Response to Opponent's Report on PhD thesis "*Effect of footwear drop on running biomechanics and finite element analysis in recreational runners*"

Dear Dr. Zhang Yan,

Thank you for your report for my PhD thesis, entitled "***Effect of footwear drop on running biomechanics and finite element analysis in recreational runners***". Your insightful comments and suggestions have provided me with a clear direction for improvement and have been immensely helpful in refining my work.

After a thorough review of your feedback, I have taken the time to carefully revise the manuscript, addressing each point you raised. In the following paragraphs, I will outline the specific changes and enhancements I have made in response to your comments.

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Specific questions

1. *As to the finite element model validation, do you use node force or area force to compute ground reaction force?*

Answer:

In our finite element model validation for the study of foot biomechanics, I utilized node force to compute ground reaction force. This approach involves applying forces directly at the nodal points of the finite element mesh. By using node force, I am able to more accurately replicate the localized points of contact between the foot and the ground, which is critical in studies of foot biomechanics during activities such as walking or running.

Node forces allow for a detailed representation of how forces are distributed across the contact area, providing insights into specific areas of stress and strain within the foot. This is particularly important when studying the intricate interactions between different parts of the foot and the ground, as well as the internal stresses within the foot's tissues.

It's important to note that while node force provides high resolution in terms of force application and is suitable for detailed biomechanical analyses, the choice between node force and area force should be guided by the specific objectives and requirements of the study, as well as the capabilities of the finite element model being used.

2. *Please confirm which tool ANSYS or ANSYS Workbench you used and uniform in the whole text.*

Answer:

In this study, I utilized ANSYS Workbench for the finite element analysis. I have ensured consistency in referencing this software tool throughout the entire text of our manuscript. ANSYS Workbench was chosen due to its advanced user interface, integrated environment, and comprehensive capabilities, which are particularly beneficial for complex analyses like those involved in biomechanical modeling.

I have carefully revised the manuscript to confirm that all mentions of the software are uniformly referred to as "ANSYS Workbench" to maintain clarity and consistency. This uniformity in the text helps to avoid any confusion regarding the specific software tools used in our analysis.

3. *In the table 5, some parameters are described by full spelling and some using abbreviations. Please uniform in a same way.*

Answer:

Thank you for pointing out the inconsistency in Table 5 regarding the use of full spellings and abbreviations for the parameters. To ensure clarity and uniformity, I have revised the table so that all parameters are presented consistently. I have decided to use full spellings for all parameters to avoid any potential confusion that might arise from the use of abbreviations, especially for readers who may not be familiar with all of them.

This revision will enhance the readability and comprehension of the table, making it easier for readers to understand the parameters involved in our study. The updated Table 5 in the manuscript now reflects these changes.

4. *The subtitle 3.1.2 is required to be revised. I suggest replacing it as "Torque and power."*

Answer:

Thank you for the suggestion to revise the subtitle of section 3.1.2. Based on your recommendation, we have changed it to "Torque and Power." This new subtitle more accurately reflects the content of the section, which focuses on the analysis of torque and power aspects in the context of our study. The manuscript has been updated to incorporate this change, ensuring that the titles and subtitles are more descriptive and relevant to their respective sections.