participants in each group, further stratification was not possible.

Generally, we notice an increased demand for post-analyzing data by building subgroups. What if we look at only the patients with open bite tendency? Or the ones with deep bite? Or Class II and deep bite? Do we find statistically significant differences?

From the statistical point of view, this so-called "*P* hacking" is not a proper approach.[16] One has to keep in mind that every trial starts by formulating a scientific question that is then converted into a hypothesis and a sample size calculation. This is the question that the data are meant to answer. By looking too much into subgroups, the trial becomes underpowered and we face the problem of multiple comparisons and mass significance.

Finally, we agree with the authors of the letter to the editor: The value of the molar block shall not be ignored. It is easy to use and can be combined with other traditional ways to reinforce anchorage. We do this every day, and we chose the molar block as a comparator because it is such a convenient way to increase anchorage. At least we think that we increase anchorage.

Our results should be taken for what they are: One trial indicating that this technique is possibly not as powerful as we want to believe. However, before we can say "the truth about the molar block is …," further research is needed. This is the core of evidence-based orthodontics: to critically evaluate what we are doing.

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REFERENCES

1. Drummond MF, Sculpher MJ, Claxton K, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. 4th ed. Oxford: Oxford University Press; 2015.
2. McLaughlin RP, Bennett JC, Trevisi HJ. Systemized orthodontic treatment mechanics. Mosby; 2002.
3. Samuels RH, Rudge SJ, Mair LH, Mair LH. A comparison of the rate of space closure using a nickel-titanium spring and an elastic module: a clinical study. Am J Orthod Dentofacial Orthop 1993;103:464-7.
4. Dixon V, Read MJF, O'Brien KD, Worthington HV, Mandall NA. A randomized clinical trial to compare three methods of orthodontic space closure. J Orthod 2002;29:31-6.
5. Nattrass C, Ireland AJ, Sherriff M. An investigation into the placement of force delivery systems and the initial forces applied by clinicians during space closure. Br J Orthod 1997;24:127-31.
6. Tripolt H, Burstone CJ, Bantleon P, Manschiebel W. Force characteristics of nickel-titanium tension coil springs. Am J Orthod Dentofacial Orthop 1999;115:498-507.
7. Mohammed H, Rizk MZ, Wafaie K, Almuzian M. Effectiveness of nickel-titanium springs vs elastomeric chains in orthodontic space closure: a systematic review and meta-analysis. Orthod Craniofacial Res 2018;21:12-9.
8. Nightingale C, Jones SP. A clinical investigation of force delivery systems for orthodontic space closure. J Orthod 2003;30:229-36.
9. Bokas J, Woods M. A clinical comparison between nickel titanium springs and elastomeric chains. Aust Orthod J 2006;22:39-46.
10. Oshagh M, Ajami S. A comparison of force decay: elastic chain or tie-back method? World J Orthod 2010;11:e45-51.
11. Mohammadi A, Mahmoodi F. Evaluation of force degradation pattern of elastomeric ligatures and elastomeric separators in active tieback state. J Dent Res Dent Clin Dent Prospects 2015;9:254-60.
12. Ganzer N, Feldmann I, Petrén S, Bondemark L. A cost-effectiveness analysis of anchorage reinforcement with miniscrews and molar blocks in adolescents: a randomized controlled trial. Eur J Orthod 2018: Epub.
13. Ganzer N, Feldmann I, Bondemark L. Anchorage reinforcement with miniscrews and molar blocks in adolescents: A randomized controlled trial. Am J Orthod Dentofacial Orthop 2018;154:758-67.
14. Ganzer N, Feldmann I, Bondemark L. Pain and discomfort following insertion of miniscrews and premolar extractions: a randomized controlled trial. Angle Orthod 2016;86:891-9.
15. Silcocks P. How many strata in an RCT? A flexible approach. Br J Cancer 2012;106:1259-61.
16. Hawkes N. Sixty seconds on … *P*-hacking. BMJ 2018;362:k4039.

Three-dimensional observations of the effects of third molars on orthodontic treatment

Many scholars have described the relationship between third molar eruption and posterior discrepancy, but there is no consensus by orthodontists. Therefore we read the article by Aliaga–Del Castillo et al in the October 2018 issue with great interest (Aliaga–Del Castillo A, Janson G, Arriola-Guillén LE, Laranjeira V, Garib D. Effect of posterior space discrepancy and third molar angulation on anterior overbite. Am J Orthod Dentofacial Orthop 2018;154:477-86). Although the authors provided an excellent counterexample to Sato's[1] classic theory, we have several questions.

First, although the authors emphasized that the target of their discussion was the anterior overbite rather than the third molar, and they included samples that shared a mean age of 14.53 ± 2.53 years (which is not the age of third molar eruption but just after second molar eruption), these points should not interfere with their results. At this stage, the third molars are still soft dental bulbs and alveolar bone development is ongoing,

which means that the extent of posterior discrepancy will change in an unpredictable manner during aging. Previous studies have reported that during the development of the third molars in the preeruptive period, changes observed in the sagittal projection continue to occur.[2,3] It is therefore difficult to assess the extent of significant effects of third molar angulation on overbite using such unstable parameters.

Second, only a single researcher (A.A.D.C.) performed cephalometric tracings rather than 2 or more researchers. Although the number of samples was sufficient (131/40), the lack of observer bias control is a critical oversight.

Third, although 2-dimensional tracing is a classic method to assess the direction of third molar eruption, measuring 3-dimensional objects with the use of 2-dimensional images leads to unavoidable errors.[4] To improve the reliability of such measurements, direction of eruption should be analyzed 3-dimensionally. Because cone-beam computed tomography (CBCT) is already widely used in the clinic, 3-dimensional images can be obtained.

For the reasons mentioned above, we encourage researchers studying third molar eruption to use CBCT 3-dimensional images and several observers.

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REFERENCES

1. Sato S. Alteration of occlusal plane due to posterior discrepancy related to development of malocclusion—introduction to denture frame analysis. Bull Kanagawa Dent Coll 1987;15:115-23.
2. Phillips C, White RP Jr. How predictable is the position of third molars over time? J Oral Maxillofac Surg 2012;70(9 Suppl 1):S11-4.
3. Sandhu S, Kaur T. Radiographic study of the positional changes and eruption of impacted third molars in young adults of an Asian Indian population. J Oral Maxillofac Surg 2008;66:1617-24.
4. Nguyen T, Cevidanes L, Franchi L, Ruellas A, Jackson T. Three-dimensional mandibular regional superimposition in growing patients. Am J Orthod Dentofacial Orthop 2018;153:747-54.

Authors' response

We are pleased that our article has generated comments from *AJO-DO* readers. Thank you for your interest and for the opportunity to address your concerns.

Primarily the authors state that the mean age of the study was not ideal because the extent of posterior discrepancy will change in an unpredictable manner during aging and therefore it would be difficult to assess the extent of significant effects of third molar angulation on overbite with the use of such unstable parameters.

First, open bite severity is usually established at an early age, when even the third molar buds have not been yet formed.[1-4] Second, the amount of an open bite established in a patient with permanent dentition does not significantly tend to change with time.[2] Third, the statement that the extent of posterior discrepancy will change in an unpredictable manner during aging may be valid individually but not for a group. Therefore, generally, a group of subjects that have a proportionally greater amount of posterior space discrepancy than another at a mean age of 14.53 $\pm$ 2.53 years would tend to show the same comparatively greater proportion later. Besides, Sato uses in his posterior discrepancy explanations, eruptive diagrams of subjects without even the second molars erupted.[5,6] For these reasons, the age of the subjects was adequate and demonstrated that his theory could not be supported. These facts show that posterior discrepancy can not be assumed to have a cause-effect relationship with open bite severity, because open bite severity is established before development of the third molars. We can only state that posterior discrepancy and third molar angulation are certain characteristics associated with the amounts of overbite. This study showed that most of the characteristics have associations that are opposite to the posterior discrepancy theory.

Regarding the second concern, statistically, there is no problem in having only 1 experienced examiner performing the tracings, as long as the error study does not demonstrate significant errors.[7] Usually, 2 examiners are used when data are very large to be obtained by only 1 examiner or when reproducibility of a method is tested.[8-12] Most recent orthodontic investigations have used only 1 examiner.[13-17] The current error study was adequately performed and showed random errors within acceptable limits and no significant systematic errors.[7,18]

The sagittal and vertical effects of posterior discrepancy explained by Sato's theory were based on 2-dimensional views.[5,6] Therefore, it would be more than logical to investigate this theory on the same type of view. If this theory is expanded to 3-dimensional views, then cone-beam computed tomography should be used to investigate them.

Thank you for your comments.

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