

Letters From Our Readers

To: Editor, *The Angle Orthodontist*

Re: Airway and cephalometric changes in adult orthodontic patients after premolar extractions. Adrienne Joy, Joorok Park, David William Chambers, Heesoo Oh. *Angle Orthod.* 2020; 90: 39-46.

We read this article with great interest. The authors concluded that there was no evidence that extractions in nongrowing patients had negative consequences on various airway measures in the nasopharynx, retro-palatal, or retroglossal regions. However, we still have a few questions regarding this article.

1. In the extraction group, patients were included who had at least two premolars extracted, including six patients with only upper premolars extracted and 35 patients with four premolars extracted. However, Kim et al.¹ reported that extraction of upper premolars decreased the pharyngeal airway space more in patients than in participants in a nonextraction group, while Zhang et al.² concluded that the airway changes in the four premolar extraction group were mainly morphologic changes rather than a decrease in size. These studies indicated that different premolar extraction strategies (especially extraction only on the upper and extraction on both arches) might be confounding factors for assessing pharyngeal airway changes. Therefore, can you explain more clearly whether you think this might have been a possible confounding factor in the study? Did you evaluate whether the extraction pattern affected the results?

2. The article described previous studies showing that large retraction of the incisors after premolar extraction with maximum anchorage resulted in de-

creased upper airway volume, whereas airway dimensions increased following extractions as a result of severe crowding with minimum anchorage space closure. However, in this study, the sample characteristics regarding initial crowding between the groups were not matched: the extraction group included 24 patients with severe crowding while the control group contained 28 patients with moderate crowding. Could this possibly have resulted in different effects on airway space changes in each group? Therefore, is it possible to consider coordinating the patient proportions regarding the variable of initial crowding, or would conducting additional subgroup analyses regarding the initial crowding be better to clarify the effect of premolar extraction on pharyngeal airway changes?

Thank you for conducting this study that raises interesting questions to discuss.

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REFERENCES

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2. Zhang J, Chen G, Li W, Xu T, Gao X. Upper airway changes after orthodontic extraction treatment in adults: a preliminary study using cone beam computed tomography. *PLoS One.* 2015;10(11):e0143233.