In the studies included in our review, a greater mesial movement of the posterior teeth is expected in all extraction groups, compared with nonextraction, because no specific anchorage measures were taken in any of the studies to avoid this. Indeed, although this was outside the scope of our review, it was verified by studies included in our review[2-6] as well as by a study cited by the authors of the letter.[7] All of these studies did not identify any effect in the vertical dimension of the face, despite the differential mesial molar movement in the compared groups. The vertical molar movement was not tested in most of the studies and was not assessed in our review because in our opinion the clinically relevant outcome regarding the decision for extractions is the vertical dimension of the patient's face and not the vertical molar position.

Based on the above considerations, we argue that a systematic review as the one suggested in the letter would still lead to conclusions that are similar to ours and would not add any further knowledge on the topic. However, if the authors insist on their subjective claims and think that such a review would be useful, they are always free to perform it themselves.

With kind regards,

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Determining condylar bone density in adolescents: An inconclusive cone-beam computed tomographic study

In an article in the September issue of the journal, Kim et al attempted to determine the condylar bone density in different age groups and various skeletal patterns. (Kim KJ, Park JH, Bay RC, Lee MY, Chang NY, Chae JM. Mandibular condyle bone density in adolescents with varying skeletal patterns evaluated using cone-beam computed tomography: A potential predictive tool. Am J Orthod Dentofacial Orthop 2018;154:382-9). We appreciate the efforts of the authors and thought it was a great attempt to explore some unknown findings about condylar bone density, but certain points need to be addressed.

As mentioned in the text, "The bone density of the mandibular condyle is affected by the functional pressure generated by the occlusion and the mandibular movements that are, in turn, influenced by the properties of the masticatory muscles and age." Also, "Skeletal pattern is thought to be closely related to occlusal force." Thus, the authors mentioned that age, sex, and occlusion type (Class I, II, III) affects the condylar bone density. But they do not mention confounding factors, which could alter the results of the study. For example, they did not mention the number of hyperdivergent, hypodivergent, or normovergent cases when the subjects were divided into Classes I, II, and III; the number of cases of hypodivergent subjects in Classes I and II might vary. Facial height ratio (which might be the actual factor responsible for variation of condylar bone density) acts as a confounding factor and can give us biased results. Also, the numbers of boys and girls in the Class I, II, and III groups were not the same, so sex as a confounding factor affects the result.

Similarly, when the authors divided the subjects into hypodivergent, normovergent, and hyperdivergent groups, the number of Class I, II, and III cases and the sex of the subjects can act as confounding factors.[1] Nor did the authors mention the different adolescent age groups in the hyperdivergent and Class II groups versus other groups. It is quite possible that the results, which showed higher condylar bone density in Class II and hyperdivergent groups, might be due to a greater number of late adolescent subjects in these groups.

Another important point to be noted in the study is that the standard deviation is more than the difference between bone density in different groups.[2] The authors did not mention the 95% CIs. *P* value and CIs are common statistical measures that provide complementary information about probability and conclusions regarding the clinical significance of the study.[3] Therefore, if we calculate the CIs, the values of the bone density would overlap within different groups and make the results less clinically significant.

The value of difference in bone density of the different groups are very close to each other. For example, as mentioned in Table IV, total bone density difference in Class 1 and Class II is just 13 HU; when the samples are improperly distributed in terms of sex or age, that raises questions about clinical significance. Similarly, in Table III, normovergent and hyperdivergent groups have a difference of 21 HU in total bone density. The authors described the results to be statistically significant, but clinical significance of the results is doubtful.

Thus, the results can not be held as conclusive as stated in the conclusion of the article. These might be factors causing different bone densities, but again, the results can not be held as conclusive.

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Authors' response

Thank you very much for your interest in our article. We truly appreciate your insightful questions and valuable suggestions. We agree that all of the factors listed can influence condylar bone density, and that they may interact with one another in doing so. Optimally, a full factorial analysis would be conducted on these data. Unfortunately, this type of analysis requires a very large data set. When we attempted to combine predictors, the matrices contained a number of very small groups, and even some empty cells. This might have been acceptable if our predictors were continuous, but they are categoric, and empty cells do not support a sound analysis, Therefore, we chose to compartmentalize and separate the analysis to one of "main effects."

The numbers of subjects in the hyperdivergent, normovergent, and hypodivergent groups were provided in Table I, and the breakdowns for sex and age were also reported in the table. In a study with so many predictors, it is not possible to balance sample sizes across all predictors. Balancing cell sizes would optimize the power of the study, so the *P* values estimated are conservative.

We thank Drs Jain and Saifee for reminding us that there is an important difference between statistical and clinical significance. The results we reported are accurate, but the clinician must decide if they are relevant in a clinical context. For example, they note that, "In Table IV, total bone density difference in Class I and II is just 13 HU; when the samples are improperly distributed in terms of sex or age, that raises questions about clinical significance." Indeed, the reported mean (SD) and *P* values are accurate. The overall (omnibus) test for the total revealed a statistically significant difference across all groups ($P = 0.004$). The difference of 13 HU between Class I and Class II was not significantly significant. As indicated in the footnote to Table IV, the only