

Discussion of “Effect of exercise-induced dehydration on circulatory markers of oxidative damage and antioxidant capacity”¹

Abolfazl Zahedi and Ali Amani-Beni

We read with great interest a recent article by Georgescu et al. (2017) entitled “Effect of exercise-induced dehydration on circulatory markers of oxidative damage and antioxidant capacity”. The authors aimed to investigate effects of hydration and rehydration by using sensitive indirect measures of oxidative stress and the antioxidant capacity response. In this study, they evaluated concentrations of plasma osmolality, Trolox equivalent antioxidant capacity (TEAC), and ferric reducing ability of plasma (FRAP) in a sample of athletes during pre-exercise, immediately postexercise, and 1 h after full rehydration. As stated in statistical analysis and also abstract of the article, the authors used 1-way ANOVA to compare differences in means of numerical variables (i.e., concentrations of plasma osmolality, TEAC, and FRAP) of different time-points of measurement. Since they investigated the same sample of participants in each group during different time-points (i.e., pre-exercise, immediately postexercise, and 1 h after full rehydration), their measurements are completely dependent (Farrokhi and Peykanpour 2017a; Farrokhi and Shirian 2017; Farrokhi et al. 2017). ANOVA and Kruskal–Wallis test are used for comparison of the means of more than 2 independent groups (Gaddis 1998; Farrokhi 2017b; Farrokhi and Arjaki 2017; Farrokhi and Peykanpour 2017b). Therefore, after assessment of the normal distribution of studied quantitative variables, including concentrations of plasma osmolality, TEAC, and FRAP, the authors must use repeated-measures ANOVA or Friedman test for comparison of the means of each variable at pre-exercise, immediately postexercise, and 1 h after full rehydration (Farrokhi 2017a; Farrokhi and Amani-Beni 2017). Furthermore, they must use Wilcoxon test and paired *t* test for comparison of concentrations of plasma osmolality, TEAC, and FRAP between 2 time-points of measurement.

Conflict of interest statement

The authors declare that they have no conflict of interest.

References

- Farrokhi, M. 2017a. Reply to: Statistical support for Sema3A and multiple sclerosis. *Gene*, **631**: 52. doi:10.1016/j.gene.2017.07.033. PMID:28711669.
- Farrokhi, M. 2017b. Sema3A and multiple sclerosis. *Gene*, **615**: 41. doi:10.1016/j.gene.2017.03.020. PMID:28322999.
- Farrokhi, M., and Amani-Beni, A. 2017. Statistical comments on “Assessment of musculoskeletal strength and levels of fatigue during different phases of menstrual cycle in young adults”. *J. Clin. Diagn. Res.* **11**: CL01. doi:10.7860/JCDR/2017/29359.10319. PMID:28892886.
- Farrokhi, M., and Arjaki, D. 2017. Statistical comments on “Cytokine and chemokine profiles in patients with Neuromyelitis Optica Spectrum Disorder”. *Neuroimmunomodulation*, **24**: 120–120. doi:10.1159/000479431. PMID:28854442.
- Farrokhi, M., and Peykanpour, F. 2017a. Statistical comments on “Salivary iron (Fe) ion levels, serum markers of anemia and caries activity in pregnant women”. *Rev. Bras. Ginecol. Obstet.* **39**: 583–583. doi:10.1055/s-0037-1605374. PMID:28783851.
- Farrokhi, M., and Peykanpour, F. 2017b. Vascular endothelial growth factor-loaded bioresorbable delivery system for pulp regeneration. *J. Endod.* **43**: 1414. doi:10.1016/j.joen.2017.05.003. PMID:28844225.
- Farrokhi, M., and Shirian, N. 2017. Statistical comments on “no seasonal variation in physical activity of Han Chinese living in Beijing”. *Int. J. Behav. Nutr. Phys. Act.* **14**: 151. doi:10.1186/s12966-017-0604-x. PMID:29100495.
- Farrokhi, M., Masoudifar, A., and Peykanpour, F. 2017. Interleukin 17 and 10 in relapsing remitting multiple sclerosis. *J. Neurol. Sci.* **378**: 63. doi:10.1016/j.jns.2017.04.044. PMID:28566181.
- Gaddis, M.L. 1998. Statistical methodology: IV. Analysis of variance, analysis of covariance, and multivariate analysis of variance. *Acad. Emerg. Med.* **5**: 258–265. doi:10.1111/j.1553-2712.1998.tb02624.x.
- Georgescu, V.P., de Souza Junior, T.P., Behrens, C., Barros, M.P., Bueno, C.A., Utter, A.C., et al. 2017. Effect of exercise-induced dehydration on circulatory markers of oxidative damage and antioxidant capacity. *Appl. Physiol. Nutr. Metab.* **42**(7): 694–699. doi:10.1139/apnm-2016-0701. PMID:28182858.

Received 12 January 2018. Accepted 16 January 2018.

A. Zahedi. Student Research Committee, Kashan University of Medical Sciences, Kashan, Iran.

A. Amani-Beni. Medical Student, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

Corresponding author: Ali Amani-Beni (email: amanibeni71@gmail.com).

¹Appears in *Appl. Physiol. Nutr. Metab.* **42**(7): 694–699 (2017) [doi:10.1139/apnm-2016-0701].

Copyright remains with the author(s) or their institution(s). Permission for reuse (free in most cases) can be obtained from [RightsLink](https://www.rightslink.com).