Author's response to reviews

Title: Is waist-to-height ratio an indicator of cardio-metabolic risk in 6-10-year-old children?

Authors:

VALESCA MANSUR KUBA (vmkuba@uol.com.br)
CLAUDIO LEONE (leone.claudio@usp.br)
DURVAL DAMIANI (durvald@terra.com.br)

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To

Katherine Olino (on behalf of Dr Kevin R. Short)

Editor of BMC Pediatrics

We would like to thank you and the referees for the comments on our manuscript MS 8079409658072887. We are sure that they will be valuable and will improve the quality of the manuscript which was reviewed once more. Below you will find the answers to the reviewer 2, Christina Shay, since the referee 1, Ashwini Mallapa, has already completed the revision and accepted the article. The corrections have been highlighted in red in the manuscript.

Minor essential Revisions:

1. The hyphen was added in ‘cardio-metabolic’.

2. The word ‘significant’ was included in the ‘Result Section’ of the abstract as follows:

   Results: There were significant correlations between WHtR and BMI z score (r = 0.88, p< 0.0001), SBP (r = 0.51, p< 0.0001), DBP (r = 0.49, p< 0.0001), LDL (r = 0.25, p< 0.0008, HDL (r = -0.28, p< 0.0002), TG (r = 0.26, p< 0.0006), HOMA-IR (r = 0.83, p<0.0001) and CRP (r = 0.51, p< 0.0001).

3. In the ‘Abstract conclusion’ the last sentence was reviewed for clarity, as shown below:
Conclusions: The WHtR was as sensitive as the 2007 WHO BMI in screening for metabolic risk factors in 6-10 year-old children. The public health message “keep your waist to less than half your height” can be effective in reducing cardio-metabolic risk because most of these risk factors are already present at a cut point of WHtR > 0.5. However, as this is the first study to correlate the WHtR with inflammatory markers, we recommend further exploration of the use of WHtR in this age group and other population-based samples.

4. The first sentence was removed from the ‘Introduction’ and the paragraph was re-written in a more appropriate way.

5. A citation was added for the second sentence in the ‘Introduction section’. It was included in the ‘Bibliographic References’ as the first one.

6. The colon was removed from the sentence in the ‘Introduction’.

7. The term ‘indicators’ is not capitalized any more.

8. The final sentence in the ‘Introduction’ was revised as follows: ‘The objective of this study is to compare the WHtR to the 2007 World Health Organization (WHO) reference’.

9. The commas were removed after November and April.

10. The text was revised and consistent with the use of the word ‘sex’.

11. The term ‘African American’ substituted Afro American in the third sentence in ‘Methods’, as shown below:

‘Although puberty may start earlier in African Americans, it was not seen in our cohort.

12. The fourth sentence was revised in ‘Methods’ and written as ‘All subjects were classified as Tanner staging as pre-adolescents, with no apparent secondary sexual characteristic’.

13. The sentence was corrected.

14. According to these criteria three children were excluded because they presented levels of CRP higher than 8 ng/dL, suggesting an acute infection.
15. The term ‘non-obese’ was substituted by normal-weight in the ‘Results’.

16. The r-squared value was removed from ‘Results’.

17. The first paragraph was revised to have connection with the second paragraph, as shown below:

Obesity in childhood is an important risk factor for the development of atherosclerotic heart disease [14] once an increased BMI from 10 years of age is considered the strongest predictor of premature death by acute myocardial infarction during adult life [15]. Insulin resistance (IR) seems to have an important role in the pathogenesis of atherosclerosis and metabolic syndrome which are related to overweight and mainly to abdominal adiposity [14, 16].

18. The concept of ‘nutritional state’ was removed from the ‘Discussion’. The sentence was written to link BMI to the diagnosis of overweight as follows: BMI is the most traditional anthropometric index used for diagnosing overweight. As the prevalence of childhood obesity has grown up, the WHO reviewed the 2000 Centers for Disease Control (CDC) BMI curves to increase their sensitivity for the diagnosis of overweight [10], producing the 2007 WHO BMI standard, which is the most sensitive reference available at present.

19. The last sentence was removed from the ‘Discussion’ in page 8 to avoid any language that infers prospective analyses. Besides, we used ‘elevated LDL’ instead of LDL increase.

20. The term ‘mixed racial subjects’ was substituted by African American descent.

21. The sentence in page 9 was changed to explain why hypertriglyceridemia was not diagnosed by any index. This is shown below:

Both anthropometric indexes were unable to diagnose hypertriglyceridemia either because IR is still incipient at this age or due to their ethnicity as people of African descent have lower serum TG levels [23].

We look forward to hearing from you soon.

Sincerely,

Valesca Mansur Kuba