

ANSWERING REVIEWERS

Dear Editor,

I would like to thank you and the reviewers for your concise and helpful comments and suggestions.

We will re-submit my revised manuscript entitled “Daily physical activity and type 2 diabetes: A review (abstract 215 words, core tip 98 words, text 3,707 words, 71 references, and 3 tables) to *World Journal of Diabetes*.

According to the reviewers’ comments, we completely corrected our manuscript. We will show you the list of modification on the following pages. All the changes made to the manuscript appear as underlined text in the revised manuscript. We appreciate your re-consideration for the publication of my revised manuscript in your journal.

Sincerely yours,

Hidetaka Hamasaki, MD, PhD

Department of Internal Medicine,

National Center for Global Health and Medicine Kohnodai Hospital

The List of Modification

Reviewer No. 2446566

This manuscript reviews an importance of daily physical activity, especially moderate and light intensity. This is interesting because many patients find it difficult to take time for specialized exercise.

Reply: Thank you very much for your respectful comments.

I would like to suggest two questions about Whitehall study and Nakanojo study.

- 1) Long sitting time may not affect mortality if combined with walking time to go office according to Whitehall study. Pulsford RM, Stamatakis E, Britton AR, Brunner EJ, Hillsdon M. Associations of sitting behaviours with all-cause mortality over a 16-year follow-up: the Whitehall II study. *Int J Epidemiol.* 2015 Dec;44(6):1909-16. doi: 10.1093/ije/dyv191.

Reply: As you commented, Pulsford et al. showed that sitting time was not associated with all-cause mortality risk, and they discussed two possible explanations for that. No significant relationships between sitting time and mortality in their study may be due to the study subject characteristics. Subjects from the Whitehall II cohort study spent less time sitting and walked more than participants in previous studies. Indeed, daily walking has a protective effect on mortality.

According to your comments, I have added sentences to the section of “Sedentary lifestyle”, on page 7 and 8, as follows;

In addition, sitting time may not affect all-cause mortality if it is combined with walking time, suggesting that the positive association between sitting time and mortality is only evident in individuals who sit for very long periods of time [21]. This review focuses on clinical studies that have investigated the effects of walking on CVD risk factors and mortality.

- 2) Not just walking but combination with >3 METS walking may be necessary to prevent metabolic syndrome as reported by Park et al. Park S, Park H, Togo F, Watanabe E, Yasunaga A, Yoshiuchi K, Shephard RJ, Aoyagi Y. Year-long physical activity and metabolic syndrome in older Japanese adults: cross-sectional data from the Nakanojo Study. *J Gerontol A Biol Sci Med Sci.* 2008 Oct;63(10):1119-23.

Reply: According to your comments, I have added sentences to the section of “Walking”, on page 9, as follows;

On the other hand, the Nakanojo Study [33] suggested that not just walking but the combination of walking (>8,000-10,000 steps per day) and physical activity at an

intensity >3 METs was necessary to prevent metabolic syndrome. Daily physical activity that reaches an intensity >3 METs may need to be emphasized.

In page 13 line 7 you mentioned, “NEAT increased by 25% seven days after a single bout of high-intensity walking exercise [55]”. This means a combination with a brisk walking is important to increase NEAT. How long at least we must walk vigorously to prevent obesity, metabolic syndrome and diabetes?

Reply: Unfortunately, the intensity, frequency, and duration of physical activity required for increasing NEAT is unknown. This will be an issue to be addressed in the future.

Development of the measuring method of physical activity which clearly distinguishes walking exercise from NEAT will be required. However, previous studies have suggested that brisk walking for at least 30 minutes per day is needed to reduce the risk of type 2 diabetes.

I have added sentences to the section of “Non-exercise activity thermogenesis” , on page 15, as follows;

However, the intensity, frequency, and duration of physical activity required to increase NEAT is unknown.

Reviewer No. 506239

The incidence of obesity and diabetes type 2 has increased considerably in recent years, hence it is necessary an appropriate intervention on lifestyles and nutrition. The manuscript is well written and more detailed. I consider very interesting paragraph about NEAT.

Reply: Thank you very much for your comments.

I appreciate the time and effort that was invested in reading the manuscript.

Reviewer No. 2446525

Language correction required.

Reply: Thank you for your time and effort for reading the manuscript.

The manuscript has been carefully reviewed by an experienced editor whose first language is English and who specializes in editing papers written by scientists whose native language is not English.