Reviewer’s report

Title: Low cardiorespiratory fitness is associated with metabolic syndrome independent of physical activity in Hong Kong Chinese midlife women

Version: 2 Date: 3 April 2013

Reviewer: Kiyoshi Sanada

Reviewer’s report:

The revision has, in my opinion, lead to a improvement of the manuscript, especially considering the clearness and quality of writing. However, there is still one major concern to be dealt with, being the methodological interpretation of the results. My comments are outlined below, thereby partly addressing the author’s response to the first comments.

Ans: Thanks for your comments. The study results are not surprising, but add to the understanding of the relationship PA-CRF-MS in a specific population with different lifestyle and nutritional habits and a lower prevalence of MS than others countries. Furthermore this study specifically addresses the metabolic syndrome rather than cardiovascular diseases. For example, the age-defined VO2max was noted to differ between Chinese adult men and women and their age-matched Caucasians adults. [31] Previous we have examined the normative values of CRF in Chinese midlife and elderly women whereas similar VO2max values were observed as those of same sex and comparable age in Western populations, the VO2max values approximated the 5-15th percentile values from the norms of the Cooper Institute. [32,33] Yet directly measured VO2max has been less studied in Chinese, particularly among midlife women; while the prevalence of MS in Chinese women is high, [34] therefore, further study is required in Chinese. Please refer to the following or page 5 lines 7-19.

OK

Based on the other reviewers’ advices, further analyses have been performed for the CRF level across the MS/body mass index (BMI) categories, a new concept of “metabolically healthy but obese phenotype” (Ortega FB., Lee DC., Katzmarzyk PT., Ruiz JR., Sui X., Church TS., &Blair SN. The intriguing metabolically healthy but obese phenotype: cardiovascular prognosis and role of fitness. Eur Heart J. 2012) to enrich the manuscript and the discussion section. Although we did not observe differences in level of CRF between the metabolically healthy but obese subjects than their metabolically abnormal and obese peers, there appears to be trend of a decreasing CRF levels across the MS/BMI categories, regardless of age, dietary total calories intake, and PA. Therefore, the findings of this study lend some support to the previous literature on the role of CRF on the risk of MS, and suggest that public health guidelines may need to be modified by placing more emphasis on the CRF level, especially for the midlife women. Please refer to the following or page 18 lines 6-14.
We have also addressed the lower prevalence of MS of the study population in the discussion. Please refer to the following or page 18 line 16 – page 19 line 2.

However the authors still have not been provided an answer to a second following question.

Secondly, the measurement accuracy of physical activity is inferior to that of physical fitness in quality because an assessment of physical activity is using by questionnaire method, but to measure the physiological parameter such as VO2max. The difference in result between physical activity and physical fitness may be partly a reflection of this measurement accuracy.

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.