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Resting energy expenditure, body composition, and excess weight in the obese.

Foster GD, Wadden TA, Mullen JL, Stunkard AJ, Wang J, Feurer ID, Pierson RN, Yang MU, Presta E, Van Itallie TB, et al.

University of Pennsylvania, School of Medicine, Philadelphia 19104.

Abstract

This study investigated differences between measured and predicted resting energy expenditure (REE) in 80 women who averaged 104.6 kg in weight and were 49 kg and 88% overweight. Body composition analysis showed that 68% of the excess weight was fat and 32% was fat-free mass (FFM). Normalized for height, total body potassium (TBK) was 113 +/- 15% and total body water (TBW) was 133 +/- 21% of values in nonobese controls. The health of the FFM, defined as the potassium content per kg of FFM, was 84 +/- 13% of normal. Measured and predicted REE were only modestly related ($r = +.59$), and only 59% of measured REEs were within 10% of predicted values. A stepwise multiple regression indicated that weight was the single best predictor of measured REE and that the size of the FFM made a significantly greater contribution to REE than did the size of the fat mass. Commonly used equations for the prediction of REE are not appropriate for moderately or severely obese patients. Caloric prescription for weight reduction must be tailored to individuals rather than recommending the same caloric intake to persons with varying metabolic rates.

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