

## Letters From Our Readers

**To: Editor, *The Angle Orthodontist***

**Re: Response to: 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 thank Drs. Xiaolong Li and Wenli Lai for their insightful comments and questions regarding our article. The following are responses to the points that were made.

1. We did not evaluate the effects of different extraction patterns in our study because the sample size for patients who had only upper premolars extracted was not large enough to warrant a separate analysis. However, we ran an additional analysis using a subgroup of the extraction sample that excluded the six patients with upper bicuspid extractions only, which showed no change in the final result. We agree with Drs. Li and Lai that there are some contradictory findings in the literature concerning the effect of extractions on airway dimensions. However, the article by Kim et al.<sup>1</sup> specifically investigated Class III skeletal patients with mandibular prognathism and compared patients who had upper premolar extractions with those who had no extractions. Additionally, all patients in their study were treated with bimaxillary orthognathic surgery. Airway dimensions were evaluated before treatment as well as 2 months and 6 months after surgery. Therefore, the surgery itself was a significant confounding factor that would greatly influence airway dimensions in their study. Based on their study, it cannot be determined whether extraction of premolars alone or orthognathic surgery was the cause of the changes in airway dimensions since no presurgical airway dimensions were evaluated.
2. As Drs. Li and Lai pointed out, there was a significant difference in initial crowding between the extraction and non-extraction groups in our study. An effort was made to match the groups as

closely as possible based on age, sex, and Angle classification. However, due to the nature of our study, which was a retrospective study of adult patients who came to our clinic for orthodontic treatment, we were not able to match the groups based on initial crowding. Extractions are typically used to resolve crowding. However, a decision for extraction or nonextraction treatment also considers many other important factors, such as overjet, molar relationship, skeletal/dental asymmetry, incisor inclination, presence of nonrestorable teeth, impacted teeth, etc. In addition, conducting a study in which initial crowding was matched between extraction and non-extraction groups would bring up ethical problems and issues with patient informed consent; not only would premolars be extracted in patients who had minimal crowding and could have been treated without removing teeth, but aligning teeth without extraction in patients with severe crowding could cause potential periodontal problems.

In the present study, there were some meaningful changes in the positions and inclinations of the incisors with an extraction approach, which included the incisors being about 2 mm more posteriorly positioned compared with the incisors being about 1 mm more anteriorly positioned with a nonextraction approach. However, these changes did not seem to contribute to any airway dimensional changes.

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### REFERENCE

1. Kim MA, Park YH. Does upper premolar extraction affect the changes of pharyngeal airway volume after bimaxillary surgery in skeletal Class III patients? *J Oral Maxillofac Surg.* 2014;72:165.e1–165.e10.