Pitfalls in the Use of Allometry in Accounting for Differences in Body Mass in Relation to Maximal Oxygen Uptake in Trained Athletes

Reply from authors:

Dear Editor,

We thank the author of the letter to the editor for his interest in our study.1 We are enlightened and thank the author for his comments. The aim of the study was to compare the use of allometric scaling versus ratio-scaling in accounting for differences in body mass in relation to VO$_{2\text{max}}$ in male and female athletes.

It was suggested that the mass exponent generated for female athletes is the suspect. The authors revisited and re-computed the data set for the female athletes and confirm the following outcomes:

- For the female athletes, the correlation between VO$_{2\text{max}}$ and body mass (BM) was $r = 0.30$ ($P > 0.05$), affirming that there was no relationship between VO$_{2\text{max}}$ and body mass.
- We acknowledge that consequently, the correlation between the ratio-scaled VO$_{2\text{max}}$ in mL/kg BM/min, and body mass, i.e. $r = 0.71$ ($P < 0.05$) is possibly a statistical artefact.2
- The body mass exponent for the female athletes should read as $b = 0.24$, 95% CI, -0.10 to 0.56)

We agree that there are pitfalls in the use of allometry3 and we thank the author for bringing this point to the fore.

REFERENCES


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