

ABSTRACT

INTRODUCTION: A digital analysis that is shown to be accurate will ease demonstration of initial case complexity. To date no literature exists on the accuracy of digital American Board of Orthodontics Discrepancy Index (DI) calculations when applied to pretreatment digital models. **METHODS:** Plaster models were obtained from 45 previous patients with varying degrees of malocclusion. Total Discrepancy Index score and its target disorders were computed manually with a periodontal probe on original plaster casts (gold standard) and digitally using Ortho Insight 3D (Motion View Software, Hixson, TN) and OrthoCad (Cadent, Carlstadt, NJ). Intra-rater and inter-rater reliability was assessed for 15 subjects using Spearman's Rho correlation test. Accuracy of DI scores and target disorders were assessed for all 45 subjects using Wilcoxon signed ranks test. **RESULTS:** Intra-rater and inter-rater reliability was high for total DI score and most target disorders ($r > 0.8$). No significant difference was found between total DI score when measured with OrthoCad compared to manual calculation. Total DI score calculated by Ortho Insight 3D was found to be significantly larger than manual calculation by 2.71 points. **CONCLUSIONS:** The findings indicate that a discrepancy index calculated by MotionView Ortho InSight 3D may lead the clinician to overestimate case complexity. OrthoCad's discrepancy index module demonstrated to be a clinically acceptable alternative to manual calculation of total score.