Author's response to reviews

Title: Will the age of peak ultra-marathon performance increase with increasing race duration?

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Author's response to reviews:

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BMC Sports Science, Medicine and Rehabilitation
Editor
Prof. Stuart Goodall

Dear Prof. Goodall

MS: 2057619642134205-Revision 2

Will the age of peak ultra-marathon performance increase with increasing race duration?

We thank you for your e-mail from September 8, 2014.

Find below the answers to the questions raised by the reviewers.

All changes are marked in red in the revised manuscript.

We hope the revised manuscript will be suitable for publication in BMC Sports Science, Medicine and Rehabilitation.
Yours sincerely,
Beat Knechtle

Enclosure: Manuscript via central website
Reviewer’s report
Title: Will the age of peak ultra-marathon performance increase with increasing race duration?
Version: 2
Date: 5 September 2014
Reviewer: Jonathon Senefeld
Reviewer’s report:
The authors have appropriately addressed reviewers’ comments, and the manuscript has improved in reader clarity while retaining the original purpose of the manuscript. Below, there are several comments intended to improve the quality and impact of the manuscript. The authors utilized a similar paradigm to previous study - analyzing the age of peak performance in ultra-marathon running across event duration- in a new conceptual framework by considering time-limited events. Although the authors demonstrated the age of peak performance of athlete’s did not increase with longer race durations, this finding is novel particularly when compared to previous work demonstrating an increase in age of peak running speed with increased race distance (Zingg MA, Rust CA, Rosemann T, Lepers R, Knechtle B (2014) Runners in their forties dominate ultra-marathons from 50 to 3,100 miles. Clinics (Sao Paulo, Brazil) 69:203-211).
Answer: We agree with the expert reviewer and adapted the Introduction by using this reference.

Major Compulsory Revisions:

Introduction
The stated purpose of this manuscript was to test ‘the assumption that the athlete’s age of peak ultra-marathon performance will increase with rising distance or ascending duration of a race’. This aim has been previously addressed in distance-limited events (Zingg et al Clinics, 2014). Thus, the novelty of this manuscript should be explicitly stated. Further, the rationale to analyze time-limited events should be developed given this has been studied previously using distance-limited events.
Answer: We agree with the expert reviewer and expanded the Introduction by inserting ‘A very recent study investigating distance-limited ultra-marathons from 50 to 3,100 miles found for men that the age of peak running speed increased
with increasing race distance to ~45 yrs in 1,000 miles, whereas it decreased to ~39 yrs in 3,100 miles. In women, the upper age of peak running speed increased to ~51 yrs in 3,100 miles. However, this study lacked the direct comparison between the ages of the fastest runners for each distance and the conclusion that runners in their forties dominate ultra-marathons from 50 to 3,100 miles was based upon approximate comparisons. Apart from distance-limited races, also time-limited races do exist. Distance- and time-limited ultra-marathons are basically different since athletes in a distance-limited race have to finish within the time limit whereas athletes in a time-limited race have to cover as many km as possible within a defined time. Moreover, time-limited races offer more possibilities with races held for 6 hrs, 12 hrs, 24 hrs, 48 hrs, 72 hrs, 144 hrs (6 d) and 240 hrs (10 d). Therefore, the assumption that the age of peak ultra-marathon performance increases with increasing race distance must be verified.

Additionally, the scope of the manuscript goes beyond the stated purpose. This manuscript also analyzes the participation trends in duration-limited ultra-running events. The rationale for this analysis should be further developed.

Answer: We agree with the expert reviewer and inserted in the Introduction ‘Since most of the athletes competing in time-limited ultra-marathons were starting in the shorter distances (i.e. 50 and 100 miles) and only a small number of athletes competed in longer distances (i.e. 200 to 3,100 miles), we also analysed the participation trends for the time-limited races’.

The first paragraph of the discussion states ‘the athlete’s age of peak ultra-marathon performance did not increase with rising race duration’. However, the next paragraph of the discussion states ‘there seems to be a trend that the athlete’s age of peak performance seemed to decrease from 48 hrs to 10 d in women but to increase from 6 hrs to 48 hrs in men’. These discussion points are somewhat contradictory. Statistical analysis should determine differences in athlete’s age of peak performance rather than speculation.

Answer: We agree with the expert reviewer and changed that section to ‘Regarding the ten fastest women and men ever, the athlete’s age of the ten fastest women was different between 48 hrs and 240 hrs, but no differences were found between the other race durations. For men, the ten fastest men in 6 hrs and 12 hrs were younger than the ten fastest men in 72 hrs, 6 d and 10 d, respectively. Potential explanations for these sex differences could be (i) differences in participations trends between women and men, (ii) differences in motivation to compete between women and man, and (iii) differences in previous experience between women and men in ultra-marathon running’

Discretionary Revisions:
Table 1 includes the symbol ‘*’, but does not define the P-value associated with this symbol.
Answer: We agree with the expert reviewer and inserted * = p<0.05
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: I declare that I have no competing interests