

Dear Dr. Lebon,

We would like to thank you for the careful and thorough assessment of our preprint that contributed to improve its quality. Please find below our point-by-point responses to your comments. Your comments are in bold font, our responses are in regular font, quotes from the manuscript are in italic font, and each change made in the manuscript is in blue font.

Best regards,  
Matthieu Boisgontier

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**I thank you for the point-by-point responses and the revised version of the manuscript. While you provided all the information to respond to the reviewers' comments and mine, and you changed the manuscript accordingly, I noticed a few mistakes in the new version. Also, I think the first paragraph of the discussion could be revised to match the main results of the study (as you already did for the abstract).**

Authors: The few mistakes have been corrected and the discussion has been amended as recommended.

**“A total of 21,266 observations was included in the logistic mixed-effects models that had error as outcome (5,654 observations for physical activity stimuli; 5,644 observations for sedentary stimuli; 9,968 observations for neutral stimuli).” This is unclear whether this number of observations include both error and non-error trials or only error trials (which would be surprising considering the total number of RT trials)**

Response: Done.

Page 9: *“A total of 21,266 observations was included in the logistic mixed-effects models that had error **or no error** as outcome”*

**Typo: “Explicit affective attitude toward physical activity decreased with aged” and “The intention to be physically active decreased with aged”**

Response: Done.

Page 9: *“Explicit affective attitude toward physical activity decreased with age [...].”*

Page 9: *“The intention to be physically active decreased with age [...].”*

**“Model 2 (outcome = reaction time) showed a significant interaction effect between age and action direction on error”. It should be reaction time instead of error.**

Response: Done.

Page 10: *“Model 2 (outcome = reaction time) showed a significant interaction effect between age and action direction on **reaction time** in the condition with sedentary stimuli.”*

**“From age 36 to 57, reaction times to approach and avoid neutral activity stimuli were not statistically different”. It should be error instead of reaction time.**

Response: Done.

Page 10: “From age 36 to 57, **errors** to approach and avoid neutral activity stimuli were not statistically different.”

**“Our results show faster reaction times and fewer errors when approaching compared to avoiding physical activity stimuli before 45 years of age. After this age, reaction times are faster when avoiding compared to approaching sedentary stimuli after this age. These results suggest a tendency to approach physical activity stimuli in younger adults and a tendency to avoid sedentary stimuli older adults.”** You should be more cautious when starting the discussion section, as these results correspond to uncorrected data. You should make it clearer or match the main results they reported in the abstract.

Response: As suggested, the first paragraph of the discussion has been modified as follows:

Pages 12-13: “Our results **confirmed a main tendency to approach physical activity stimuli (i.e., faster reaction to approach vs. avoid) and to avoid sedentary stimuli (i.e., faster reaction to avoid vs. approach) across the lifespan. Importantly, results based on neutral stimuli revealed a generic approach tendency in early adulthood (i.e., faster approach before age 53 and fewer errors before age 36) and a generic avoidance tendency in older adults (i.e., more errors after age 60). Contrary to our preregistered hypotheses, when accounting for these generic tendencies, our results showed a greater tendency (i.e., fewer errors) to avoid than approach sedentary stimuli after age 50, but not before, and no evidence of an effect of age on approach-avoidance tendencies toward physical activity stimuli. Finally, exploratory analyses showed that, irrespective of age, participants were faster at approaching physical activity and avoiding sedentary stimuli when they considered physical activity as pleasant and enjoyable (explicit attitude). However, results showed no evidence of an association between approach-avoidance tendencies and the intention to be physically active. Taken together, these results suggest that both age and explicit attitudes can affect the general tendency to approach physical activity stimuli and to avoid sedentary stimuli.**”