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# Intermittent energy restriction improves weight loss efficiency in obese men: the MATADORstudy.

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**BACKGROUND/OBJECTIVES:**

The MATADOR (Minimising Adaptive Thermogenesis And Deactivating Obesity Rebound) study examined whether intermittent energy restriction (ER) improved weight loss efficiency compared with continuous ER and, if so, whether intermittent ER attenuated compensatory responses associated with ER.

**SUBJECTS/METHODS:**

Fifty-one men with obesity were randomised to 16 weeks of either: (1) continuous (CON), or (2) intermittent (INT) ER completed as 8 × 2-week blocks of ER alternating with 7 × 2-week blocks of energy balance (30 weeks total). Forty-seven participants completed a 4-week baseline phase and commenced the intervention (CON: N=23, 39.4±6.8 years, 111.1±9.1 kg, 34.3±3.0 kg m$^{-2}$; INT: N=24, 39.8±9.5 years, 110.2±13.8 kg, 34.1±4.0 kg m$^{-2}$). During ER, energy intake was equivalent to 67% of weight maintenance requirements in both groups. Body weight, fat mass (FM), fat-free mass (FFM) and resting energy expenditure (REE) were measured throughout the study.

**RESULTS:**

For the N=19 CON and N=17 INT who completed the intervention per protocol, weight loss was greater for INT (14.1±5.6 vs 9.1±2.9 kg; P<0.001). INT had greater FM loss (12.3±4.8 vs 8.0±4.2 kg; P<0.01), but FFM loss was similar (INT: 1.8±1.6 vs CON: 1.2±2.5 kg; P=0.4). Mean weight change during the 7 × 2-week INT energy balance blocks was minimal (0.0±0.3 kg). While reduction in absolute REE did not differ between groups (INT: -502±481 vs CON: -624±557 kJ d$^{-1}$; P=0.5), after adjusting for changes in body composition, it was significantly lower in INT (INT: -360±502 vs CON: -749±498 kJ d$^{-1}$; P<0.05).

**CONCLUSIONS:**

Greater weight and fat loss was achieved with intermittent ER. Interrupting ER with energy balance 'rest periods' may reduce compensatory metabolic responses and, in turn, improve weight loss efficiency.