

Effects of a multidisciplinary program on metabolic rate and body composition in obesity

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Abstract

Background and objectives

This study investigates the impact of a multidisciplinary recovery program (MRP) on resting metabolic rate (RMR) and body composition in obese individuals.

The primary objective was to measure changes in RMR, expressed in kilocalories per day (kcal/day), and respiratory quotient (RQ) during the MRP, which included a low-calorie diet (800–1200 kcal/day) and increased physical activity. The secondary aim was to assess modifications in body composition throughout the intervention.

Methods

This open-label study involved 271 obese participants who adhered to a restrictive hypocaloric diet for up to three months while hospitalized. Anthropometric measurements were taken, RMR was assessed using indirect calorimetry, and body composition was evaluated through dual-energy X-ray absorptiometry (DXA).

Results

Results indicated a significant decrease in RMR ($p < 0.001$), with no change in RQ from baseline (T0) to follow-up (T1). Participants also experienced substantial reductions in body weight ($p < 0.001$), BMI ($p < 0.001$), and waist circumference ($p < 0.001$). Body composition analysis revealed significant decreases in total mass ($p < 0.001$), fat mass ($p < 0.001$), percentage of fat mass ($p < 0.001$), fat mass index ($p < 0.001$), visceral adipose tissue ($p < 0.001$), and lean mass metrics.

Discussion

In conclusion, the findings demonstrate that participation in a multidisciplinary recovery program leads to a significant reduction in RMR, which is associated with favorable changes in body composition following weight loss interventions.

Keywords: obesity, metabolic rate, body composition, multidisciplinary program, weight loss