**Effects of a 3-week in-hospital multidisciplinary body weight reduction program in obese females: is measured resting energy expenditure essential for tailoring adequately the amount of energy intake?**

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In the obese population, the prescription of a proper diet plan is essential to ensure an appropriate and gradual weight loss, reduce the risk of weight cycling and favor an overall improvement of health conditions. Energy needs are commonly estimated using predictive equations, even if their accuracy is still debated, especially in severely obese subjects. In the present study, 850 severely obese females admitted to our hospital for a multidisciplinary body weight reduction program (BWRP) were divided into three subgroups, “hypo-,” “normo-,” and “hyper-metabolic,” based on the comparison between estimated resting energy expenditure (eREE, using the Mifflin equation) and measured REE (mREE, using indirect calorimetry). The majority of this study population was considered normo-metabolic (59.4%, mREE between 90 and 110% of eREE), 32.6% was hyper-metabolic (mREE > 110% of eREE) and only 8% was hypo-metabolic (mREE < 90% of eREE). The three subgroups were evaluated before and after a 3-week BWRP, entailing energy restricted diet, adapted physical activity, psychological counseling and nutritional education. Since the diet plan during the BWRP consisted of a 30% reduction of total energy expenditure (obtained by multiplying mREE by the physical activity level), each subgroup responded positively to the BWRP independently from the difference between mREE and eREE, the extent of BMI reduction and clinical, metabolic and physical amelioration being comparable among the three subgroups. By contrast, the restriction of the energy intake based on eREE during the BWRP would have determined a slighter caloric restriction in the hypo-metabolic subgroup, thus determining a smaller body weight reduction, and, by contrast, a more marked caloric restriction in the hyper-metabolic subgroup, probably difficult to be tolerated and maintained for prolonged period. In conclusion, the percentage of subjects with “slow metabolism” in a Caucasian female obese population seeking hospitalization for a BWRP is actually lower than expected, finding controverting the common notion that obesity is mostly due to reduced REE. The high percentage (40%) of inadequate eREE in these female obese populations further underlines the absolute need to include the measurement of REE in the clinical practice for the correct prescription of energy intake in severely obese populations.