6 months later, while the other 100 did not require root canal treatment.

**Comment:** This report shows that with early diagnosis of cracks and placement of crowns root canal treatment will only be required for about 21% of cases in a 6 month period. Mandibular second molars had the largest incidence, followed by mandibular first molars and maxillary first molars. Dentists might assume that teeth with both mesial and distal marginal ridge cracks might eventually need root canal treatment, but the data in this study showed more teeth with a single marginal ridge crack needed treatment.

**Reference:** *Journal of Endodontics* 2007;33:1405-1407.

### Unusual tic

**Authors:** Letters to the Editor by ME Green and NV Ballal

**Summary:** In the first letter a 56-year-old man presented with a twitch over his left eye which went away when pressure was applied to a tender maxillary central incisor tooth. He had received temporary relief from 5 Botox injections into the muscles around his eye, but no treatment for the heavily restored tooth. A radiograph revealed periapical pathology, and his eye problem cleared up once the pulp space was cleaned. In the second letter a maxillary canine was the cause of the patient's problem, this patient being unable to see some words when reading sentences. The diagnosis was uveitis, with a non-vital pulp being a very rare cause. Signs and symptoms cleared after root canal treatment.

**Comment:** While these cases are very different, the aetiology- a non-vital tooth- is the same. Ophthalmologists need to consider dental disease as a possible cause of eye problems.

**References:** *British Dental Journal* 2008;204: 224 & 545.

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