1217 Kinematics of the Herbst Appliance. J. B. COPPERBERG, S. RICHARDSON. (Baylor College of Dentistry, Dallas, Texas)

This study evaluates the 3-D functional movements of the mandible and condyles both with and without the Herbst appliance. For each of ten young adults volunteers fitted with a removable Herbst appliance, maximum ranges of motion and movements while chewing gum were evaluated: 1) without an appliance (WOA); 2) with a non-active Herbst appliance (UA), and 3) an activated appliance (AA). Movements (100 Hz) were recorded using the Optotrak system; simultaneous EMG activity (300 Hz) was recorded for the masseter and anterior temporalis muscles. The resulting data were then analyzed during four different conditions: movement of the anterior mandible (4-5 mm, measured at the incisors) and the anterior movement of the condyle (2 mm). Maximum jaw protrusion (3-5 mm) and retrusion (1-3 mm) were also measured. In all conditions, the anterior mandible was increased between 6-7 mm; condylar movement was increased in muscle activity, suggesting an increase in the variability of the ranges of motion was found with the UA and AA groups. Mandibular movements while chewing gum were significantly more variable for the UA and AA groups than for the WOA group, indicating post-treatment changes that were not modeled because the changes in total, upper and lower face as well as mandibular anterior and posterior alveolar heights were the parameter of interest. Post-treatment experimental variables were compared with a matched, untreated control group with high mandibular plane angles. Mixed-effects model of post-treatment changes suggested a significant decrease in mandibular alveolar height dimensions for patients with high pre-treatment mandibular plane angles.

1218 Cephalometric Analysis of Anterior Facial Height and Maxillary Paper Development. M. GANNON, L. BUCKSTEE, D. J. PERGASON. (University of Oregon, School of Dentistry, West, USA)

Clinicians have long accepted the importance of controlling posterior alveolar vertical growth for orthodontic treatment. Clinical and biologic studies have demonstrated that facial growth is dependent on a complex interplay of genetic, environmental, and nutritional factors. The authors proposed a hypothesis that the posterior alveolar vertical growth is related to the anterior facial height. This hypothesis was tested by a cross-sectional study involving 150 patients with a mean age of 13.5 years. The patients were classified based on the criteria of high pre-treatment mandibular plane angles. The analysis of variance showed that the posterior alveolar height was significantly greater in the group with high pre-treatment mandibular plane angles, indicating a possible link between anterior facial height and posterior alveolar height.

1219 Cephalometric Comparisons of Chinese and Caucasian Surgical Class III Patients. J. S. WANG, B. BACO, C. T. DU, M. MBROVICH, S. H. YU (West Virginia Univ. and Univ. of Hong Kong)

The purpose of this study was to compare the cephalometric morphology of Chinese and Caucasian Class III patients who were treated for orthodontic treatment. A total of 30 Chinese and 30 Caucasian patients were included in the study. The results indicate that the Chinese patients had a more protracted lower face height and a more retruded maxillary plane angle compared to the Caucasian patients. This suggests that the Chinese patients have a more exaggerated profile compared to the Caucasian patients. The findings of this study suggest that the Chinese patients have a more exaggerated profile compared to the Caucasian patients.

1220 3-Year Clinical Study of a Dentin Adhesive System in Cervical Abrasions. J. W. FLEMING, E. B. DUKE, R. S. SCHWARTZ, and J. B. SAMPSON. (University of Texas Health Science Center, San Antonio, Texas)

The clinical behavior of Prisma Universal Bond 3 was evaluated with the light-cure composite resin Prisma AP.H when used to restore cervical abrasions in all six anterior teeth. Ninety-four restorations were placed in 38 patients. Experimental groups included: Group 1, cervical restorations bonded with Prisma Universal Bond 3; Group 2, restorations bonded with conventional etch-and-rinse adhesive system; Group 3, patients were placed on a control group and the restorations were placed using the etch-and-rinse adhesive system. The results indicated that Prisma Universal Bond 3 had a significantly higher shear bond strength and better clinical performance compared to the control group.


Dentin sclerosis is a condition in which the dentin structure becomes harder and less permeable. This condition can affect the bonding of a composite resin to the dentin surface. This study examined the clinical effectiveness of a bonding agent on the bonding of a composite resin to dentin. The results showed that the bonding agent significantly improved the bond strength and clinical performance of the composite resin to dentin.


This study evaluates the clinical suitability of a hybrid composite filled and postrestored posterior restorations. Five Class I and forty-six Class II restorations in thirty-nine patients were restored with the hybrid composite. The restorations were evaluated for color match and marginal integrity after 2 years. The results showed that the hybrid composite has good clinical performance and can be used for posterior restorations.

1223 Failure Differences of Posterior Resin Composite. L. M. BERNSTEIN, E. G. WILSON, P. W. WOODS, V. A. MARKER, L. Y. QUO (Baylor College of Dentistry, Dallas, Texas)

Longitudinal clinical studies performed at universities have shown that the half-life of posterior composite restorations is 14-18 years (Bayne, 1991), almost as long as that of amalgam. This study was conducted to determine if the success of posterior composite restorations placed in general practice was equivalent to the findings of clinical studies. A random sample of restorations requiring endodontic treatment was collected from four endodontists. Restorations inclusion criteria were as follows: 1) OQ, DO, or MOD amalgam, composite or crown; 2) intact, i.e., no detectable fractures in the tooth or restoration; and 3) 12-18 months after treatment. Restorations were divided into three groups: amalgam, composite, and crown. This study was conducted to determine if the success of posterior composite restorations placed in general practice was equivalent to the findings of clinical studies.


This study evaluates the clinical suitability of a hybrid composite filled and postrestored posterior restorations. Five Class I and forty-six Class II restorations in thirty-nine patients were restored with the hybrid composite. The restorations were evaluated for color match and marginal integrity after 2 years. The results showed that the hybrid composite has good clinical performance and can be used for posterior restorations.