1- Reliability of the adhesive remnant index score system with different magnifications

ABSTRACT
Objective: To test the hypothesis that the adhesive remnant index (ARI) scores show no differences when done under different magnifications.

Materials and Methods: The study included eighty upper human premolars. Stainless steel brackets were bonded to the specimens with Transbond XT light cure adhesive and Transbond Plus Self Etch Primer (3M Unitek, Monrovia, CA, USA). The brackets were debonded 24 hours after bonding with a universal testing machine (LLOYD Instruments; Segensworth, Fareham, England) at a cross head speed of 2.00 mm/min. The adhesive remnant was evaluated after debonding with the naked eye and under 10 and 20 magnifications using the 4-point scale described by Årtun and Bergland.

Results: The ARI scores were significantly different with different magnifications (P=.018). The scores were not significantly different when evaluated with the naked eye and under 10 mag (P=.102). The scores were significantly different under 20 mag (P=.014), under 10 mag score 0 decreased from 12 to 6 and score 2 increased from 14 to 20, and also under 20 mag and under 10 mag (P=.046), under 20 mag score 1 decreased from 40 to 38 and score 3 increased from 14 to 16.

Conclusion: The ARI scores were significantly different under 20 mag where score 0 decreased and score 2 increased compared to the naked eye while score 1 decreased and score 3 increased compared to 10 mag.

2- The change in the perception of malocclusion using the index of complexity, outcome and need (ICON).

ABSTRACT:
Background: Indices of orthodontics are systematic evaluations that measure the extent of deviation (malocclusion) from a standard.

Aim: To investigate if there is a change in the patients perception of orthodontic malocclusion in this decade compared with the previous one using the Index of Complexity, Outcome and Need (ICON).

Materials and Methods: A total of 400 orthodontic study models were selected randomly. The study was designed to include two groups; the first group thus included 200 study models for patients who sought treatment before the year 2000, specifically between 1990 and 1999, and the second group included 200 study models for patients who sought treatment after the year 2000, specifically between 2000 and 2009. The study models were examined and occlusal traits were scored. Five occlusal traits were assessed: Index of Orthodontic Treatment Need (IOTN) aesthetic components, Overall upper arch crowding/spacing, Cross bite, Anterior vertical relationship (incisor overbite/openbite), Buccal segment antero-posterior relationship (right and left sides added together).

Results: the results showed significant difference the treatment need assessment (P=.000), the complexity distribution (P=.000), occlusal trait distribution (P=.000), and aesthetic score distribution (P=.000), between the two groups.

Conclusions: the predominant occlusal traits seen in patients sought orthodontic treatment before the year 2000 were different than occlusal traits seen in patients sought...
orthodontic treatment after the year 2000. However, over the years, antero-posterior jaw relationship and dental crowding remained the main concerns for orthodontic patients.

3-

**Self-ligating bracket claims**

Self-ligating brackets is a controversial topic in the orthodontic literature these days and much of the interest in self-ligating brackets is in response to information comparing the benefits of self-ligating systems with conventional edgewise brackets - whether this information comes from marketing materials, non-refereed sources or refereed journals. All types of ligatures, both elastomeric and stainless steel, apply a force that pushes the archwire against the base of the slot. Another factor that could influence the force level is the resistance to sliding encountered with the elastic ligation.

Although laboratory studies do not emulate the clinical situation, sometimes we have no choice other than to rely on them. Since there are no in-vivo studies evaluating friction between bracket and archwire and since it is very difficult to measure stresses and strains within the periodontal ligament of loaded teeth directly, laboratory studies are useful to investigate these areas especially when focusing on the comparative aspect of the study.

4-

**Effect of applying sustained seating force during orthodontic bracket bonding on the adhesive layer and on bond strength**

The objective of this research was to investigate the effect of applying a sustained seating force during bonding on the adhesive layer and on shear bond strength of orthodontic brackets. Forty human premolars divided into two groups were included in the study. Stainless steel brackets were bonded to the premolars with Transbond XT light cure adhesive and Transbond Plus Self Etch Primer. The brackets in both groups were subjected to an initial seating force of 300 g for 3 seconds sufficient to position the bracket. The seating force was maintained throughout the 40 seconds of light curing in group 2. The shear bond strength (SBS) was tested 24 hours after bracket bonding with a shear blade using a Instron testing unit at a crosshead speed of 2.00 mm/minute. A Studentâ€™s t-test was used to compare the bond strength of the two groups and a chi-square test to compare the frequencies of the Adhesive Remnant Index (ARI) scores. The mean SBS was significantly different between the two groups (P=0.025). The bond strength was higher (mean=8.150.89±1 MPa) in group 2 compared with group 1 (mean=7.391.14±1 MPa). There was no significant difference (P=0.440) in the ARI scores between the two groups. Applying a sustained seating force during orthodontic bracket bonding improves bond strength but, does not change the distribution of the ARI scores.

5-

**Prevalence and distribution of dental anomalies in orthodontic patients**

ABSTRACT:

Objective: the objective of the current research was to study the prevalence and distribution of dental anomalies in a sample of orthodontic patients.

Materials and Methods: the study was based on examining the dental casts, intraoral photographs, and panoramic and periapical radiographs of 509 Egyptian orthodontic patients. Patients were examined for dental anomalies in number, size and shape,
The prevalence of each dental anomaly was calculated and compared between genders.

Results: of the total study sample 32.6 percent of the patients had at least one dental anomaly other than agenesis of third molars; 32.1 percent of the female patients and 33.5 percent of the male patients had at least one dental anomaly other than agenesis of third molars. The most commonly detected dental anomalies were impaction in 12.8 percent of the patients and ectopic eruption in 10.8 percent of the patients. The total prevalence of hypodontia, excluding third molars, was 2.4 percent and of hyperdontia was 2.8 percent with close distribution in females and males. Gemination, and accessory roots were reported in this study; each of these anomalies was detected in 0.2 percent of the patients. Conclusions: In addition to genetic and racial factors environmental factors could have more important influence on the prevalence of dental anomalies in every population. Impaction, ectopic eruption, hyperdontia, hypodontia, and microdontia were the most common dental anomalies while fusion and dentinogenesis imperfecta were absent.

**Relationship between dental crowding, skeletal base lengths, and dentofacial measurements**

**ABSTRACT:**

Objectives: The objectives of this study were to study the correlation between dental crowding, skeletal base lengths, and dentofacial measurements. Materials and methods: Pretreatment dental casts and lateral cephalograms of randomly selected 45 Class I orthodontic cases divided into two groups according to the severity of mandibular crowding were evaluated. Group 1 comprised 15 patients with mandibular crowding less than 3 mm while group 2 comprised 30 patients with mandibular crowding of 3 mm or more. Maxillary and mandibular dental crowding and dentofacial measurements were compared between the two groups. For correlations the whole sample was combined to a single group where crowding was used as a continuous variable. Results: The only significant difference between the two groups was in the amount of dental crowding in the lower arch p=0.000. Direct moderate correlation (r=0.45; p=0.002) between maxillary crowding and mandibular crowding, direct high correlation (r=0.68; p=0.000) between maxillary base length (Co-A) and mandibular base length (Co-Gn) and also direct high correlation (r=0.74; p=0.000) between maxillary base position (SNA angle) and mandibular base position (SNB angle) were detected. Correlations between maxillary incisors position and facial vertical dimension measured by the MP to SN angle showed inverse moderate correlation. Correlations between mandibular incisor position and the anteroposterior jaw relationship measured by the ANB angle showed direct moderate correlation. Conclusions: Results showed the presence of correlations between the skeletal dimensions and the absence of correlations between dental crowding and the same measurements. Results suggest that dental crowding is independent of the skeletal measurements.