VIEWPOINT

Abdominal Circumference or Waist Circumference?

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Circumference measures, also called perimetry, are part of the anthropometric evaluation.[1] Important Brazilian guidelines, as well as the Brazilian Society of Cardiology (SBC),[2] have considered the abdominal circumference values as a point of reference to classify the risk for cardiovascular disease development.

However, what is the adequate terminology that should be used to quantify the increased cardiovascular disease risk: abdominal circumference or waist circumference?

In national books,[3,4] measures of waist and abdominal circumferences are addressed as being distinct measures. The optimal point for waist circumference measurement is located between the last rib and the iliac crest, at its smallest perimeter. For the abdominal circumference, the most accurate measurement has been proposed as that taken on the umbilical scar.

According to the World Health Organization (WHO)[5] and the European Society of Cardiology (ESC),[6] the cardiovascular risk classification is carried out based on the waist circumference measure and this parameter should be measured at midpoint between the last rib and the iliac crest.

The same thing occurs in studies published in the English language, such as the one by Acar et al.[1] For them, the methodological criterion used to measure waist circumference was determined according to the same recommendations adopted by the WHO[5] and by the ESC.[6] This study[1], as well as the international guidelines,[5,6] calls this body segment as "waist circumference", which translates as "circunferência da cintura" in Portuguese, not "circunferência abdominal". Considering these facts, and even though there is a literature review on the subject,[7] why do the main Brazilian guidelines still use the nomenclature "abdominal circumference" instead of "waist circumference"?

The International Society for the Advancement of Kinanthropometry (ISAK),[8] which has a manual of anthropometric measurements, also describes the measurement process used to measure the waist circumference as the intersection between the last rib and the border of the iliac crest, corroborating other international guidelines.[5,6] Another classic article, which also used the "waist circumference" nomenclature as a component of some equations for predicting body fat, was that by Jackson and Pollock.[9] This study was crucial for the advancement and consolidation of anthropometry. Moreover, based on the measurement of some anthropometric parameters used in this study, it was possible to validate the predictive formula for fat percentage in the male gender.[9] However, the authors did not detail how the methodological process of this anthropometric measurement was performed, making it impossible to conclude whether the same criteria proposed by the WHO,[5] by ESC[6] and by ISAK[8] were used.

Other relevant points are the evaluation criteria proposed by different authors, which were assessed in another study.[10] What were the methodological standards used by the researchers who used the "waist circumference" nomenclature in their respective studies? Were there differences in these anthropometric assessments?

In the face of this impasse, Wang et al.[10] carried out a study in 2003 and reported the identification of 14 sites and, consequently, different methodological processes for the measurement of waist circumference. These 14 sites were separated into groups, aiming to identify possible differences after applying the statistical treatment.

The groups were divided as follows: (1) immediately below the last rib; (2) at the smallest circumference

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point; (3) at midpoint between the last rib and the iliac crest; and, (4) immediately above the iliac crest. After comparing the several anthropometric measurements, a significant difference was found only in women, according to the following order: measurement 2 < 1 < 3 < 4.[10] This result was perhaps expected by the authors and confirms the importance of standardization of the measurement site, in the case of female patients.

Considering this context, it is essential to reflect on and consider whether the current nomenclature to assess cardiovascular risk does not cause methodological confusion for the different health professionals, impairing the accuracy of future studies, to the detriment of imprecision during the measurement. It should be noted that in most classes taught in undergraduate courses, training courses in physical assessment and postgraduate courses, measurements of abdominal circumference and waist circumference are approached in the theoretical / practical scenario from completely different points.

The measurement standardization that technically evaluates the risk of cardiovascular disease is necessary, both in relation to the methodological process of measurement, and the nomenclature use. Otherwise, given the current scenario, individuals who would theoretically have moderate risk or low risk for cardiovascular disease could have overestimated results.

Figure 1 represents both genders and their respective measurements for waist circumference. The measurement was carried out at midpoint between the border of the iliac crest and the last rib, the same protocol proposed by the WHO,[5] ESC[6] and ISAK[8]. The image use was granted and authorized for publication by the Research Group on Cardiopulmonary Evaluation and Rehabilitation (GECARE).

Author contributions

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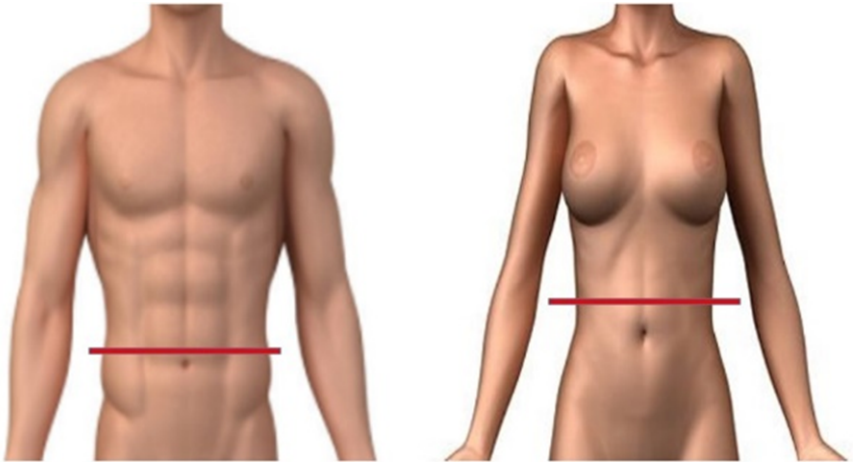

Figure 1 - Midpoint between the last rib and the iliac crest border in both genders.

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