**Author’s response to reviews**

**Title:** Exploring mechanisms of fatigue during repeated exercise and the dose dependent effects of carbohydrate and protein ingestion: study protocol for a randomised controlled trial

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**Author’s response to reviews:** see over
We would like to express our gratitude to the reviewer’s comments and positive feedback. We are also grateful for the reviewer’s permission for his input regarding TTE. Provided below are point-by-point responses with associated amendments to the manuscript. The changes that are not related to grammar and punctuation have been highlighted in yellow font and underlined. The changes in response to point number 2 by the reviewer have been made with ‘tracked changes’.

Reviewer’s report:

2. There are still a number of grammar and punctuation errors (including errors in the use of tense) that the authors might want to correct before publication. Although I’m sure these will be addressed by the journals typesetter, the authors might want to address the errors on lines 65, 76, 93, 109, 164, 232, 240, 244, 248, 252, 267, 275, 288, 292, 297-298, 330-331, 341, 383, 419, 441, 443, 457, 461, 475, 482, 492, 520, 555, 643, 661, 662, 707, 708x2, 710, 736, 740, 765.

We have attempted to address the minor errors mentioned by the reviewer throughout this revised manuscript and hope that these will be satisfactory.

3. I think I missed the point here when I originally reviewed the manuscript. It is now clear. The TTE data seems very reproducible (~3.5% CV) and if this continues for phase 2 of the study I would encourage the authors to present this data in some way in the scientific literature. At present there seems to be the assumption that all TTE measures lack reliability and your data seems to demonstrate that with rigorous control and familiarisation reproducibility can be good.

We would like to thank the reviewer for this comment and agree that there is a need to demonstrate that TTE measure can be reliable with rigorous control and familiarisation. We certainly appreciate the reviewer’s encouragement to present this in the scientific literature. This encouragement is noted and hopefully will be presented once the study is completed.
6. Yes I am happy for you to use the sentence. I would make a few modifications to make the sentence consistent with your manuscript as follows. Replace “exercise capacity (i.e. time to exhaustion)” with “TTE tests”. Replace “runner/cyclist” with “athlete”. Replace “receding to the back of” with “falling behind”.

**With many thanks reviewer, the suggested changes have been included in the revised manuscript (lines 259-262).**

I am happy in principal with the other amendments/explanations provided by the authors, but have a couple of other minor points to make, which I have detailed below.

1. Line 163: do you mean “faster” when you say “greater”?

   **Indeed, we meant “faster”. The revised manuscript now states “accelerates” instead of “greater” (line 163 of the revised manuscript).**

2. Line 365: when you say “void if necessary” presumably you mean their bowls? As you say on the next line that they “will” provide a urine sample. Might be worth stating bowls.

   **We intended to communicate that participants emptied their bladder prior to assessment of body mass. This is the same sample urine sample obtained to assess baseline hydration. The updated version of the manuscript has now been updated to provide clarity on this point (lines 366-369).**

3. Line 393: What volume of solution will be ingested? Presumably it is prescribed in ml/kg to give the appropriate amount of carbohydrate, but I think it’s worth stating here so that readers know it’s the same volume in each trial with a modified carbohydrate content to ensure the correct ingestion rate.

   **The volume of solution provided was 10 ml/kg with both supplements. This has been added to the revised manuscript (line 398).**