

Letters to the editor*

Vertical dimension of the face: Result of four premolar extractions or posterior teeth position

We have read and discussed with great interest the article entitled "Effect of orthodontic treatment with four premolar extractions compared with nonextraction treatment on the vertical dimension of the face: A systematic review" (Kouvelis G, Dritsas K, Doulis I, Kloukos D, Gkantidis N. *Am J Orthod Dentofacial Orthop*. 2018; 154:175-87), in which the authors searched for scientific evidence of the relation between the 4 premolar extractions during orthodontic treatment and variations on the vertical dimension of the face.

In this systematic review, the authors based their strategy of research and evaluation of selected studies on orthodontic treatment with 4 premolar extractions and vertical cephalometric dimensions (ie, SN-GoGn, FMA, ANS-ME) obtained before and after orthodontic treatment. The conclusion was that "an extraction treatment protocol aiming to reduce or control the vertical dimension does not seem to be an evidence-based clinical approach."

However, in patients who had orthodontic treatment not associated with orthognathic surgery, vertical cephalometric alterations indicate rotation in the mandibular plane,¹ resulting from vertical or mesiodistal movement of upper and inferior molars.² Acknowledgment of the relevance of molar position can be seen in the clinical studies included in the systematic review, which described mesial movement (8 studies) and extrusive movement (4 studies) of such teeth after treatment with premolar extractions.

Thus, in treatment protocols for hyperdivergent patients, whose vertical skeletal dimensions are critical in treatment planning, the orthodontist must pay attention to, among other things, the mesiodistal and vertical positions of the posterior teeth during the treatment. Indication for teeth extractions must be considered as an auxiliary means of obtaining space in the dental arches, aiming to reach proper alignment of the teeth³ or control the inclination of mandibular incisors,⁴ both crucial elements to improve facial esthetics.

Full control of tooth movement and reduction of collateral effects on other teeth promoted by temporary

anchorage appliances⁵ have made extractions unnecessary in some treatments, increasing the relevance of comprehending the role played by molar position in the vertical dimension of the face when planning and executing orthodontic treatment.

Therefore, we think that a systematic review could be more effective in identifying the factors related to vertical facial alterations if done through the analysis of studies evaluating the variations in the position of posterior teeth during orthodontic treatment instead of whether or not there were 4 premolar extractions.

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Authors' response

We highly appreciate the interest of our colleagues in our study. The purpose of our review¹ was to assess the clinically relevant outcomes related to the vertical dimension of the face as affected by extraction versus nonextraction treatment protocols. The authors of the letter suggested that the review should have focused on the evaluation of anteroposterior and vertical molar movements due to treatment and growth and not on the effects on the vertical dimension of the face.

They support their view on non-evidence-based opinions, and thus their concerns are not well grounded.

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