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Redirecting the growth pattern with rapid maxillary expander and chin cup treatment: changing breathing pattern from oral to nasal.

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AIM: This study was undertaken to assess the possibility of redirecting the growth pattern by using rapid maxillary expansion and a light-force chin cup for a short period of time, with limited patient cooperation, during the pre-growth and growth-spurt stages.

METHODS: The study included a series of 60 patients, 24 males and 36 females from 7 to 14 years of age, with crossbite or midfacial deficiencies. Treatment involved wearing a chin cup 24 hours a day to force mouth closure during rapid maxillary expansion activation, which was 2 turns per day to rapidly expand the midpalatal suture and enhance nasal breathing. Lateral cephalograms and intraoral and facial photographs were taken 2 years before treatment, at the time of rapid maxillary expansion, 3 weeks following rapid maxillary expansion activation, 3 months after the cessation of rapid maxillary expansion activation, and 1 to 3 years post-rapid maxillary expansion activation. **RESULTS:** Despite the severity, the crossbite would always improve within 21 days following rapid maxillary expansion activation. The cephalograms and photographs demonstrated forward movement of the nasal bridge and maxilla, with backward rotation of the mandible. The bite depth remained nearly the same as pretreatment. **CONCLUSION:** The results suggested that 24 hours of light-force chin cup wear, while expanding the midpalatal suture, is the major factor to force mouth closure and enhance nasal breathing. As a result, there is advancement of the maxilla, avoidance of tongue encroachment upon the mandible, and deceleration of horizontal mandibular growth.

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