Comparison of basal metabolic rate by indirect calorimetry and predictive model #7

Tatienne Neder F. da Costa[1,2], Mateus Moraes Domingos[1], Patrícia Brassolatti[1], Shislene Batistela Tokuda[1], Jaqueline Tavano[1,2], Bruno Neder F. da Costa[3], Vilmar Baldissera[1,2].

[1]Laboratório de Fisiologia do Exercício – Universidade Federal de São Carlos – UFSCar, São Carlos, Brazil; [2]Programa de Pós-Graduação Interunidades em Bioengenharia EESC/FMRP/IQSC – USP/São Carlos, Brazil; [3]Centro Universitário de Votuporanga – UNIFEV, Brazil.
E-mail: tati_neder@hotmail.com

The objective of this study was to compare the values of basal metabolic rate (BMR) obtained by indirect calorimetry (IC) and by predictive model (PM). Methodology: 6 women, age (23.8 ± 3.1 years), height (165 ± 5.8 cm), body mass (55.9 ± 4.9 kg), fat free mass (43 ± 2.1 kg), fat body mass (12.9 ± 3.3 kg), percentage of body fat (22.8 ± 4.2%) were subjected to the test of IC. The IC test was done early in the morning, after 12 hours of fasting, without attainment of physical activity within the last 24 hours and abstinence of alcohol in the last 48 hours. Initially, the volunteers remained at rest for 20 minutes, followed by 20 minutes of measurement by gas analyzer VO2000. To obtain the BMR by the EP the Harris Benedict formula was used , applied for women between 15-74 years: 655.0955 + 9.5634 (weight kg) + 1.8496 (height cm) - 4.6756 (age). For the processing of data the statistical program "Instat" was used through the paired t test ($p < 0.05$), and the results were expressed as mean and standard deviation of the mean. Results: The value of BMR through the IC was 1423.0±6 calories and through PM 1383.5±6 calories, with no statistically significant differences between the two methods. There was no significant difference between the methods, and thus, the PM can be considered a useful tool to estimate the BMR, as a more accessible and less costly method to this population.

Key words: basal metabolic rate; indirect calorimetry; predictive model.