The present manuscript examines the association between objectively measured PA and fat mass, BMI and FFM in Mexican school-age children, with the strength of its longitudinal design. However, some questions should be raised as the manuscript is hard to read in some parts and needs changes.

Major compulsory revisions
- Although the reviewer is not an English native speaker, I suggest you that the manuscript will be revised by a native one, as there are several mistakes along the manuscript.
- Results and tables are not clear. Most of them are confusing as the authors show different results in the text than in the tables (which are also complex to understand). It is not clear whether gender interaction was examined or not and also if results are given for the whole sample, or only girls but not boys, etc. Clarify it.

Minor Essential revisions
- Abstract. Sample size is not provided.
- Introduction
  - Studies using MVPA should be included here, and not those of habitual PA. In your manuscript you use the MVPA and not the habitual PA. Refer to MVPA along the paper. As it is, in some parts you talk about PA and in other parts about MVPA. The HELENA study have published some manuscripts with MVPA.
  - “Perhaps, part of this failure…”- Move to discussion.
- Objective. ¿PA pattern?- time spent on MVPA.
- Methods
  - Sociodemographic information: Was the questionnaire validated in children? // FAS (Family Affluence Scale), parental education and occupation are more common when examining socioeconomic status. Do you have this information? See “Gracia-Marco L et al. 2011- Socioeconomic status and bone mass in Spanish adolescents. The HELENA study. J Adolesc Health. “Online First”.
  - Physical activity: Which were the inclusion criteria for valid data with accelerometers? How many hours per day and during how many days? // The cutoffs selected for MVPA are important, as different cutoffs among studies could be the consequence of different results. Please, make available this information
for the reader. // Why MVPA was re-coded in 2 tertiles? Low sample size on tertile 1? State why.
- Dietary intake data: What is standardized personal? Do you refer to experts, training personal?
- Data analyses: name the test appropriately, eg: Student t-test. // Why do not you previously analyzed the possible sex interaction? If there is sex interaction, results should be given separately by sex. // P<0.1 for interactions? Why?

Results:
- “We compared…” In this section you should only show results. Do not use the 1st person of plural, use the 3rd.
- Summarize the results, do not give p values not significant.
- “Between baseline…17.6 kg/m2, 85th centile”. Where are these results showed? Why do not you include some of these variables in table 1? Weight, height, …
- Lagged and dynamic models: Please, show whether there was a positive or negative association, in those significant variables, using the B values. As it is, is quite confusing for the reader, because when you look at the tables you cannot identify what you are reading in the text. Reduce also if possible.

Tables:
Table 1: Some descriptive?? Better Descriptive characteristics…Use asterisks or symbols for significant differences
Table 2: Outcome, baseline-endline (not clear what you are referring), MVPA and high PA (effect in girls, why are you showing in girls but not in boys? It is not clear if you are using the total sample using gender as covariate or if you are giving separate results by gender. Clarify and correct it. // Write the sample size below Model 1, model 2 and 3 // Tables should be self-explanatory (include the abbreviations, test performed, B (standardized regression coefficient…).
Table 3: Idem to table 2.

Discussion:
The discussion could be reviewed after clarification and correction of the previous comments.

Discretionary revisions
- anthropometry: make a different sub-section for fat mass and fat free-mass (Bod Pod)

**Level of interest:** An article whose findings are important to those with closely related research interests

**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 declare that I have no competing interests'