

Metabolic risk score indexes validation in overweight healthy people

Authors: Morencos, E. ¹; Benito, P.J. ¹; González-Gross, M. ¹; Romero, B. ¹; Gómez-Candela, C. ²; Fernández, C. ² Calderón, F.J. ¹ on behalf of the PRONAF Study group.

¹ *Department of Health and Human Performance. Faculty of Physical Activity and Sport Sciences. Technical University of Madrid, Madrid, Spain.*

² *Nutrition Department. Hospital University La Paz. Madrid, Spain.*

Introduction. The constellation of adverse cardiovascular disease (CVD) and metabolic risk factors, including elevated abdominal obesity, blood pressure (BP), glucose, and triglycerides (TG) and lowered high-density lipoprotein-cholesterol (HDL-C), has been termed the metabolic syndrome (MetSyn) [1]. A number of different definitions have been developed by the World Health Organization (WHO) [2], the National Cholesterol Education Program Adult Treatment Panel III (ATP III) [3], the European Group for the Study of Insulin Resistance (EGIR) [4] and, most recently, the International Diabetes Federation (IDF) [5]. Since there is no universal definition of the Metabolic Syndrome, several authors have derived different risk scores to represent the clustering of its components [6-11].

Objective. To compare the Metabolic Risk Score (MRS) found in the literature and reproducible, with the validated MRS and to study the diverse methodologies used to calculate them, considering the mathematics procedures and the included variables.

Methods. The MRS was calculated in 62 overweight women (mean±SD age, 36±8 years; body mass index, 29±2 kg/m²) and 45 overweight men age, (age 35±8 years; body mass index, 29±2 kg/m²), through 6 different scores published [6-11]. Only one of them was previously validated [10]. The scores were derived from the levels of triglycerides, low-density lipoprotein cholesterol (LDLc), high-density lipoprotein cholesterol (HDLc), glucose, anthropometric measurements of the waist and hip circumference, height,

weight, skinfolds and blood pressure. Each MRS was contrasted with the only validated one.

Results. There were not mean differences between other scores with the validated, for men and women respectively. However, the high variability of the scores can obtain opposite health status depending in which one is used when calculated in the same person. The only score which showed graphs with points similarly dispersed and no tendency, according to the method described by Bland and Altman, was MRS4 and MRS4_4 [9], in men and women. The bias for MRS4 was of 0.0009 ± 0.38 and of 0.0001 ± 0.27 for men and women respectively. For MRS4_4 was of 0.0002 ± 0.36 and of 0.0001 ± 0.29 for men and women respectively.

Conclusion. Following the results obtained we can conclude that the most valid score with respect to Wijndaele et al. (2006) score is the one used by Rizzo et al. (2007).

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Correspondence address (Presenting author):

Esther Morencos Martínez
Department of Health and Human Performance
Universidad Politécnica de Madrid
Telephone number: (0034) 91 336 40 70
C/ Martín Fierro 7, 28040, Madrid, Spain
esther.morencos@upm.es