



TIME TO ACT ON OBESITY

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Understanding Obesity and the Science Behind Bariatric Surgery

Key messages for Healthcare Professionals to share with patients

Many patients with obesity want to understand their disease and their struggles with it more clearly. Although the idea of a “set point” for body fat is foreign to most people, it is a key concept that helps to explain obesity, the reasons why diet and exercise often fail to produce durable weight loss, and the science behind bariatric surgery.

Set Point and the Energy Balance Equation

The number of calories consumed must equal the number of calories expended if weight is to remain stable, but *how* this equilibrium is maintained – and the degree of precision to which the body regulates it – is often misunderstood. The body has a complex system in place that precisely regulates energy intake and expenditure to keep within a “set point range” for body fat, and this usually holds weight within a narrow range. This system works to adjust hunger, activity, and metabolism to keep weight stable like a home thermostat adjusting the heat to keep the temperature stable.

Understanding Obesity

Obesity is a biological response to the environment in which we live. It's more prevalent today because our environment has changed. Changes to the chemical and nutrient content of our food, decreased physical activity, increased levels of stress, inadequate and disrupted sleep, and more widespread use of medications that promote weight gain have likely all played a role. Our unique genetics and developmental histories cause each of us to respond differently to these aspects of the modern environment, and many people's bodies respond by sending hormonal signals that elevate their set point for body fat, sometimes resulting in obesity. It's as though the temperature setting on their thermostat has been raised; their system is still working, but it's working to maintain a temperature that is too high.

Why Diet and Exercise Often Fail to Produce Durable Weight Loss

Many people attempt to lose weight by altering one or both sides of their energy balance equation – by reducing caloric consumption through diet and/or burning more calories through exercise. Unfortunately, however, set point is often a one-way street; once it's been elevated, it's difficult to lower it. Diet and exercise may initially result in weight loss, but the body's tendency is to defend its current set point. Therefore, the body may respond by sending hormonal signals to decrease satiety, increase hunger, and reduce the number of calories burned throughout the day in order to return to its set point. This essentially becomes a battle between biology and willpower, and biology usually wins. Returning to the thermostat analogy, diet and exercise is similar to opening the windows on a cold day: The temperature inside the home drops initially, but the thermostat responds by triggering the furnace to re-warm the house.

How Bariatric Surgery Works

In study after study, bariatric surgery has been shown to be the most effective long-term treatment of obesity. New research suggests that some types of bariatric surgery – for example, gastric bypass, vertical sleeve gastrectomy, and duodenal switch – work by changing the signals that regulate set point for body fat. The hormones that may work against an individual's conscious efforts when dieting do the exact opposite after surgery. Many patients experience a decrease in hunger, increased satiety, and even healthier food preferences as the body regulates itself down to a lower set point for body fat.