ISSN 1178-6108

Dental Review™

Making Education Easy

Issue 36 – 2012

In this issue:

- *Smile aesthetics*
- *Mandibular tori*
- *Power toothbrush*
- *Assessing dry mouths*
- *Primary molar caries detection*
- *Root-end filling materials*
- *Digital versus plaster models*
- *Crowding and caries risk*
- *Drugs and implant healing*
- *Survival of bridges*

Welcome to the last edition of 2012.

Again there is a struggle to find articles with a Christmas theme, although one involves battery devices, often a feature of consternation on Christmas morning if they are not there, are the wrong sort, or are not charged. I wish all readers a happy time recharging their personal batteries over the Festive Season and look forward to hunting out interesting articles for the New Year.

A happy one to all,

Nick Chandler
Associate Professor
Department of Oral Rehabilitation, University of Otago
nickchandler@researchreview.co.nz

The influence of maxillary central incisor height-to-width ratio on perceived smile aesthetics

Authors: Cooper GE et al

Summary: This experiment involved digitally manipulating a photograph of a female smile to vary the height-to-width ratio of the maxillary central incisors. Three pictures, showing normal form, tooth wear and delayed apical migration were then altered for length. The images were viewed as glossy photographs by 32 dentists, 32 technicians and 32 patients who ranked them for attractiveness. There was variability in responses but the 82% height-to-width ratio was considered the most attractive; long and short teeth tended to be rated as unattractive.

Comment: Previous literature suggests a 75–80% ratio is best. The patients were less influenced by tooth wear than the dentists and the technicians, but among the patients was the widest range of disagreements. The dentists were the most consistent in selecting the most unattractive picture. Interestingly, there was no clear threshold between an acceptable and unacceptable height-to-width ratio.

Reference: British Dental Journal 2012;212(12):589-99

http://www.nature.com/bdj/journal/v212/n12/full/sj.bdj.2012.522.html

CLICK HERE

to read previous issues of Dental Review

Prevalence and anatomic topography of mandibular tori: computed tomographic analysis

Authors: Choi Y et al

Summary: Mandibular tori appear above the mylohyoid ridge and their prevalence varies with race. In this study, 726 Korean patients were examined using CT images. Most had bilateral tori and the incidence was 24.1%. All the tori were made of cortical bone, and the mean thickness was nearly 7 mm.

Comment: Often seen and sometimes misdiagnosed, tori may make toothbrushing a problem and constructing and wearing lower complete dentures difficult. They can also be troublesome when trying to see the apex on radiographs when root filling premolars; an indication for using an electronic apex locator which doesn't get a mention in the textbooks. In this study, the prevalence was inversely related to age. Most previous studies have used dry skulls and the racial difference was marked, from 0% among Aborigines to 80% among Eskimos.

Reference: Journal of Oral and Maxillofacial Surgery 2012;70(6):1286-91

http://www.joms.org/article/S0278-2391(11)01871-4/abstract

Evaluation of a new multi-directional power toothbrush versus a marketed sonic toothbrush on plaque and gingivitis efficacy

Authors: Ram Goyal C et al

Summary: Some 103 adults with mild-to-moderate gingivitis entered a 4-week randomised and examiner-blinded study. They used a new multi-directional power brush (Oral-B TriZone) or sonic toothbrush (Philips Sonicare Essence 5500). All five clinical outcome measures were highly statistically significantly better with the new multi-direction brush.

Comment: Sonic-powered devices are now quite common with some research showing significant reductions in gingivitis and bleeding sites with their use compared to other brushes. The new brush seems much better in this research. Both brushes were well tolerated by the subjects. Something else for Christmas with batteries in it? At least these are rechargeable, and the thoughtful investigators supplied them fully charged to the subjects.

Reference: American Journal of Dentistry 2012;25 Sp Is A:21A-26A

http://tinyurl.com/power-toothbrush

Clinical assessment of oral dryness: development of a scoring system related to salivary flow and mucosal wetness

Authors: Osailan SM et al

Summary: The authors describe a 10-point clinical oral dryness score (CODS) which is easy to use and reliable, and relate it to salivary flow rates and mucosal wetness. Ten features of oral dryness each scored one point for a total score of 1–10. It was then evaluated with 100 patients who had been referred to a Sjögren syndrome clinic and 50 normal subjects. The mean score for the patients was 6 and for healthy subjects 1, with scores related to both the salivary flow rates and mucosal wetness. The CODS also showed some discrimination between patients and healthy subjects who had similar salivary flow rates.

Comment: The authors consider this system could be used routinely by dentists in general practice. Medications are the most frequent cause of dry mouth, with Sjögren syndrome and irradiation for head and neck cancer other causes. This score system could help monitor progress over time and determine how effective treatments are.

Reference: Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology 2012;114(5):579-603

http://tinyurl.com/au46kov

Performance of fluorescence-based and conventional methods of occlusal caries detection in primary molars

Authors: Novaes TF et al

Summary: Occlusal caries detection is a difficult task because of the morphology of pits and fissures. In this study, two examiners assessed 113 sites on the cleaned occlusal surfaces of 77 recently extracted primary molars using three fluorescence devices: the DIAGNOdent, the DIAGNOdent pen and a fluorescence camera. Visual methods and radiographs were also assessed. The teeth were then sectioned for histological examination. The fluorescence methods were all considered good but similar to visual and radiographic assessments. Visual methods seemed to be sufficient for clinical practice.

Comment: Sharp eyes, that's what we want; in fact, the more advanced methods tended to give more false-positive results. I am left wondering why the investigators viewed the radiographs at x2 magnification but did not use loupes or a dental operating microscope to look at the fissures. An opportunity for another study here?

Reference: International Journal of Paediatric Dentistry 2012;22(6):459-66

http://onlinelibrary.wiley.com/doi/10.1111/j.1365-263X.2011.01217.x/abstract

Periapical tissue response after use of Intermediate Restorative Material, gutta-percha, reinforced zinc oxide cement, and mineral trioxide aggregate as retrograde root-end filling materials

Authors: Wälivaara D-A et al

Summary: Vital roots in the mandibular premolars of 6 dogs underwent apicectomy and were sealed with one of the four materials above. The animals were sacrificed 120 days later and analysis was by radiographs, histology and scanning electron microscopy. Regardless of material used, new cementum formed across the resected dentine surfaces, but its formation adjacent to the filling material was only seen with mineral trioxide aggregate (MTA).

Comment: The healing period of 4 months in dogs is equivalent to 6 months in humans. The formation of new cementum-like material close to the test materials and re-establishment of periodontal ligament made MTA the material of choice in this work. This is hardly new information, the result being similar to a 1995 publication in which cementum formation over the MTA was a 'frequent' finding. Animal experiments like this are horrendously expensive, and research on how the new generation of hydraulic calcium silicate materials compares to MTA in this application is eagerly awaited.

Reference: Journal of Oral and Maxillofacial Surgery 2012;70(9):2041-7

http://www.joms.org/article/S0278-2391(12)00139-5/abstract

Digital versus plaster study models: How accurate and reproducible are they?

Authors: Abizadeh N et al

Summary: The British Dental Association recommends records being kept for 11 years after treatment, and 20 years ago a study of UK hospital units found model storage to be a major problem. This experiment compared occlusal relationships and arch dimensions from 112 sets of plaster orthodontic models. Digital calipers were used on the plaster models, which were then scanned with lasers; both measurements were to a precision of 0.01 mm. There were significant differences found, with the plaster measurements more repeatable for half of the parameters tested.

Comment: A problem is what constitutes a clinically relevant 'error' in measurements of this type; there are dimensional changes in the impressions and materials used for models which have been evaluated and we have largely accepted. Much to my amusement (I wear a wind-up watch), one of the digital model files was corrupted and could not be opened, leaving 111 sets for assessment.

Reference: Journal of Orthodontics 2012;39(3):151-9

http://jorthod.maneyjournals.org/content/39/3/151.abstract

Dental crowding as a caries risk factor

Authors: Hafez HS et al

Summary: Because there is more plaque retention and food impaction around crowded teeth it is natural to assume there will be more caries present. This literature review found 6,914 citations when databases were searched using terms including caries, decay, crowding and irregularity. Only 18 articles met inclusion criteria, with 8 considered in a qualitative synthesis. Four found no relationship, two reported a negative correlation and one showed a direct and significant relationship between crowding and proximal caries scores. Another showed relationships between crowding and proximal caries in the mandibular anterior region and an inverse correlation in the maxillary posterior region.

Comment: Another meta-analysis that suggests there should be a TV show called Dental Myth Busters. No high-quality studies confirm or refute crowding as a causal factor in caries. Longitudinal studies are required.

Reference: American Journal of Orthodontics and Dentofacial Orthopedics 2012;142(4):443-50

http://www.ajodo.org/article/S0889-5406(12)00578-1/abstract

Statins, glucocorticoids, and nonsteroidal anti-inflammatory drugs: their influence on implant healing

Authors: Fu J-H et al

Summary: Quality and quantity of bone and systemic health influence periimplant bone healing, but what common medications might be involved? The authors performed an electronic search on the three drug types in the title, finding 19 relevant papers in total. Most reported animal studies. They found that statins increased bone formation and density. Reduced bone turnover and bone to implant contact was caused by glucocorticoids. Continued use of NSAIDS during or after implant placement also had effects. There was a suggestion that statins improved osseointegration.

Comment: Some patients receiving implants will be taking NSAIDs for chronic pain. Good news for some of our older readers; perhaps the statins they take could have some dental benefit? More randomised controlled clinical trials are necessary.

Reference: Implant Dentistry 2012;21(5):362-7

http://tinyurl.com/drugs-and-implant-healing

Ten year survival of bridges placed in the general dental services in England and Wales

Authors: Burke FJT, Lucarotti PS

Summary: The dataset in this study comprised 80,000 UK National Health Service patients aged over 18 and featured 7,874 bridge abutments (6,800 conventional and 1,074 resin-retained types). A modified Kaplan-Meier analysis was used to examine survival times. Of the PFM retainers, 72% survived at 10 years compared to 66% of resin-retained retainers (a significant difference). There was no clear relationship between patient age and bridge survival. Success was higher in those patients who paid towards the cost of their bridge.

Comment: I expect many readers were taught not to provide bridges for older patients (as the bridge and/or patient had a limited lifespan). The position of the bridge in the mouth was a factor in outcomes in this investigation. Excellent tables are provided for anyone interested in how long bridges last. Some of the data might be useful when a patient turns up with a failing bridge and wants to know if it lasted a reasonable time and if they got value for money.

Reference: Journal of Dentistry 2012;40(11):886-95

http://www.jodjournal.com/article/S0300-5712(12)00178-9/abstract

DTA
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