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## Cephalometric effects of combined palatal expansion and facemask therapy on Class III malocclusion

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### ABSTRACT

The purpose of this study was to examine the cephalometric changes that occur with palatal expansion/facemask therapy for Class III malocclusion. Pretreatment and posttreatment lateral cephalograms from 21 patients were traced and analyzed by traditional cephalometric measures, an x-y coordinate system, and along the functional occlusal plane. Differences between T1 and T2 values were analyzed with paired *t*-tests. Mean ages were 7.26 years (T1) and 8.18 years (T2). Average treatment time was 11.05 months. Statistically significant anterior movement of the maxilla occurred with increases in SNA (+2.35), maxillary depth (+2.22), and ANB (+3.66), and anterior movement of A-point (+3.34 mm) and ANS (+3.17 mm). The maxilla rotated counterclockwise, with PNS moving down more than ANS (−2.21 mm and −0.82, respectively). The mandible rotated clockwise with mild decreases in SNB (−1.32) and facial depth, (−1.2) but significant downward movement at menton (−4.34 mm). Occlusal plane analysis demonstrated that the correction was due more to the maxilla than the mandible (+2.35 and −1.88 mm, respectively). The maxillary molars moved forward (+1.70 mm) as did the incisors (+1.75 mm). Soft tissue changes included the nose and upper lip moving forward (3.43 and 3.67 mm, respectively), and menton moving downward (−3.49 mm). The results indicate that facemask/palatal expansion therapy improves Class III malocclusion by a combination of skeletal and dental changes that occur in the anteroposterior dimension and in the vertical plane of space.

**KEY WORDS:** Class III malocclusion, Facemask/palatal expansion, Orthopedic treatment, Maxilla, Cephalometric analysis.

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