

Class II malocclusion treatment using high-pull headgear with a splint: A systematic review

Helder B. Jacob¹, Peter H. Buschang², Ary dos Santos-Pinto³

Editor's summary

Class II malocclusion can be of dental and/or skeletal origin, involving mandibular deficiency, maxillary excess, or a combination of both. In patients presenting vertical growth and Class II malocclusion it is necessary to control the vertical effects of the applied mechanics. High-pull headgear (HPHG) is one of the most common appliances to handle this problem, mainly when it is associated to an occlusal splint. To date, the treatment effects of HPHG have not been systematically studied. This way, the purpose of this study was to systematically review clinical studies that have evaluated how HPHG with an occlusal splint affects Class II hyperdivergent growing patients.

Electronic literature survey was performed covering the period from 1966 to 2008 and a total of 442 studies were identified. Only randomized controlled trials (RCTs) or non-randomized controlled trials were included. Modified diagrams based on pitchfork analysis were used to summarize the rotations,

displacements and tooth movements associated with the HPHG treatments. Rotations were based on the angular changes of the palatal plane and mandibular plane. Vertical and horizontal tooth movements were based on maxillary and mandibular superimpositions.

Based on the information provided in the titles and abstracts of the 442 articles identified, only four studies met the inclusion criteria. All studies showed significant posterior displacement of the maxilla and distalization of the maxillary molars. Inconsistencies in the maxillary teeth were described regarding molar intrusion and retroclination of the incisors. None of the articles showed effects on the anteroposterior position of the mandible. Only one of three studies that evaluated the palatal plane angle showed significant backward (clockwise) rotation between treated and control groups. In general, studies have shown that HPHG with occlusal splint is effective to redirect or restrict maxillary growth. The HPHG produced improvement in skeletal and dental anteroposterior relationship, but had no influence on the vertical relationship.

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¹ PhD in Orthodontics, FOAr/UNESP. Post-Doc in Orthodontics, Texas A&M Health Science Center.

² Professor, Baylor College of Dentistry, Texas A&M Health Science Center.

³ Professor, Department of Orthodontics, FOAr/UNESP.

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Contact address: Helder Baldi Jacob
3302 Gaston Ave – Baylor College of Dentistry
Department of Orthodontics
75206 Dallas/TX – USA
E-mail: hjacob@bcd.tamhsc.edu