

TV's "The Biggest Loser" competition, and why maintaining weight loss requires more than lifestyle modifications alone

About "The Biggest Loser" and the follow-up clinical study that evaluated it¹



- "The Biggest Loser" was a reality television show and weight loss competition in which contestants with overweight and obesity competed to lose the most weight
 - Contestants underwent an intensive **diet and exercise intervention** and rapidly lost weight



- After the show concluded, a **follow-up study was conducted** evaluating how the weight and metabolism of 14 contestants had changed **6 years after** the competition
 - The study was published in the journal *Obesity*

The study found that 6 years after the competition, 13 out of 14 contestants regained weight¹

- Before the 30-week competition, the contestants had an average baseline weight (mean \pm SD) of 327.6 ± 90.1 lbs
- Contestants lost an average of 128.3 ± 54.8 lbs by the end of the competition and had an average weight of 199.3 ± 53.9 lbs
- Six years after the competition ended, **all but one contestant (n=13/14) regained weight** and 5 contestants were within 1% of their baseline weight



Obesity is highly prevalent in the United States

- ~100 million adults have obesity^{2,3,a}
- By 2030, nearly 1 in 2 adults will have obesity,^b and nearly 1 in 4 will have Class II or Class III obesity^{4,c}

^aAdults aged ≥ 20 years.

^bObesity is defined as a body mass index (BMI) ≥ 30 kg/m².⁴

^cBMI ≥ 35 kg/m².⁴

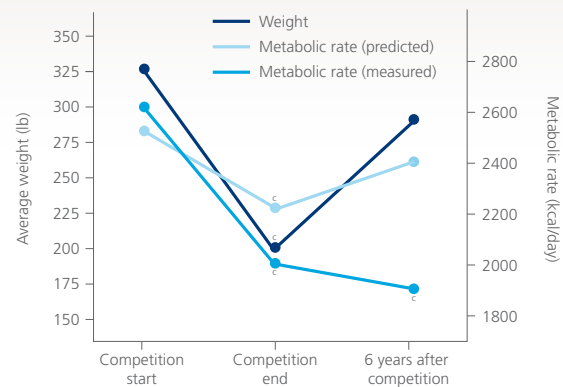
The study also found that despite weight regain at 6 years, the contestants' measured resting metabolism^a was ~500 kcal/day lower than expected^{1,b}



- In "The Biggest Loser" study, weight regain **did not increase** resting metabolism



- A slower metabolism **worked against the contestants' long-term weight maintenance** efforts



Metabolic adaption and why it is so hard to maintain long-term weight loss

- Although people with obesity may achieve weight loss by reducing calories and increasing physical activity, **metabolic and hormonal responses** make weight loss difficult to maintain^{5,6}

Factors that make weight regain common^{5,6}

Slower metabolism



Metabolism slows down and gets more efficient, requiring fewer calories.



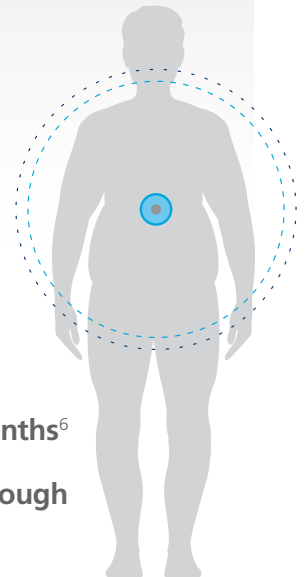
Increased hunger hormone

The body increases a hunger hormone called ghrelin, which tries to induce calorie intake.



Decreased fullness hormones

Hormones that tell the brain it's time to stop eating are decreased.



- In people who have lost weight, the body will try to **put weight back on for at least 12 months**⁶
- These factors explain why, for many people, willpower and lifestyle modifications **are not enough** to manage weight

The study results support the need for a comprehensive approach to chronic weight management. This plan may include anti-obesity medications in combination with lifestyle modifications.

To learn more about obesity in the workplace, go to <https://www.novonordiskworks.com/>.

^aResting metabolic rate measurements were performed using indirect calorimetry following a 12-hour overnight fast.

^bPredictions based on the measured body composition changes, sex, and the increased age of the study participants.

^c $P < 0.0001$ vs same category at baseline.

References: 1. Fothergill E, Guo J, Howard L, et al. Persistent metabolic adaptation 6 years after The Biggest Loser competition. *Obesity*. 2016;24(8):1612-1619. 2. QuickFacts: United States. United States Census Bureau website. <https://www.census.gov/quickfacts/fact/table/US#viewtop>. Accessed July 1, 2020. 3. Obesity and overweight. Centers for Disease Control and Prevention website. <http://www.cdc.gov/nchs/fastats/obesity-overweight.htm>. Accessed July 1, 2020. 4. Ward ZJ, Bleich SN, Craddock AL, et al. Projected U.S. state-level prevalence of adult obesity and severe obesity. *N Engl J Med*. 2019;381(25):2440-2450. 5. Lam YY, Ravussin E. Analysis of energy metabolism in humans: a review of methodologies. *Mol Metab*. 2016;5(11):1057-1071. 6. Sumithran P, Prendergast LA, Delbridge E, et al. Long-term persistence of hormonal adaptations to weight loss. *N Engl J Med*. 2011;365(17):1597-1604.