

## In this issue:

- *Treatment and longevity of the teeth*
- *Patients' expectations of orthodontic treatment*
- *Nail biting and oral carriage of enterobacteriaceae*
- *Impact of tooth wear on daily living*
- *Instrument fracture and endodontic treatment*
- *Teledentistry for preschoolers*
- *Facial nerve morbidity*
- *Validity of diode laser*
- *Waiting time for children's general anaesthesia*
- *Implications of cosmetic surgery*

**Welcome** to **Dental Review**, a unique independent New Zealand publication bringing you some of the most important research from around the world. We summarise the best we can find to save you time doing the same thing.

Please feel free to pass the publication on to friends and colleagues and thanks to everyone who took the time to provide feedback. Thanks also to our sponsors for their ongoing commitment. We hope you find this issue stimulating and look forward to your comments.

Kind regards,

**Associate Professor Nick Chandler**

Department of Oral Rehabilitation, University of Otago  
[nickchandler@researchreview.co.nz](mailto:nickchandler@researchreview.co.nz)

## Treatment history of teeth in relation to the longevity of the teeth and their restorations: Outcomes of teeth treated and maintained for 15 years

**Authors:** Miyamoto T et al

**Summary:** This study reports follow-up times from 15 to 23 years (mean 19.2 years) for 3071 teeth from 148 patients treated in the same private practice. Treatment history was categorized on a scale from sound unrestored tooth through to full coverage crown. Crowns which were abutments for bridges and partial dentures and root filled teeth were included. A caries risk assessment was performed for all the patients during a final maintenance phase at the end of the survey. Failure modes were evaluated and a multivariate survival analysis used to relate treatment history to failure. Teeth with multi-surface restorations experienced the highest incidence of failure. For failures resulting in extraction, the only teeth with increased risk were abutment teeth for partial dentures.

**Comment:** In many countries patients must make value judgments concerning the cost of treatment and all will consider the long-term success of the work done. The strength of this paper is that it evaluates the entire treatment history of a large number of teeth over 15 or more years. Not surprisingly, teeth restored with crowns have a better prognosis than teeth treated using multi-surface composite or amalgam restorations. The authors acknowledge this, stating that most of their results are intuitive. They point out that in this evidence-based age, patients, their dentists and funding agencies all require robust data to support treatment decisions.

**Reference:** *Journal of Prosthetic Dentistry* 2007;97:150-156  
<http://www.prosdent.org/article/PIIS0022391307000509/abstract>



*"Are sensitive teeth a hot topic for your patients?"* – Sally, Dental Detailer

Sensodyne Gentle Whitening desensitises and whitens teeth at the same time. It has been specially formulated to be a low abrasive formula that gently removes stains to maintain whiteness.

By recommending Sensodyne Gentle Whitening you'll give your patients long-lasting results and ongoing protection from tooth sensitivity. Used twice a day, it's a simple solution.

For more information call us free on 0800 540 144.

\*Consumer Market Research Report December 2006. Sensodyne Gentle Whitening contains 50mg/g Potassium Nitrate, 2.21mg/g Sodium Fluoride. Use only as directed. If symptoms persist see your dentist. Sensodyne® is a registered trade mark of the GlaxoSmithKline group of companies. GlaxoSmithKline NZ Ltd, Quay Towers, Level 8, Cnr Albert & Customs Sts, Auckland. GSK29110DR



New Zealand's most recommended toothpaste for sensitive teeth.\*

## Impact of tooth wear on daily living

**Authors:** Al-Omiri MK et al

**Summary:** Seventy-six patients with tooth wear were matched with 76 control subjects recruited for the study. An ordinal scale was used to assess the severity of their tooth wear, and a questionnaire was used to assess the effect of tooth wear on daily living and satisfaction with the dentition. Tooth wear had a measurable effect on the patient's satisfaction with appearance, oral comfort, pain level and chewing and eating capacity.

**Comment:** Tooth wear is a consequence of increasing age but these patients were relatively young, ranging from 18-50 and with a mean age of 35. Age was significantly related to dissatisfaction with eating in the tooth wear group. Severe tooth wear was recorded in 32 participants. In the tooth wear group 36% were dissatisfied with their teeth, and this was the case in only 4% of the control group. The research suggests that building-up teeth to replace lost structure may not be enough to make these patients happy with their dentitions.

**Reference:** *International Journal of Prosthodontics* 2006; 19:601-605

[http://www.quintpub.com/journals/ijp/abstract.php?iss2\\_id=216&article\\_id=2490&article=12](http://www.quintpub.com/journals/ijp/abstract.php?iss2_id=216&article_id=2490&article=12)



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

## Patients' expectations of orthodontic treatment: Part 2 - findings from a questionnaire survey

**Authors:** Sayers MS et al

**Summary:** There is a shortage of good information on what young people expect before they set out on a course of orthodontic treatment. This study involved 50 patients aged between 12 and 14 and one of their parents. Both completed questionnaires before their orthodontic consultation. There was considerable agreement between patient and child in their answers to questions. The children anticipated more restrictions on what they could drink and eat, and expected treatment to be faster. The parents had lower expectations of the appliances. Ethnicity was classified into white and non-white groups. The white children thought headgear was less likely and considered treatment time would be shorter. Non-white children thought they would have improved speech following treatment.

**Comment:** There has been little published on the relationship between ethnicity and orthodontic expectations. The study had too small a sample size to differentiate between the 5 ethnic groups making up the non-white subjects. Nearly half of the subjects had no idea how long orthodontic treatment would take, their parents expectations being more realistic in this regard.

**Reference:** *Journal of Orthodontics* 2007;34:25-35

<http://jorthod.maneyjournals.org/cgi/content/abstract/34/1/25>

## Effect of a chronic nail-biting habit on the oral carriage of Enterobacteriaceae

**Authors:** Baydas B et al

**Summary:** This study examined the differences in prevalence in salivary Enterobacteriaceae in subjects with and without a nail biting habit. Twenty five nail biters and 34 subjects with no oral habit were involved. Their mean age was 13.5 years. Their saliva samples were studied microbiologically. E. coli, Enterobacter aerogenes, Enterobacter cloacae and Enterobacter gergoviae were found in the saliva of 19 of the nail biting group (76%). Three of these organisms were present in 9 of the non biting group (26%).

**Comment:** Dental complications of nail biting include gingival injuries, increased incisal wear and even apical root resorption. The findings suggest that E. coli and other enteric bacteria could be ingested as a result of chronic nail biting, and this might result in local and systemic infections. The patients involved should receive instruction in both hand and oral hygiene procedures.

**Reference:** *Oral Microbiology and Immunology* 2007;22:1-4

<http://www.ingentaconnect.com/content/mksg/omi/2007/00000022/00000001/art00001>



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.**

# Get tough on dental pain with Panadine<sup>+</sup> Plus.



**Panadine<sup>+</sup> PLUS**

PLEASE REVIEW THIS INFORMATION BEFORE RECOMMENDING. Panadine<sup>+</sup> Plus contains paracetamol 500mg and codeine phosphate 15mg. Use: Temporary relief from moderate to severe pain. Contraindications: Hypersensitivity to any ingredient in the product; Children under 12 years. Precautions: CNS, respiratory depression; high doses; prolonged use; renal, hepatic impairment; poor CYP2D6 function; lactation. Adverse reactions: **Dependence**; Impairment of mental & physical abilities; nausea, vomiting, constipation; **dizziness**; **drowsiness**. Interactions: **Anticoagulants**; **sedatives**, **tranquillisers**; **drugs affecting gastric emptying**; **chloramphenicol**; **hepatic enzyme inducers**; CYP2D6 inhibitors. Dosage: Adults and children 12 years and over: 2 caplets every 4-6 hours orally with water (maximum 8 caplets in 24hrs). Further information is available from GlaxoSmithKline Consumer Healthcare on request (FREECALL: 0800 540 144). \*Panadine is a registered trade mark of the GlaxoSmithKline group of companies. TAPPS NA1840. GLA29231.

For more information, please go to <http://www.medsafe.govt.nz>

## The impact of instrument fracture on outcome of endodontic treatment

**Authors:** Spili P et al

**Summary:** The main part of this study was a retrospective survey of endodontic cases treated over nearly 14 years in two practices involving seven endodontic specialists. Retreatment cases were included among the 8460 teeth, and a subset of 146 with a retained instrument fragment were matched with 146 controls. The prevalence of fractured instruments was 3.3% of treated teeth. Healing was not significantly different when a fractured instrument was present.

**Comment:** Fractured instruments include files, spreaders of various types, spiral fillers and Gates Glidden burs. The materials involved are stainless steel, nickel titanium (NiTi) and carbon steel. Rotary NiTi instruments may have received a bad press for breaking more frequently, but the few studies available suggest similar fracture incidences. The results may be biased, as more molars with greater root curvatures are probably tackled using NiTi. This study separated out rotary NiTi devices (six different instrument types). The frequency of rotary NiTi breakage among these operators was comparable to those previously reported for hand files. Some 95% of the fractured NiTi cases were successful and 91% of teeth with stainless steel hand files were a success. There was no significant difference between these figures. In terms of prognosis, the presence of a periapical radiolucency before treatment began was more important.

**Reference:** *Journal of Endodontics* 2005;31:845-850

<http://www.jendodon.com/article/PIIS0099239906611059/abstract>

## Facial nerve morbidity after retrograde nerve dissection in parotid surgery for benign disease: A 10-year prospective observational study of 136 cases

**Authors:** O'Regan B et al

**Summary:** This is a prospective observational study which follows 136 patients over a period of 10 years. The patients all received a retrograde dissection by a single operator. After 6 months only one patient was reported to have permanent paresis of the marginal mandibular branch of the facial nerve, a permanent paresis rate of under 1%. This compares with 2-5% for an antegrade parotid gland dissection method.

**Comment:** This is a 'must read' article for anyone doing fellowship exams. It is nicely illustrated and provides a valuable revision of the facial nerve. The retrograde approach to identification of the nerve seems safe in their hands. The authors do not state if they use it for malignant lesions. The 100% follow-up is impressive.

**Reference:** *British Journal of Oral and Maxillofacial Surgery* 2007; 45:101-107

<http://www.sciencedirect.com/science>

## Dental screening of preschool children using teledentistry: a feasibility study

**Authors:** Kopycka-Kedzierawski DT et al

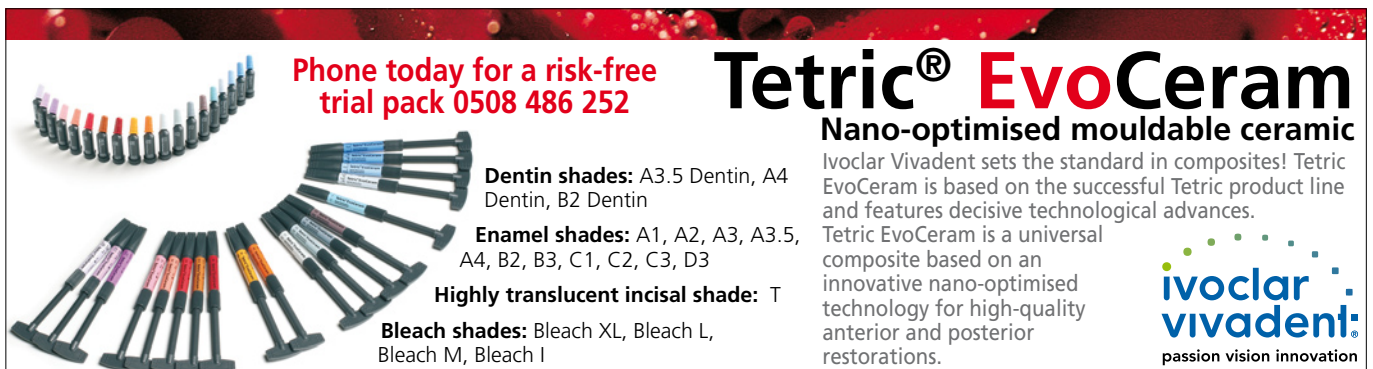
**Summary:** This study used an intraoral camera to screen preschoolers, in particular for early childhood caries. The researchers assessed the diagnostic quality of the dental images from the camera and compared its images with a traditional oral examination. The examiner saw 50 children aged from 4 to 6 years for a conventional mouth examination. The children were then photographed by an assistant, and the images sent to a computer. A minimum of six images were taken of each mouth. After 2 weeks the examiner saw these images in a random order on a computer screen. More children with caries were found on the camera images and more carious teeth were detected this way, but there was no statistical difference between the results.

**Comment:** Medicine has used 'telehealth' for more than 30 years but dentistry has largely missed out. In this experiment the teledentistry examinations probably revealed more caries due to the improved illumination and magnification provided by the camera. Images captured by a trained operator and viewed later at a remote site by a dental professional could provide a useful and cost effective way of screening for caries in childcare centres.

**Reference:** *Pediatric Dentistry* 2007; 29:209-213

[http://www.aapd.org/searcharticles/article.asp?ARTICLE\\_ID=2168](http://www.aapd.org/searcharticles/article.asp?ARTICLE_ID=2168)

Research Review publications are intended for New Zealand health professionals



**Phone today for a risk-free trial pack 0508 486 252**

# Tetric® EvoCeram

**Nano-optimised mouldable ceramic**

Ivoclar Vivadent sets the standard in composites! Tetric EvoCeram is based on the successful Tetric product line and features decisive technological advances. Tetric EvoCeram is a universal composite based on an innovative nano-optimised technology for high-quality anterior and posterior restorations.

**Dentin shades:** A3.5 Dentin, A4 Dentin, B2 Dentin

**Enamel shades:** A1, A2, A3, A3.5, A4, B2, B3, C1, C2, C3, D3

**Highly translucent incisal shade:** T

**Bleach shades:** Bleach XL, Bleach L, Bleach M, Bleach I

**ivoclar vivadent**  
passion vision innovation

For more information, please go to <http://www.ivoclarvivadent.co.nz>

## Validity of diode laser to monitor carious lesions in pits and fissures

**Authors:** Silva BB et al

**Summary:** The DIAGNOdent's performance to monitor the arrest of non-cavitated occlusal carious lesions was examined. Fifteen boys aged between 12 and 13 with 40 active lesions were involved. Following measurements, professional plaque removal, fluoride treatment and oral hygiene instruction were provided. The patients were reexamined after 30 days, and lesions not arrested were seen at 14-day intervals until arrest was evident. Only 3 lesions required 60 days to reach an arrested state. No significant change in DIAGNOdent readings was observed, with only 5 of the lesions showing a regression in measurements.

**Comment:** The reduction in caries incidence in many countries has been accompanied with an increase in occlusal lesions which can be very difficult to detect in their early stages. The DIAGNOdent uses laser emission to detect caries through tissue fluorescence with reproducible results. This in vivo work on caries arrestment explores the technique further. The authors propose several explanations for the majority of measurements not showing a change, including slow gains of mineral in arrested lesions and changes in the organic content of the lesions modifying the fluorescence.

**Reference:** *Journal of Dentistry* 2007;35:679-682

<http://www.sciencedirect.com/science>

## The effects of a long wait for children's dental general anaesthesia

**Authors:** North S et al

**Summary:** In this report a 6 month delay in the commissioning of a children's hospital service meant that 321 children had their planned extractions delayed. During the wait 41% required analgesics, 29% had disturbed sleep and almost one third reported problems eating. Nearly half took antibiotics, with 20% prescribed 2 or more courses. Most of the treatment plans were the same when services were resumed.

**Comment:** The disadvantaged children provided an opportunity to reassess a variety of factors including the initial reasons for offering treatment under general anaesthesia. Twelve patients had fewer teeth extracted because of exfoliation, but 21 children had between one and five more teeth removed because of caries. The authors report their concern at the high number of patients (72) who did not return when the service resumed, despite two appointments being made.

**Reference:** *International Journal of Paediatric Dentistry* 2007; 17:105-109

<http://www.blackwell-synergy.com/doi/abs/10.1111/j.1365-263X.2006.00790.x>

## The fat compartments of the face: Anatomy and clinical implications for cosmetic surgery

**Authors:** Rohrich RJ et al

**Summary:** Methylene blue dye was injected into specific parts of the faces of cadavers and allowed to diffuse for 24 hours. Hemifacial dissections were then performed using microscope or loupe magnification. Thirty dissections were carried out on specimens aged from 47 to 92 years. The subcutaneous fat of the face was found to be partitioned into multiple separate anatomical compartments. The malar region and the forehead each have three compartments, and the orbital fat is similar, determined by septal borders. Aging is in part characterised by how each compartment changes over time, rather than as changes of a large single composite mass.

**Comment:** I admit this paper is on the very borderline of dentistry, but it is interesting in terms of patient appearance and aging. It was initially thought that fat around the face was one continuous structure, which eventually increased in size. Weighed down by gravity, people developed sagging skin. This work shows that the fat is in individual compartments, and that these regions gain and lose fat at different rates. Treatments for the aging face will need to take this into account.

**Reference:** *Plastic and Reconstructive Surgery* 2007;119:2219-2227

<http://www.plasreconsurg.org/pt/re/prs/abstract.00006534-200706000-00036.htm>

**Privacy Policy:** Research Review will record your email details on a secure database and will not release it to anyone without your prior approval. Research Review and you have the right to inspect, update or delete your details at any time.

**Disclaimer:** This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.

# Subscribe Free

Subscribe to any Research Review publication before 30 September 2007 and go in to WIN 1 of 2 bottles of LEMON Z

