**Open response questions**

Comments concerning methodology

*intended for the author*

Anatomical Nomenclature, institutional abbreviations and the methods used to delineate horizontal (e.g. 3D printed Xenoposeidon models, the rolled up paper method, as well as a brief description of the 4 definitions of horizontal) should be compiled to form a ‘Materials and Method section’.

This work is almost entirely qualitative and would benefit from some more quantitative measures of variation to compare between methods of assigning ‘horizontal’. Perhaps comparing multiple quantitative measures of vertebral anatomy across a range of organisms/vertebral regions would enhance the findings of this paper.

Comments concerning results and conclusions

*intended for the author*

The more comparative aspects of the 4 definitions should be moved to a ‘Results’ section and the remainder of the manuscript from ‘Comparison of definitions’ onwards should be combined to form a ‘Discussion’ section.

General comments to authors

*intended for the author*

Overall this is a worthwhile research question and will have broader implications in taxonomy, morphometrics and biomechanical studies focused on the axial column. The current manuscript, however, requires restructuring and a tonal shift in order to portray a concise argument about how to best orientate vertebrae for analysis. In it’s current iteration the manuscript reads akin to a blog post and would benefit immensely from a restructure to fit a more traditional journal publication format (Introduction, Material and Methods, Results, Discussion). This similarity to a blog post is echoed in the current manuscript’s tone and scope. The central motivation for the project appears to be hinged on reviewer comments from a previous publication, whilst this is a realistic and valid way of generating hypotheses, making it the focal point of the submission is detrimental to the paper. This focus reduces the impact of the findings as the introduction doesn’t introduce the reader to wider problems that this publication may solve (e.g. biomechanical measurements that are mentioned much later in the manuscript). It also sets an informal precedent for the tone of the entire manuscript which leads to unnecessarily specific callouts of previous work (Saegusa & Ikeda 2014), and odd inclusions about mugs which are best excluded from journal publications.

Some general suggestions for improvement are suggested herein. The overall focus of the paper should be shifted away from addressing reviewers comments from Taylor 2018b. This should entail the replacement of much of the commentary on the review process of Taylor 2018b with wider implications for the field (biomechanical measurements, taxonomic character states etc.), both in the introduction and in the discussion. The rest of the manuscript should be restructured in a more traditional manner. Anatomical Nomenclature, institutional abbreviations and the methods used to delineate horizontal (e.g. 3D printed Xenoposeidon models, the rolled up paper method, as well as a brief description of the 4 definitions of horizontal) should be compiled to form a ‘Materials and Method section’. The more comparative aspects of the 4 definitions should be moved to a ‘Results’ section and the remainder of the manuscript from ‘Comparison of definitions’ onwards should be combined to form a ‘Discussion’ section. Currently there are too many figures and this leads to unnecessary bouncing between pages. There are many instances where one point is illustrated by two or three figures which are spread over multiple pages, (e.g. Figures 5, 6 and potentially 7 could be combined). By combining these figures the flow of the manuscript is improved and the comparisons that you draw upon to illustrate the advantages and disadvantages of particular methods are more easily identifiable. This work is almost entirely qualitative and would benefit from some more quantitative measures of variation to compare between methods of assigning ‘horizontal’. Perhaps comparing multiple quantitative measures of vertebral anatomy across a range of organisms/vertebral regions would enhance the findings of this paper. Finally the general tone of the paper should be aligned with traditional journal publications, dropping informal references and colloquialisms.

If you wish to reveal your name to the authors, please print it here

*intended for the author*

Ryan D. Marek

**Rating scale questions**

|  | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| --- | --- | --- | --- | --- | --- |
| The paper makes a significant contribution to scholarship.  *intended for the author* |  |  |  | ✔ |  |
| This contribution is of broad international interest.  *intended for the author* |  |  | ✔ |  |  |
| The paper is professionally written, easy to read and free from grammatical or spelling errors.  *intended for the author* |  | ✔ |  |  |  |
| The research methodology for the study is appropriate and applied properly.  *intended for the author* |  |  | ✔ |  |  |
| The subject or concept is developed enough to be worth reporting.  *intended for the author* |  |  |  | ✔ |  |
| Data are sufficient to support the interpretations presented.  *intended for the author* |  |  | ✔ |  |  |
| This article adequately engages with the relevant scholarly literature.  *intended for the author* |  | ✔ |  |  |  |
| The literature review was thorough given the objectives and content of the article.  *intended for the author* |  | ✔ |  |  |  |
| The title reflects the content of the manuscript.  *intended for the author* |  |  |  | ✔ |  |
| The abstract presents the main conclusions of the manuscript.  *intended for the author* |  |  |  | ✔ |  |
| The keywords are appropriate.  *intended for the author* |  |  |  | ✔ |  |
| Illustrations are adequate.  *intended for the author* |  |  |  | ✔ |  |
| Can illustrations be condensed or eliminated without compromising the scientific information of the article?  *intended for the author* |  |  |  | ✔ |  |
| Figure captions are clear and concise.  *intended for the author* |  |  | ✔ |  |  |

**Reviewer attachments**

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|  | [27649-anonymized-attachment-for-review-181586.docx](http://app.scholasticahq.com/api/v1/attachments/27649/download) *only editors will see attachment* |