



Understanding Obesity and 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

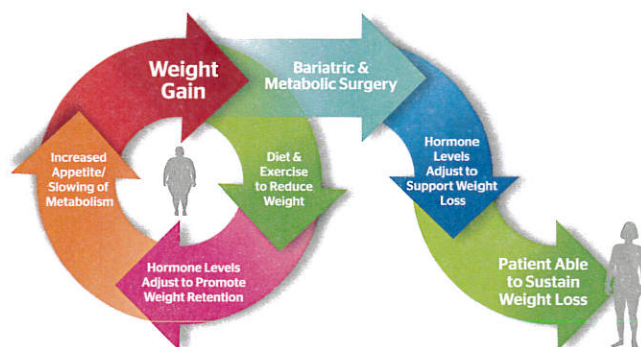
Obesity is a biological response to the environment in which we live. It’s more prevalent today because our environment has changed. Changes to the chemical and nutrient content of our food, decreased physical activity, increased levels of stress, inadequate and disrupted sleep, and more widespread use 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.² 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.



What are the potential results with bariatric surgery?

To help you discuss potential results with your patients, the Bariatric Surgery Comparison Tool lets you view personalized information about the three most common surgical treatment options. Patients input information about themselves to see post-surgical results of similar patients who most closely match their profile from a database of over 78,000 people. This tool enables you and your patients to make informed decisions as you explore bariatric surgery versus other treatment options. To use the tool, go to www.ethicon.com/obesity and click on the Bariatric Surgery Comparison Tool.



Bariatric Surgery Weight Loss Clinical Results

According to the NIH Consensus Statement of 2005, surgery is the only way to obtain consistent, permanent weight loss for patients with severe obesity. These results suggest bariatric surgery provides significantly stronger excess weight loss compared to pharmacotherapy and/or lifestyle modification.

Obesity Treatment Results - Potential results below based on published data from various recent studies; treatments were not directly compared in head to head trials.

Treatment	Average Weight Loss at 3 Years	Average Weight Loss at 5 Years
Diet and Exercise	- 0.1% ³	- 1.6% ³
Drug therapy	11.0% ⁴	Not enough data
Surgery	Excess Weight Loss at 3 Years	Excess Weight Loss at 5 Years
Gastric Bypass	71.2% ⁵	60.5% ⁷
Sleeve Gastrectomy	66.0% ⁶	49.0% ⁷
Gastric Band	55.2% ⁵	29.5% ⁷

Percent **average** weight loss = % of total body weight lost as a result of treatment

Percent **excess** weight loss = % of body weight in excess of the ideal body weight that is lost as a result of treatment

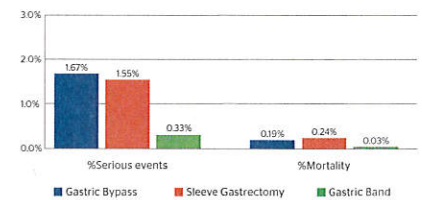
Bariatric Surgery Obesity-related Diseases Clinical Results

Recently there have been numerous publications highlighting the advantages of bariatric and metabolic surgery for the treatment of obesity-related diseases. Data from some of these studies include:

- Migraines 46% improved⁸
- Depression 47% reduced⁹
- 96% resolution of headaches¹⁰
- Obstructive sleep apnea 45% to 76% resolved^{11,12}
- Asthma 39% resolved¹³
- Nonalcoholic fatty liver disease 37% resolution of steatosis¹⁴
- GERD 72% to 95% resolved^{5,15}
- Polycystic ovarian syndrome 52% resolution of hirsutism¹⁵
- 100% resolution of menstrual dysfunction¹⁶
- Urinary stress incontinence 50% resolved¹⁷
- Type 2 diabetes 45% to 68% resolved^{11,18}
- Metabolic syndrome 80% resolved¹⁴
- High blood pressure 42% to 66% resolved^{11,12,19}
- High cholesterol 71% to 94% improved²⁰
- Osteoarthritis/degenerative joint disease 41% resolved⁹
- Venous stasis disease 95% resolution of venous stasis ulcers²¹

Risks Associated with Bariatric Surgery*

Adverse events - Bariatric Surgery Centers of Excellence must report outcome data to a national registry, thereby providing good data to assess the results of the surgery. Based on reported procedures to the national registry from June 2007 to September 2009, the percentage of serious events following all 3 types of bariatric surgery was below 2%. The percentage of mortality was less than 0.25%. The mortality rate for bariatric and metabolic surgery is lower than for common procedures such as a laparoscopic cholecystectomy, hip replacement or coronary artery bypass.²² While there are risks with any surgery, advances in bariatric surgery over the years and the fact that 90% are performed laparoscopically²³ have reduced the incidence of serious events and/or deaths.



*There are risks with any surgery, such as adverse reactions to medications, problems with anesthesia, problems breathing, bleeding, blood clots, inadvertent injury to nearby organs and blood vessels, even death. Bariatric surgery has its own risks, including failure to lose weight, nutritional or vitamin deficiencies, and weight regain. Patients should consult their physicians to determine if this procedure is appropriate for their condition.

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