Reviewer’s report

Title: Comparison of left ventricular mechanics in runners versus bodybuilders using speckle tracking echocardiography

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Reviewer: Adrian Borges

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The aim of the study was to determine the value of new echocardiographic techniques (2D speckle tracking) in comparison of routine measurements to distinguish between athlete’s heart in marathon runners and bodybuilders. The authors could demonstrate a similar global radial strain (GRS), a decreased global longitudinal strain (GLS) in runners, decreased global circumferential strain (GCS) in bodybuilders. There was a significant correlation between GLS and end-diastolic volume (in runner group) and between GCS and LV mass (bodybuilder group).

They concluded that deformation parameters could demonstrate different pattern of LV mechanics in different groups.

This is a well-designed study with an interesting and important question.

There are some considerations needed to be addressed:

1. Is the statistic power of the study high enough for the conclusion? As the authors discussed: the number of persons in each group is very low
2. They might use multivariate statistical testing, because of heterogeneous groups and different parameters, which could affect 2D strain measurements
3. The major limitation of this study and other studies like this is that it is hardly possible to document either misuse or non-usage of anabolic androgenic steroids (esp. in the group of bodybuilders) by any lab test. Another problem is that prescription of these drugs to athletes is unethical and illegal so they prepare anabolic steroids from different sources with different drugs, different doses and different potencies.
4. The authors should compare groups according to height and weight and gender to exclude the effects of this parameters
5. It might be useful to demonstrate for the reviewers and later for the readers some examples of pictures and video sequences of different groups (3 examples of each group).

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I have no competing interests in relation to this paper.