

FEATURES SECTION

Relevant research from non-orthodontic journals

This occasional 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 Gavin Power and Professor Nigel Hunt.

Orthognathic surgery

The evaluation of jaw function subsequent to bilateral sagittal split osteotomy. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2005; 100: 10–16

Yang X, Dong, Long X, Zhang G, Kao C

Objective: The objective of the present study was to evaluate the jaw function and anatomical changes subsequent to orthodontic treatment combined with mandibular advancement or set-back surgery.

Methodology: The sample consisted of 67 combined skeletal and dental malocclusion patients, who had received orthodontic and surgical treatment previously. Three and 6 months following jaw surgery, the following jaw functions were evaluated: the level of occlusal force developed, the efficiency of masticatory function, the size in the temporomandibular joint (TMJ), the relationship between occlusal force and maxillo-mandibular skeletal change and the range of mandibular movement.

Results: The results revealed that after surgery the occlusal force was lower post-surgically at 3 and 6 months for the advancement group, masticatory function recovered to pre-surgical values for both groups after 6 months and mandibular movement distance showed no significant difference from the pre-surgical values for either group 6 months after surgery. Jaw function recovery proved to be more rapid in the surgical setback group than the mandibular advancement group.

Conclusion: Surgical mandibular advancement and set-back by sagittal-split osteotomy influence subsequent mandibular function.

Comment: Data was only taken 6 months post-surgically, which was probably too short for all patients to redevelop their occlusal forces, and should be

repeated at 2 years. Studies such as these are important when informing orthognathic patients about their likely recovery times.

Quality of life

Health-related quality of life of children aged 11 to 14 years with orofacial conditions. *Cleft Palate Craniofac J* 2005; 42(3), pp. 260–266

Locker D, Jokovic A, Tompson B

Objective: To assess the health-related quality of life (HRQoL) of 11–14-year-old children with orofacial conditions.

Method: Thirty-nine patients with orofacial conditions were compared with 32 patients with dental caries.

Outcome measure: The multi-dimensional 37-item Child Perceptions Questionnaire for 11–14-year-old children (CPQ_{11–14}). This forms one component of the Child Oral Health Quality of Life Questionnaire.

Results: The orofacial group had slightly higher scores on the CPQ_{11–14} than the dental group ($P < 0.05$). The scores were slightly to moderately higher on the functional limitations ($P < 0.01$) and social well-being ($P < 0.01$) domains. The groups did not differ with respect to oral symptoms or emotional well-being. Mouth breathing, problems with speech, missing school, being teased and being asked questions about their condition were the only issues reported more frequently by the orofacial group ($P < 0.01$). There was no evidence of social inhibition or withdrawal in the orofacial group. The children with orofacial conditions rated their oral health better than the children with dental decay ($P < 0.05$). In both groups, the majority of children reported that their condition had little impact on their life overall.

Conclusions: Based on CPQ_{11–14} scores, there were few differences in the HRQoL of 11–14-year-old children

with orofacial conditions, compared with children with dental caries. This suggests that the majority of these children are well adjusted and able to cope with the adversities they experience as a result of their conditions. This may reflect the quality of the team approach used at the treatment setting at which they were recruited.

Comment: This small study suggests that the children with orofacial conditions have the capacity to manage day-to-day challenges that do not compromise their quality of life, and that the cleft team has a positive impact in this increasingly image-conscious society.

Malocclusion

Variation in dental and skeletal open bite malocclusion in humans with amelogenesis imperfecta. *Arch Oral Biol* 2005; 50: 611–23

Ravassipour D, Powell C, Phillips C, Hart P, Hart T, Boyd C, Wright J

Summary: The amelogenesis imperfectas (AI) are a diverse group of genetic disorders primarily affecting the quality and or quantity of enamel. However, affected individuals often have an open bite malocclusion. Three main AI types are recognized based on the perceived developmental mechanisms involved and the enamel phenotype. The purpose of this investigation was to evaluate the association of the AI enamel defect with craniofacial features characteristic of an open bite malocclusion.

Methods: The sample consisted of 54 AI affected and 34 unaffected family members from 18 different kindreds. Lateral cephalograms were digitized and measurements evaluated for vertical plane alterations using *z*-scores.

Results: Forty-two per cent of AI affected individuals and 12% of unaffected family members had dental or skeletal open bite malocclusions. Skeletal open bite malocclusion was variably expressed in AI affected individuals. The enamel phenotype severity did not necessarily correspond with the presence or severity of open bite malocclusion. Open bite malocclusion occurred in individuals with AI caused by mutations in the AMELX and ENAM genes even though these genes are considered to be predominantly or exclusively expressed in teeth. Affected AI individuals with cephalometric values meeting our criteria of skeletal open bite malocclusion were observed in all three major AI types.

Conclusion: The pathophysiological relationship between AI associated enamel defects and open bite malocclusion remains unknown.

Comment: This study suggests the multiple effects of genes once thought to affect the dentition exclusively.

Implantology

Clinical and radiographic performance of delayed-immediate single-tooth implant placement associated with peri-implant bone defects. A 2-year prospective, controlled, randomized follow-up report. *J Clin Periodontol* 2005; 32: 480–7

Schropp L, Kostopoulos L, Wenzel A, Isidor F

Objectives: The aim of the present study was to compare the delayed-immediate (Im) and the delayed (De) protocols for placement of single tooth implants.

Material and methods: After allocation to the Im and De groups by random, 46 patients were treated with a single-tooth implant with acid etched surfaces (Osseotite®) in the anterior or pre-molar region of the maxilla or the mandible on average 10 days (Im) or 3 months (De) following tooth extraction, respectively. Forty-one patients attended a follow-up visit 2 years after implant placement corresponding to 1½ years of loading of the implant restorations. Peri-implant and prosthetic parameters were evaluated clinically, and marginal bone levels measured on radiographs.

Results: Three implants were lost, all before mounting of the crown. None of the implant restorations had failed after 1½ years of function. Probing pocket depths were reduced by up to 1.4 mm on average from the time of loading to the 2 year follow-up and, at that time, no significant difference between the Im and De groups was found (4.2 versus 4.1 mm). A statistically significant radiographic marginal bone loss had occurred in the Im group (mean=0.8 mm) as well as in the De group (mean=0.7 mm) in the follow-up period. However, a mean marginal bone level of approx. 1.5 mm in both groups measured from the implant-abutment junction was found to be acceptable. It was demonstrated that probing pocket depths and marginal bone levels after 1½ years of loading of the implant-retained crowns were not influenced by the presence of peri-implant bone defects immediately after implant placement. Furthermore, no severe prosthodontic complications, such as screw loosening or porcelain fractures, arose in this study material.

Conclusion: High success rates of single-tooth implants after 1½ years of function were achieved using the delayed-immediate and delayed implant placement techniques.

Comment: This prospective randomized study demonstrates the increasing reliability of immediate single tooth implants over a 2 year period.

Temporomandibular joint

Relationship between overbite/overjet and clicking or crepitus of the temporomandibular joint. *J Orofac Pain* 2005; 19: 218–25

Hirsch C, John M, Drangsholt M, Mancl L

Aims: Since occlusal variables, such as overbite and overjet, have been thought to be associated with temporomandibular disorders (TMD) and joint sounds are some of the most prevalent signs of TMD, the aim of this study was to determine whether overbite and overjet are risk factors for temporomandibular joint (TMJ) sounds.

Methods: A population-based cross-sectional study of 3033 subjects (age range 10–75 years; 53% female) was conducted in Germany. Overbite/overjet, reproducible

reciprocal clicking (RRC) during open–close jaw movements that did not occur in the protrusive jaw position and joint crepitus were assessed according to the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD).

Results: When age and gender were controlled for, high or low values of overbite and overjet were not associated with a greater risk of RRC and crepitus as compared to a reference category of a normal overbite and overjet of 2–3 mm (multiple logistic regression; odds ratios 0.7:1.3; $P>0.05$ for all).

Conclusion: This study showed that higher or lower overbite or overjet jaw relationships, even extreme values, are not risk factors for TMJ sounds as assessed by clinical examination.

Comment: This large study suggests that the orthodontic prevention or treatment of this sign of TMD in patients with increased overjet and overbite is unnecessary, as both of these malocclusions are compatible with normal function of the TMJ.