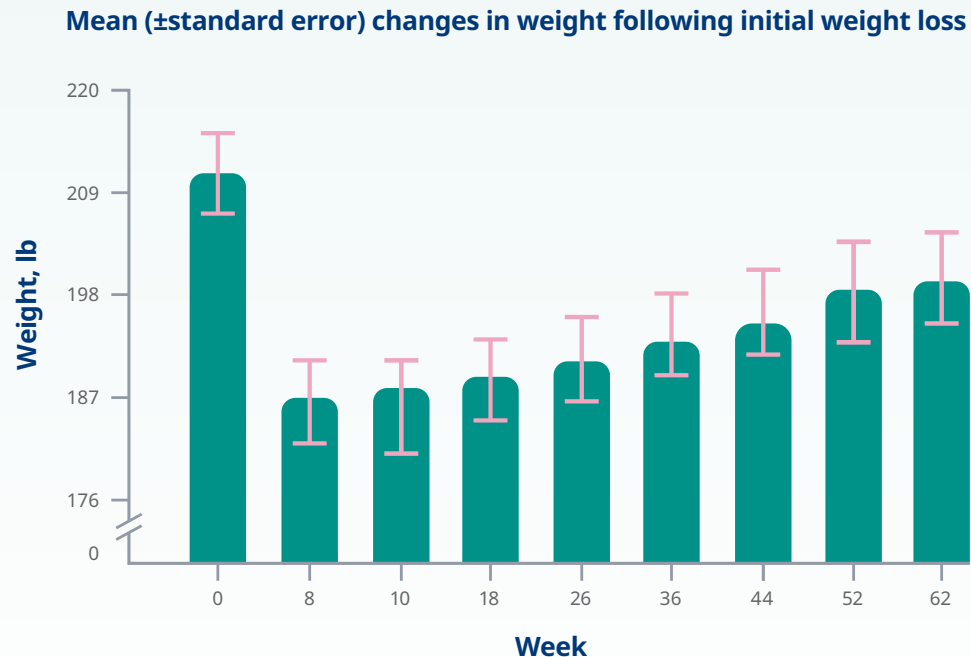


# What is stopping your patients with obesity from **MAINTAINING THEIR WEIGHT LOSS?**

The mechanisms contributing to **weight regain** can persist for at least 1 year<sup>1</sup>

**Facing hormonal adaptations to weight loss, people often regain most of the weight they lose<sup>1</sup>**



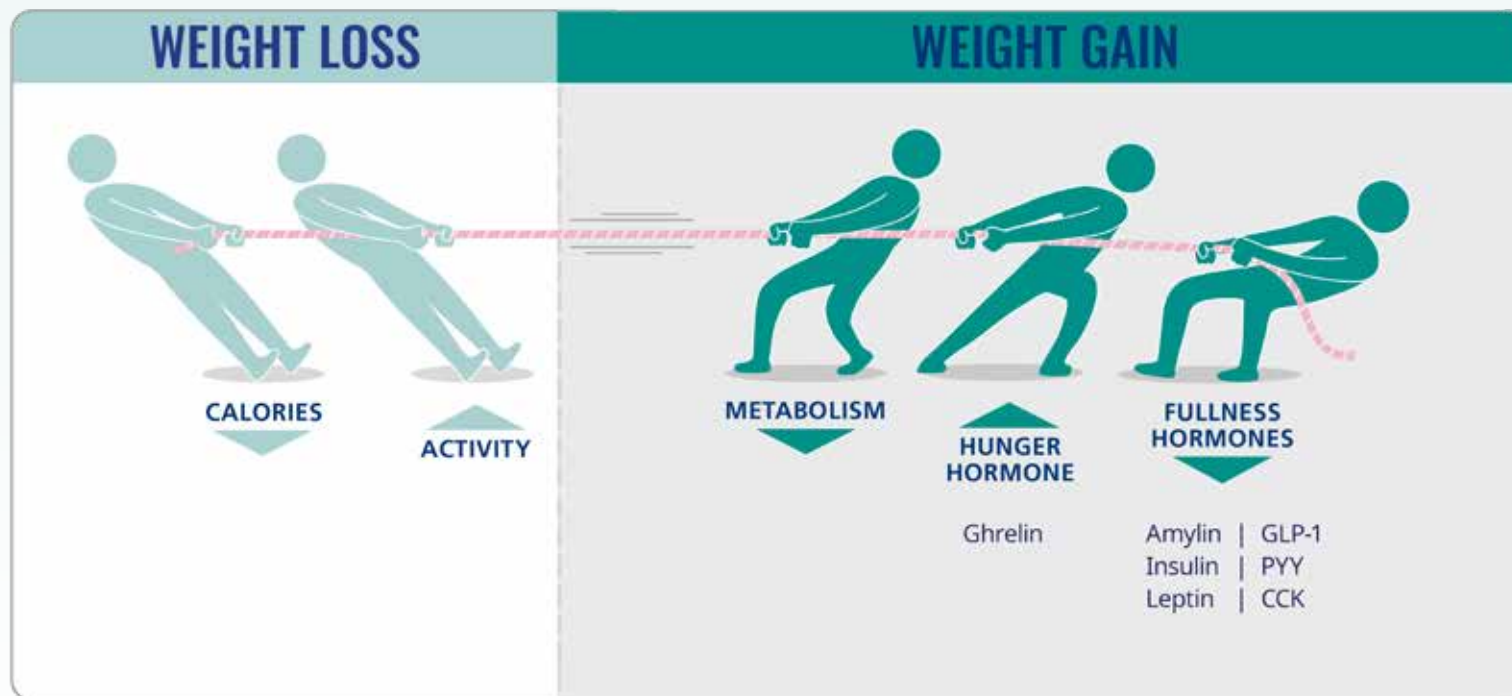
## STUDY DESIGN

Study enrolled 50 patients with BMI of 27 to 40 kg/m<sup>2</sup> who were prescribed a very low-calorie diet (500-550 kcal/day) for 8 weeks, followed by individual counseling from a dietitian for 1 year with the aim of weight maintenance and suggested 30 minutes of physical activity on most days of the week. Circulating levels of appetite-regulating hormones were measured at weeks 10 and 62 and were compared with baseline levels.<sup>1</sup>

Along with lifestyle modifications, including diet and exercise, pharmacotherapy can be a useful tool in chronic weight management.<sup>2,3</sup>

# Metabolic adaptation drives **WEIGHT REGAIN**

Weight loss due to calorie restriction may cause the body to react by slowing metabolism and altering appetite-regulating hormones.<sup>1,4</sup>



**The body's reaction to weight loss due to caloric reduction may result in an increase in the hunger hormone and a decrease in satiety hormones<sup>1</sup>**

## STUDY DESIGN

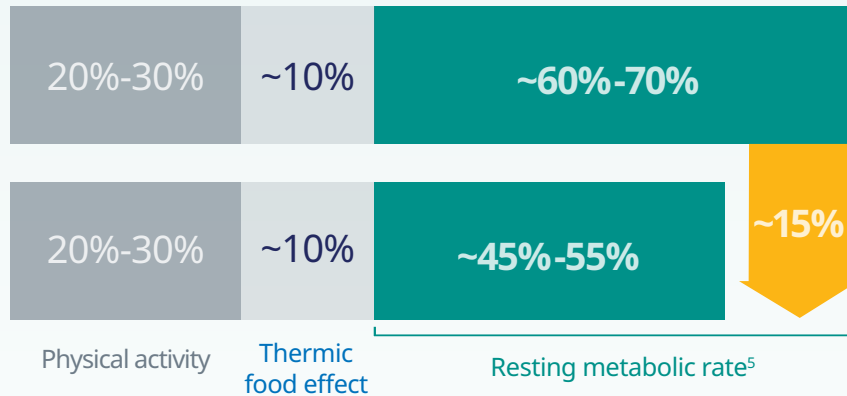
Study enrolled 50 overweight or obese patients without diabetes in a 10-week weight-loss program, with a very-low-energy diet prescribed. The circulating levels of leptin, ghrelin, peptide YY, gastric inhibitory polypeptide, glucagon-like peptide 1, amylin, pancreatic polypeptide, cholecystinin, insulin, and subjective ratings of appetite were examined at baseline (before weight loss), at 10 weeks (after program completion), and at 62 weeks.<sup>1</sup>

CCK, cholecystinin; GLP-1, glucagon-like peptide-1; PYY, peptide YY.

# Weight-loss success isn't a matter of willpower.

## IT'S BIOLOGY

The bodies of people with obesity may override lifestyle modifications, making it difficult to maintain weight loss.<sup>1,4,5</sup>



### STUDY DESIGN

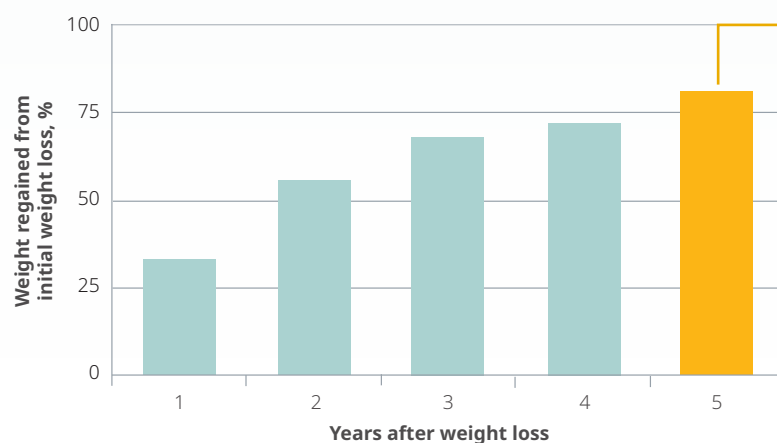
A review of data from indirect calorimetry to gain insight into the determinants of energy metabolism and its role in weight gain, and therefore the use of such method to combat obesity.<sup>5</sup>

Weight loss can reduce resting metabolic rate by **~15%, which consequently decreases total energy expenditure.<sup>6\*</sup>**

\*Data from a 2-part study where 20 subjects underwent an 11-week weight-loss program. Results observed after fat mass loss of 15% of baseline.<sup>6</sup>

## Making the case for long-term **WEIGHT MANAGEMENT**

After short-term success through diet, only some patients with obesity maintain long-term weight loss.<sup>7</sup>



After 5 years, the average patients regained nearly 80% of weight lost.<sup>7</sup>

Data from a meta-analysis of 29 studies that analyzed long-term weight loss and weight management after either very-low-calorie diet or hypoenergetic balanced diets. Of the 29 studies, 8 had follow-up as late as 5 years.<sup>7</sup>

# Help end the physiological tug-of-war between **WEIGHT LOSS AND WEIGHT REGAIN**

Visit [www.rethinkobesity.com](http://www.rethinkobesity.com) to learn more about how metabolic adaptation may be impacting long-term weight management.

## Brain's role in appetite regulation

Signals to the brain can affect food intake.<sup>1,4</sup> **Learn more**

## Pharmacotherapy may help sustain weight loss<sup>2,3</sup>

Physical activity and healthy eating may not be enough to achieve long-term benefits.<sup>1,4</sup> **Discover why**

**References:** 1. Sumithran P, Prendergast LA, Delbridge E, et al. Long-term persistence of hormonal adaptations to weight loss. *Obstet Gynecol Surv.* 2012;67(2):91-92. 2. Garvey WT, Mechanick JI, Brett EM, et al. American Association of Clinical Endocrinologists and American College of Endocrinology comprehensive clinical practice guidelines for medical care of patients with obesity. *Endocr Pract.* 2016;22(suppl 3):1-203. 3. Bray GA, Frühbeck G, Ryan DH, Wilding JPH. Management of obesity. *Lancet.* 2016;387(10031):1947-1956. 4. Lam YY, Ravussin E. Analysis of energy metabolism in humans: A review of methodologies. *Mol Metab.* 2016;5(11):1057-1071. 5. Lam YY, Ravussin E. Indirect calorimetry: an indispensable tool to understand and predict obesity. *Eur J Clin Nutr.* 2017;71(3):318-322. 6. Connolly J, Romano T, Patruno M. Selections from current literature: effects of dieting and exercise on resting metabolic rate and implications for weight management. *Fam Pract.* 1999;16(2):196-201. 7. Anderson JW, Konz EC, Frederich RC, Wood CL. Long-term weight loss maintenance: a meta-analysis of US studies. *Am J Clin Nutr.* 2001;74(5):579-584.