Reviewer's report

Title: Effects of physical activity on the development and progression of microvascular complications in type 1 diabetes: Retrospective analysis of the DCCT study

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Reviewer: Brynjulf Mortensen

Reviewer's report:

General comments:

Makura and co-workers aim to examine the effect of physical activity on the development and progression of microvascular complications in T1D using a retrospective approach in a well-powered human cohort.

The topic is a very relevant one, the methodical approach is sound, the manuscript is well written and I find that the conclusions made are well balanced in light of the data included. The potential pitfalls of the study setup are mentioned mostly and they are addressed honestly by the authors.

The biggest weakness in the chosen cohort, in my opinion, is the fact that physical activity level is only known for a short number of days at baseline. I suspect that this can change a lot (in both directions) in the years following an age of 25-30, which might be a confounder here.

And as mentioned by the authors in the conclusion section, I too suspect that one would see lower insulin dose rather than reduced HbA1C in the most physically active groups, so this could also explain why no clear effect on microvascular complications are observed.

Minor essential revisions:

My only suggestion for improvement to this manuscript is:

I feel that the fact that only 20% of the patients do not meet recommended levels of physical activity should be addressed more in light of the main conclusions of this study. Could there be an effect on microvascular complications going from being totally inactive to being “almost totally inactive”? If so, this effect might be missed using this relatively physically active cohort. This should be discussed. Or addressed by digging a bit deeper into the data on the Category 1 groups/lowest physical activity level.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

I have no competing interest in relation to this manuscript.