

## OSC33: Correlation between Applied Occlusal Load and Force Measured from Dental Prescale System

Chen, Szu-Han, Chun-Ying Yu, Tong-Mei Wang,  
Tsung-Chieh Yang, Li-Deh Lin

School of Dentistry, National Taiwan University, Taipei, Taiwan

**Aim:** Dental Prescale System (DPS) was used to measure absolute occlusal load in previous studies. In DPS, a pressure-sensitive wax wafer, bitten by the patients, will change colour locally depending on the pressure levels exerted. The colour density was used to estimate occlusal forces. The aim of this study was to investigate the accuracy of Dental Prescale System in measuring occlusal load.

**Materials and Methods:** Compressive loads of 0.5, 1.0, 2.0 kgf were consecutively applied to a pair of opposing first molar

teeth (D91S-200-MF, Nissin, Japan), which were mounted in maximal intercuspation, with the system pressure sheets (LLW, Fujifilm, Japan) interposed. The pressure sheets were later scanned. The total measured force (TMF), average measured pressure (AMP) and force at the most forceful area (P1) were analysed using pressure analysis software. ANOVA and linear regression were used for statistical analysis.

**Results:** The TMF measured by DPS at 0.5, 1.0, 2.0 kgf applied force were  $1.073 \pm 0.206$ ,  $2.103 \pm 0.375$ ,  $4.573 \pm 0.212$  kgf respectively; the AMP was  $1.395 \pm 0.021$ ,  $1.540 \pm 0.049$ ,  $1.610 \pm 0.025$  MPa and P1 was  $0.845 \pm 0.253$ ,  $0.845 \pm 0.039$ ,  $0.988 \pm 0.041$  MPa, respectively.

**Conclusion:** Although a positive correlation was observed between TMF and applied loads, the forces estimated from Prescale system was considerably larger than applied loads. A non-linearly relation was observed between applied loads and both AMP and P1.

DOI: 10.4103/0972-4052.244624