

## AAO Foundation Award Final Report

Principal Investigator	Robert L. Boyd, DDS, MEd
Co-Investigator	Sheldon Baumrind, DDS, MS
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Award Type	Biomedical Research
Project Title	Differences in Apical Root Resorption Between Two-Phase and Single Phase Orthodontic Treatment
Project Year	1996
Institution	University of the Pacific, School of Dentistry, Dept. of Orthodontics
Summary/Abstract	<p>This study was completed in June 1997. In this study we analyzed the effect of fixed orthodontic appliance therapy on maxillary central and lateral incisors with open apices using periapical x-rays. Charts of two hundred thirty-six patients from one orthodontic office were obtained and divided into two groups. The treated group (n=30) had a mean age of 7.9 years at the start of treatment and 12.6 years at the second time point (T2). The control (non-treated) group (n=33) had a mean age of 8.5 years at %1 and 11.8 years at T2. The non-treated group did not have orthodontic treatment, and it was radiographically compared to the treatment group at T2 when both groups had closed apices. All periapical films were standardized using the long-cone, parallel method taken by the same lab. These radiographs were imaged into the computer using NIH Image® with six landmarks identified using Cranioimage 2.2. Double determinants were completed on each film. Since the polled data revealed an age difference at T2 between the samples, the treated and non-treated groups were matched for six and age (<math>\pm 2</math> months). The paired t-test indicated there was no significant difference in total length and root length of maxillary central and lateral incisors between the groups of matched pairs. Therefore, this study revealed no clinically or statistically significant effect of Phase I fixed orthodontic appliance therapy on developing maxillary incisor root apices.</p> <p>Publication for methods used and findings from this investigation are:</p> <p>1997 R Boero, RL Boyd, KW Snowdowne, KM Fenn: The Effect of fixed Orthodontic Treatment on Developing Maxillary Incisor Root Apices. University of the Pacific School of Dentistry thesis requirement submitted for Master of Science in Dentistry degree.</p>

	<p>1999 RL Boyd, S Baumrind, V Vlaskalic: Intercurrent Growth Complicates the Analysis of Apical Resorption in Orthodontically-Treated Adolescents. <u>J. Dent. Research</u> (Special Issue) 78: 203 (Abstract #780)</p> <p>1999 1999 G Vaughn, H Abarghouei, F Ty, V Vlaskalic, S Baumrind: Root Changes in Lower Incisor During Full Banded Orthodontic Treatment. <u>J. Dent. Research</u> (Special Issue) 78: 203 (Abstract #781)</p> <p>1999 R Boero, RL Boyd, K Fenn, L Harfield, V Vlaskalic, S Baumrind: Upper Incisor Root Resorption Associated with Three Orthodontic Treatment Strategies. <u>J. Dent. Research</u> (Special Issue) 78: 203 (Abstract #781)</p>
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