FEATURES SECTION

Relevant research from non-orthodontic journals

This section is designed to draw the attention of readers to papers that have been published in non-orthodontic journals, but which may be of interest. The abstracts have been selected and edited by Matthew Chia and Professor Nigel Hunt.

Malocclusion

The pattern of extraction of first permanent molars: results from three dental hospitals. *Int J Paediatr Dent* 2006; 16 (S1):1
Albadri SS, McDonnell S, Zaitoun H, North S, Davidson LE, Llewelyn R, Blinkhorn AS, Mackie IC

Objective: To determine and compare the reasons and pattern of extraction of first permanent molars (FPM) in 3 UK dental hospitals.

Design: Data were collected prospectively from 300 children attending Manchester Dental Hospital (MDH), Liverpool Dental Hospital (LDH) and Charles Clifford Dental Hospital, Sheffield (CCDH) who required extractions of at least one FPM. Information recorded included age, FPM extracted, reason for extractions, previous treatment, method of extraction, and whether patients had previous extractions.

Results: The mean age in months was 129 (SD 22.7), 139 (SD 29.4), and 133 (SD 26.8) for MDH, LDH, CCDH respectively. Forty-five and forty-eight per cent of children had four FPM extracted at MDH at CCDH, respectively, compared to 25% at LDH. The main reason for extraction (70%) was caries with poor prognosis, followed by caries and compensating extraction (14%). Molar Incisal Hypoplasia was the reason for extraction in 11% of cases. General anaesthesia was the main anaesthetic method used with 77%, 55%, and 47% in MDH, LDH and CCDH, respectively. Local anaesthesia was used in 43% of cases in LDH in comparison to 12% and 22% in MDH and CCDH, respectively. Sixty-eight per cent of children had received no previous treatment to the FPM and only 5% had fissure sealants placed. Forty per cent of children had previous extractions.

Conclusion: Children attending our hospitals for extractions of FPM tend to be older than the recommended age for achieving maximum space closure. This study highlights the need for extensive prevention programs targeted at children with high caries risk.

Comment: This research demonstrates the importance of caries prevention in high-risk populations and identifying susceptible individuals. It also points to the need for a well timed referral for an Orthodontic opinion and the appropriate interception at the correct age and dental development.

Aesthetics

Assessment of the 'golden proportion' in agreeable smiles. *Quintessence Int* 2006; 37: 597–604
De Castro MV, Santos NC, Ricardo LH

Objective: The aim of this study was to determine the prevalence of the 'golden proportion' in individuals presenting agreeable smiles.

Method and materials: Two hundred and sixty university students aged 18–30 years of age (130 subjects of each gender) with maxillary incisors, canines, and premolars presenting anatomic integrity were evaluated. Agreeable smiles were considered to be those displaying at least second premolars; revealing no gingival recession in the smile area, having interdental papillae that filled all interdental spaces and were not hyperplastic, showing less than 3 mm of the maxillary gingiva, displaying the line of the lower lip parallel to the incisal line of the maxillary teeth and also to an imaginary line linking the contact points of these teeth, and finally, presenting symmetry upon examination. Twenty-one individuals of this sample who presented this kind of smile (11 female and 10 male subjects) had their maxillary incisors, canines, and premolars of the same hemiarch measured in the cervicoincisal and mesiodistal directions using a periodontal probe, a digital Boley gauge, and digitalized analysis. Data were submitted to statistical analysis for comparison of adjacent teeth considering 1.618 (golden proportion) as a reference, with a statistical significance of $P<0.05$.

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Results: Of the agreeable smiles evaluated, 7.1% exhibited the golden proportion.

Conclusion: The golden proportion was not often found in adjacent teeth shown in smiles in the sample studied.

Comment: Smile aesthetics is a topic that is difficult to study scientifically. As a result there is limited evidence-based research. This paper is an interesting addition to the literature and provides another viewpoint on the 'golden proportion' and aesthetic smiles.

Facial measurements

Correlation between facial measurements and the mesio-distal width of the maxillary anterior teeth. *J Esthet Restor Dent* 2006; 18: 196–205
Gomes VL, Gonçalves LC, do Prado CJ, Junior IL, de Lima Lucas B

Summary: One of the most difficult aspects during the selection of maxillary anterior teeth for a removable prosthesis is determining the appropriate mesiodistal width of the six maxillary anterior teeth. Many attempts have been made to establish methods of estimating the combined width of these anterior teeth, and improving the aesthetic outcome. The proportion of facial structures and the relationship between facial measurements and natural teeth could be used as a guide in selecting denture teeth. The aim of this study was to verify the relation between the combined mesiodistal width of the six maxillary anterior teeth and the facial segments: the width of the eyes, the inner canthal distance (ICD), the interpupillary distance (IPD), the interalar width, and the intercommissural width (ICm).

Methods: Standardized digital images of 81 dentate Brazilian subjects were used to measure both facial and oral segments when viewed from the frontal aspect through an image processing program. To measure the distance between the upper canines on a curve, accurate casts were made from the upper right first premolar to the upper left first premolar. The Spearman rank correlation coefficient was conducted to measure the strength of the associations between the variables (α=0.05).

Results: The results showed a significant correlation between all facial elements and the combined mesiodistal width of the six teeth, when observed from the frontal aspect. The ICD, IPD, and ICm showed the highest probability of being correlated to the mesiodistal width of the teeth (P=0.000).

Conclusion: Facial analysis with digital photography is a practical and efficient application to select the mesio-distal width of artificial anterior teeth in an aesthetically pleasing and natural appearance during an oral rehabilitation treatment.

Comment: Facial measurements are used routinely in planning patients for Orthognathic Surgery. However, this article provides a useful application of these measurements in the Orthodontic-Restorative interface, especially where anterior restorations are indicated.

Consent

Patients' perceptions of written consent: questionnaire study. *Br Med J* 2006; 333: 528–29
Akkad A, Jackson C, Kenyon S, Dixon-Woods M, Taub N, Habiba M

Objective: To examine patients' understanding of the status, function, and remit of written consent to surgery.

Design: Prospective questionnaire study. Questionnaires were sent to patients within one month of surgery. Responses were analysed with frequencies and single variable analyses.

Setting: Large teaching hospital.

Participants: Seven hundred and thirty-two patients who had undergone surgery in obstetrics and gynaecology over a six month period.

Main outcome measures: Patients' awareness of the legal implications of written consent and their views on the function and remit of the consent form.

Results: Patients had limited understanding of the legal standing of written consent. Nearly half (46%, 95% confidence interval 43 to 50%) of patients believed the primary function of consent forms was to protect hospitals and 68% (65 to 71%) thought consent forms allowed doctors to assume control. Only 41% (37 to 44%) of patients believed consent forms made their wishes known.

Conclusions: Many patients seem to have limited awareness of the legal implications of signing or not signing consent forms, and they do not recognize written consent as primarily serving their interests. Current consent procedures seem inadequate as a means for the expression of autonomous choice, and their ethical standing and credibility can be called into question.

Comment: This research reveals that patients have a reduced understanding of the role and purpose of the written consent form. More work is required to help patients to appreciate the consent process and realize that it is an expression of their autonomy.

Temporomandibular joint

Effects of orthodontic treatment with fixed functional orthopaedic appliances on the condyle–fossa relationship in the temporomandibular joint: a magnetic resonance imaging study (Part I). *Dentomaxillofac Radiol* 2006; 35: 339–46
Kinzinger GS, Roth A, Gülden N, Bücker A, Diedrich PR

Objective: This study aimed to verify the effects that corrective treatment for skeletal Class II malocclusions with fixed functional orthopaedic appliances has on the positions of the condyle within the glenoid fossa.

Methods: Orthodontic treatment progress was monitored in 20 patients by magnetic resonance imaging (MRI) at four defined points in time. Metric analysis of the temporomandibular joints was performed on the central slices of the images obtained in the closed-mouth position. To assess the positional relationship between condyle and fossa, the width of the joint spaces was measured. To compensate for individual variation of the condyle sizes, the Joint Space Index was calculated. The displacement of the condyle from the fossa was measured in the ventral and in the caudal dimension and the effective condyle reposition was computed.

Results: Upon adoption of the therapeutic position, the condyles were displaced from the centric position within the fossa toward caudal and ventral. At the end of treatment, they returned to their original position. No significant differences compared with initial findings were found in the width of the anterior or posterior joint spaces.

Conclusion: For patients who received functional orthopaedic treatment for skeletal Class II correction with a fixed functional appliance, reduction to a physiological condyle–fossa relationship occurred bilaterally in the region of the joints. Our study suggests that the improved dental occlusion was not achieved at the price of a change to an unphysiological position in the temporomandibular joints.

Comment: This study suggests that functional appliance treatment is not detrimental to the temporomandibular joint by causing displacement of the condyle from the fossa.

Cleft lip and palate

Self-reports of psychosocial functioning among children and young adults with cleft lip and palate. *Cleft Palate Craniofac J* 2006; 43(5): 598–605
Hunt O, Burden D, Hepper P, Stevenson M, Johnston C

Objective: A cross-sectional study was employed to determine the psychosocial effects of cleft lip and/or palate among children and young adults, compared with a control group of children and young adults without cleft lip and palate.

Participants: The study comprised 160 children and young adults with cleft lip and/or palate and 113 children and young adults without cleft lip and/or palate. All participants were between 8 and 21 years of age.

Outcome measures: Psychological functioning (anxiety, self-esteem, depression, and behavioral problems) was assessed using validated psychological questionnaires. Happiness with facial appearance was rated using a visual analog scale. Social functioning, including experience of teasing/bullying and satisfaction with speech, was assessed using a semistructured interview.

Results: Participants with cleft lip and/or palate reported greater behavioral problems ($P<0.001$) and more symptoms of depression ($P<0.01$); they were teased more often ($P<0.001$) and were less happy with their facial appearance ($P<0.01$) and speech ($P<0.001$), compared with controls. There was no significant difference between subjects with cleft lip and/or palate and subjects without cleft lip and/or palate in terms of anxiety ($P>0.05$) or self-esteem ($P>0.05$). Having been teased was a significant predictor of poor psychological functioning, more so than having a cleft lip and/or palate *per se* ($P<0.001$).

Conclusions: Teasing was greater among participants who had cleft lip and/or palate and it was a significant predictor of poorer psychosocial functioning. Children and young adults with cleft lip and/or palate require psychological assessment, specifically focusing on their experience of teasing, as part of their routine cleft care.

Comment: The cleft team should include a clinical psychologist for regular assessment of the patients. This should allow the early identification of problems and allow a more positive impact on the psychosocial functioning of the patient.

Orthognathic surgery

Risk factors contributing to symptomatic plate removal following sagittal split osteotomy. *Int J Oral Maxillofac Surg* 2006; 35(7): 598–601
Theodossy T, Jackson O, Petrie A, Lloyd T

Objectives: This retrospective study examines the rate of plate removal from the mandible following sagittal split osteotomy and the risk factors that may contribute to it.

Methods: The records of 80 consecutive patients (160 plates) undergoing orthognathic surgery over a 2-year period were analysed to assess the percentage of plate removal from the mandible following sagittal split osteotomy. Factors considered in the study included age, sex, duration of operation, antibiotic prophylaxis regimen, general medical condition, smoking habits, mandibular moves, extraction of third molars at time of surgery and the favourability of the mandibular splits.

Results: Infection was the sole reason for plate removal in this study. A removal rate of 15.6% was noted. Age and duration of operation were the only two statistically significant factors to affect plate removal whilst some of the other factors showed increased odds ratios but were not statistically significant.

Conclusions: Although age and gender are not controllable, duration of operation, smoking habits and wisdom tooth removal at the time of surgery can be controlled to try and minimize the risk of infection and thus plate removal.

Comment: There is still no clarity in the decision to remove plates from an asymptomatic patient. However, this research identifies some of the risk factors involved in symptomatic plate removal. This should lead to the prevention of infection and hence plate removal.