



## CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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### Validity of three reference planes in the assessment of open bite and deep bite subjects.

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**Objectives:** The purpose of this retrospective study was to evaluate the reliability and accuracy of three anteroposterior reference planes applied in the Wits analysis.

**Materials and methods:** A retrospective chart review was undertaken on 150 subjects. Subjects were categorized into 3 groups based on the value of pre-treatment overbite; 50 normal (1-3 mm), 50 deep (more than 3mm) and 50 open bite (less than 1 mm) subjects. The maxillomandibular bisector (MMB) was used to evaluate the anteroposterior jaw discrepancy and compared to the Wits analysis and the ANB angular measurement using the bisecting occlusal plane (BOP) as well as the functional occlusal plane (FOP).

**Results:** The correlations of the three Wits appraisals (FOP Wits, BOP Wits, MMB Wits) to each other were moderate to high ranging from 0.56 to 0.89. The strongest correlations were found between BOP Wits and MMB Wits in the open bite group ( $r=0.89$ ). Moreover, the correlations of the three Wits appraisals (FOP Wits, BOP Wits, MMB Wits) to the ANB angle were low to moderate ranging from 0.39 to 0.76. The strongest correlation was found between MMB Wits and ANB angle in the open bite group ( $r=0.74$ ).

**Conclusions:** The Wits appraisal using the MM bisector is a valid indicator of the sagittal discrepancy. The MMB Wits had a higher correlation coefficient to the ANB angle than the FOP Wits, further reinforcing its validity. Caution must be exercised in trying to relate any of Wits appraisal to the gold standard of the ANB angle.