

Waist circumference correlates with Body Mass Index (B.M.I.) in school-aged children

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Body Mass Index (B.M.I.) is a parameter deriving from a person's weight and height and is routinely and easily recorded during children physical examination both at school and sport association. By contrast, waist circumference measurement, even if easy to be performed, due to the need of removing clothes, in some context, may cause certain degree of psychological discomfort, and may require parent's authorization. On the other hand, it is well known that waist circumference may be predictive for metabolic syndrome. In particular waist-to-height ratio (WHtR) has been recently emerged as a valuable index for abdominal obesity and high cardiovascular risk. This index does not require percentile tables and may be applied to both sexes of all ages. A WHtR >0.5 has been proposed to be able to identify both children and adults with the highest cardiometabolic risk. Based on these premises, the aim of our study was to evaluate whether a relationship existed between B.M.I. and waist circumference in Italian school-aged children (141 boys and 108 girls aged 7 to 9 years; 103 boys and 50 girls aged 10 to 13 years). By using Pearson's correlation coefficient we found the existence of a significant linear correlation between waist circumference and B.M.I. values in each age and sex group. Our data suggest the possibility to estimate indirectly waist circumference from height and weight, and provide an alternative method to predict the risk of metabolic syndrome by using B.M.I.

Keywords: B.M.I., waist circumference, children, metabolic syndrome, Pearson's correlation coefficient