

Overall Review:

The paper needs to be tightened to enhance focus and to communicate more effectively. The elements of a good study exist, but the rationale for the study in the intro needs to be expanded, especially in light of the focus in the discussion. In the intro for example, it is stated just using JH might not be sufficient to capture fatigue using the CMJ. The authors then make a brief case for including both eccentric and concentric variables citing various studies, but don't explore those findings. In the discussion, the study's data clearly suggest that concentric variables offered more insight than eccentric.

Specific Comments by Section:

Abstract:

At 360 words or so, the abstract is too long and unfocussed. There is too much background and the syntax used is not sharp, which clouds clarity.

Introduction:

The syntax is better here than the abstract, but there are myriad concerns:

Line 81 is an incomplete sentence

Line 85 is not clear. I don't think the authors are assessing the CMJ; instead they are using the CMJ to assess fatigue in sprinters after a 400 m sprint.

Lines 90-92 are valuable, but you also touch cursorily on this idea in lines 71-72 without developing fully what must be a core issue in your work, especially given your conclusion that concentric variables are more sensitive than eccentric to assess fatigue.

Line 95 you mention neural muscular fatigue. Also mentioned in lines 63-68, but you never introduce NM fatigue as part of a broader sense of fatigue. So, we want to assess fatigue to optimize training and performance. What are the sources/types of fatigue? What variables do we associate with NM fatigue? Are these things measured by the CMJ? Yes. There is just too much for the reader to fill in.

Line 115. No comma.

Line 129. How was the event timed?

Lines 132-137: Was there just one familiarization session with 8-10 CMJ or many of them.

Line 138: Maybe subheading baseline measurement.

Lines 138-154: These are really tough to follow. Indeed, sessions and tests are confusing. The figure helps a lot. Part of the issue is the different warm up used. It seems that at the start of the sprint and 24 hr later one warm up was used. In the post fatigue measurements same day, a different warm up was used. Perhaps explain why. Too late now, but a standardized warm up may have been better....

Line 159: JH is a CMJ variable.

Line 171: Just use RPE. Redundant to say rating of RPE. We didn't rate the RPE.

Line 195: first call out of jump height as JH.

Line 195: what reliability was assessed? You seem to indicate that you lumped variables to assess reliability and then report reliability at each measurement period. The table legend just says JH. So, did you assess variability in the 3 jumps for all subjects combined at each

measurement? Many times we assess reliability across days or weeks. Just don't see that here. I attached a recent paper looking at reliability of various components of the CMJ.

Results:

Much of the results duplicates the tables and figures. Can the results be summarized in that the 400 m sprint caused fatigue as various CMJ variables declined from baseline. Perhaps add a temporal component. How much improvement 24 hr later? Perhaps an interestingly section that shows data supporting concentric more impacted than eccentric? But that would be if you make the case of a difference in these categories in the intro.

Discussion:

Line 260: We used the CMJ to assess fatigue in trained sprinters following a maximum 400 m effort.

Line 266: Bold statement and no citations.

Line 270: This duplicates lines 190. Maybe make case in intro that the use of 400 m sprint is a valid way to induce fatigue in sprinters (citation). You didn't set out to test the validity of the sprint as a fatigue protocol. You just used it based on previous work. In your case, you can use the changes in CMJ variables to support previous work that a single sprint causes measurable fatigue across days. Last, the similarity in sprint times across the studies highlights the similarity of the subjects in the relative studies more than it makes a case for the validity of a sprint as a fatigue protocol. Note that Ogata isn't in the references.

Lines 294-301—make case for concentric variables but not eccentric, which doesn't mesh fully with too brief exploration of these areas in intro.

Line 311: attributed

Lines 308-318: Is there is support for greater endurance associated with eccentric contractions. Maybe in trained runners one sprint isn't enough to induce eccentric damage. If you had novel runners, yes one sprint would induce damage. Damage is not fatigue.

I think this whole area needs expanding. Clearly a single sprint caused fatigue in concentric measures, which could have been at the cross-bridge, or SR or the NMJ or the LMN or the UMN or perhaps Noake's central governor theory. In contrast, eccentric issues are related to possible effects of absorbing stretch in active spring structures.

Line 334: Where were time curves lower? Based on figures it looks like certain time periods for all subjects combined. Not clear in text.

Conclusion:

Can you recommend some variables that may be best at indicating fatigue in trained sprinters following a 400 sprint? At the end of the force curve section, you provided more concrete conclusions—practical applications than in the conclusion section.