CFAO GRADUATE STUDENT
POSTERBOARD ABSTRACTS

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Posterior cranial base and surrounding area changes assessed through CBCT imaging in adolescents

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Objective: To determine if landmarks in the posterior cranial base and surrounding areas are stable during adolescent years in the horizontal, vertical and antero-posterior dimensions.

Methods: Sixty (60) patients were randomly selected from a clinical trial and each had two CBCT images taken previously, one before and one after they received orthodontic treatment. Images were taken using an iCAT CBCT scanner on an average of 17.5 months apart and retrospectively assessed. Twenty-nine (29) landmarks previously deemed reproducible and accurate landmarks were marked on pre-treatment (T1) and post-treatment (T2) images.

Results: When all distances were considered jointly, there was evidence of significant differences of the dependent variables ($p < 0.001$) between these time-points. This indicates some statistically significant change in distance of several measurements between T1 and T2. Adding age at T1 as a covariate, a non-significant result indicates that age at time of initial CBCT image does not affect potential growth ($p = 0.639$). When treatment time is added as a covariate, suggestive but inconclusive results are revealed.

Conclusion: Horizontal, vertical and antero-posterior dimension of the cranial base and surrounding areas show a few statistically but not clinically significant changes over T1 and T2. Measurements which took point *Basion* into consideration all showed changes, most likely due to spheno-occipital synchondrosis growth in addition to previously demonstrated changes in point *Basion* position.