External validation of equations to estimate resting energy expenditure in 14952 adults with overweight and obesity and 1948 adults with normal weight from Italy

G. Bedogni, S. Bertoli, A. Leone, R. De Amicis, E. Lucchetti, F. Agosti, N. Marazzi, A. Battezzati, A. Sartorio

Clinical Nutrition 38: 457-464, 2019

Background & aims: We cross-validated 28 equations to estimate resting energy expenditure (REE) in a very large sample of adults with overweight or obesity.

Methods: 14952 Caucasian men and women with overweight or obesity and 1498 with normal weight were studied. REE was measured using indirect calorimetry and estimated using two meta-regression equations and 26 other equations. The correct classification fraction (CCF) was defined as the fraction of subjects whose estimated REE was within 10% of measured REE.

Results: The highest CCF was 79%, 80%, 72%, 64%, and 63% in subjects with normal weight, overweight, class 1 obesity, class 2 obesity, and class 3 obesity, respectively. The Henry weight and height and Mifflin equations performed equally well with CCFs of 77% vs. 77% for subjects with normal weight, 80% vs. 80% for those with overweight, 72% vs. 72% for those with class 1 obesity, 64% vs. 63% for those with class 2 obesity, and 61% vs. 60% for those with class 3 obesity. The Sabounchi meta-regression equations offered an improvement over the above equations only for class 3 obesity (63%).

Conclusions: The accuracy of REE equations decreases with increasing values of body mass index. The Henry weight & height and Mifflin equations are similarly accurate and the Sabounchi equations offer an improvement only in subjects with class 3 obesity.

Se desidera avere la fotocopia di questo lavoro, per esclusivo uso personale, può fare richiesta per mail a: info@cresceresani.it indicando il titolo, gli autori, la rivista e il proprio recapito lavorativo (nome, cognome, indirizzo, CAP, città).