Reviewer’s report

Title: High-intensity compared to moderate-intensity training for exercise initiation, enjoyment, adherence, and intentions: an intervention study

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Reviewer: Walker Poston

Reviewer’s report:

This is an interesting manuscript addressing the efficacy of a HIFT intervention (CrossFit) that is growing in popularity in the US and internationally compared with traditional exercise recommendations on both behavioral and health outcomes. Data like this are important given the growth of HIFT programs and the potential for HIFT interventions for improving health outcomes while reducing participant burden because HIFT programs tend to have lower training volumes. While I am very enthusiastic about the data presented in this paper, a number of issues should be addressed by the investigators to improve the clarity of the presentation.

Major Compulsory Revisions:

In the abstract and the methods, the “dose” of both interventions is not entirely clear to me. Did the ART participants complete 3 training sessions or aerobic training and an additional 2 days of resistance training, or did they add resistance training to their aerobic workouts on 2 of the 3 training days? Also, the authors note that while the actual workout training time for HIFT was low (5-30 minutes), they state that the total session time was 60 minutes and they provide details about the remaining time spent in warm-ups, cool downs, stretching, etc. Did the ART participants also engage in these other activities, thus making their actual session times longer than the 50 minutes noted in the abstract and methods? Was the time spent in these other activities standardized across conditions (I would assume this is the case because ART interventions also require warm-ups and cool down periods, for example)? If so, please also provide the details of the activities and time required for them. The investigators also note in the abstract and methods that the study was a stratified and randomized study and that participants were stratified on age and BMI. Do they mean they were matched based on these criteria (age and BMI) and then randomized? Stratification usually has more to do with recruiting and randomizing within categories of age and/or BMI, which they also could have done, but the description is not clear in the paper.

In the introduction, the investigators never review any of the studies that have been done on this particular type of HIFT (CrossFit), but there are several recent studies that they could mention in both the introduction regarding health outcomes and in the discussion pertaining to injury. These papers include: 1) Hak et al. The nature and prevalence of injury during CrossFit training. Journal of
Strength and Conditioning 2013. DOI: 10.1519/JSC.0000000000000318; 2) Smith et al. Crossfit-based high intensity power training improves maximal aerobic fitness and body composition. Journal of Strength and Conditioning 2013 DOI: 10.1519/JSC.0b013e318289e59f; and 3) Grier et al., Extreme Conditioning Programs and Injury Risk in a US Army Brigade Combat Team. The United States Army Medical Department Journal 2013 (online issues of the AMEDD Journal are available at http://www.cs.amedd.army.mil/amedd_journal.aspx). I think including these papers would enhance the rationale for the study (e.g., none of them examined the effects of HIFT on behavioral or psychological outcomes) and the discussion of the results (e.g., injury rates, safety, etc.).

Finally, I noted that the HIFT sessions were supervised by a certified trainer. Was this also the case for the ART intervention? The manufacturers for the weight scale, stadiometer, and DXA should be reported, as well as how participants were weighed (e.g., to the nearest kg and what clothes were they wearing?) and how their height was assessed (e.g., to the nearest cm and with shoes on or off?). Scoring and ranges for all of the behavioral measures also should be provided. Finally, were any outcome common to exercise trials collected (e.g., changes in VO2max,1 rep max strength testing, flexibility, etc.)?

With respect to the statistical plan and analysis, I am wondering how much power the authors had to detect any body composition outcomes (or behavioral ones) between groups given the small sample size. It is common now for RCT papers to report their power analysis, so providing a synopsis in the methods would be useful. Also, it is standard practice to conduct both completers and intention-to-treat (ITT) analyses (see the CONSORT Guidelines for Clinical Trials at http://www.consort-statement.org/consort-statement/) to address issues like attrition. For this type of study, it would be acceptable to do use the baseline observation carried forward (BOCF) as the ITT approach.

Regarding the results, I would prefer to see a standard “Table 1” that provides the participant characteristics by intervention group status and they would only need to discuss in the results section any characteristics that were different, if there were any (randomization would reduce the likelihood of any baseline differences between groups, but does not guarantee it). If there happened to be any baseline group differences that could affect outcomes (e.g., BMI, BF%, etc.), they should be included as covariates in both the completers ITT models. I also would prefer the results table to include data on the dropouts and the average time spent in the actual workout, and any of the standardized exercise behavior questions (e.g., exercise enjoyment, intentions to continue exercise, intentions to continue the same exercise program, etc.; for these data, both the percentage and N should be in the table).

Minor Essential Revisions:
None

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

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