The Science of Obesity

Obesity is not just a lifestyle issue; it is a chronic disease[1-3]

Obesity is recognized as a chronic disease and a significant threat to public health by national organizations such as AACE, ACE, and AMA.[1-3]

> "Our AMA recognizes obesity as a disease state with multiple pathophysiological aspects requiring a range of interventions to advance obesity treatment and prevention."[1]
>
> *American Medical Association (AMA)*

> "Obesity is a complex, multifactorial condition characterized by excess body fat. It must be viewed as a chronic condition that essentially requires perpetual care, support, and follow-up. Obesity causes many other diseases, and it warrants recognition by health-care providers and payers."[2]
>
> *American Association of Clinical Endocrinology/ American College of Endocrinology Obesity Task Force*

Obesity is often classified by a body mass index (BMI) of 30 kg/m^2 or higher.[3]

AACE=American Association of Clinical Endocrinology; ACE=American College of Endocrinology; AMA=American Medical Association.

Obesity Is a Highly Prevalent Chronic Disease Within the United States

Nearly 3 in 4 US Adults Have Obesity or Overweight[4-6]

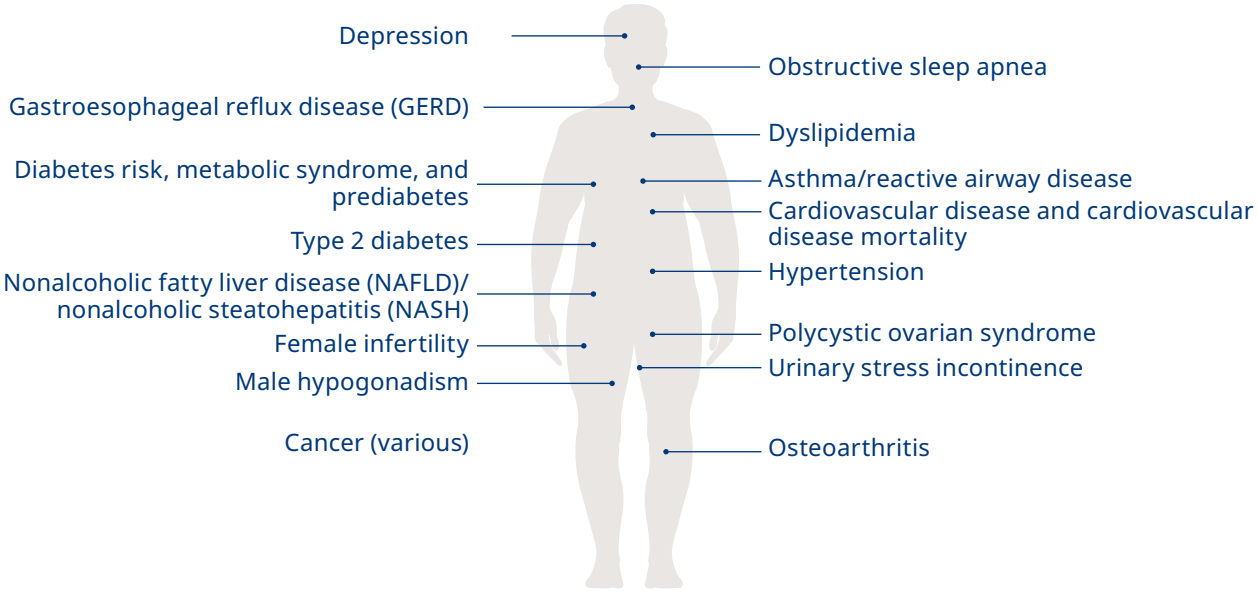
The Center for National Health Statistics found that in adults aged ≥20 years between 2017 and 2018[4-6]:

Nearly **1 in 3**
suffered from overweight
(BMI 25 kg/m^2-29.9 kg/m^2)

Nearly **2 in 5**
suffered from obesity
(BMI ≥30 kg/m^2)

Nearly **1 in 10**
suffered from severe obesity
(BMI ≥40 kg/m^2)

Obesity Is Associated With Other Health Conditions[7,8]



Why Do People Eat? For Hunger or for Pleasure?

Food intake is affected by hormones from the body that signal to the brain.[9]

Eating for hunger is driven by hunger and satiety pathways in the brain.[9-13]

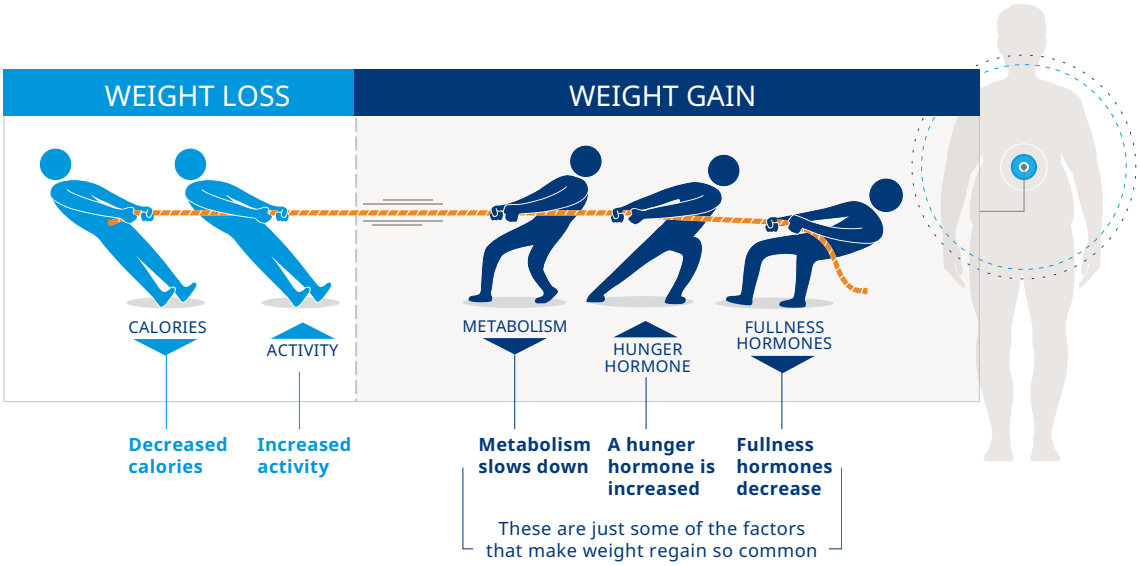
- Appetite hormones released from the intestine, adipose tissue, pancreas, and stomach target the brain

Eating for pleasure is driven by food reward pathways in the brain.

The Tug-of-War of Weight Management[14,15]

After weight loss, the body tries to put weight back on.[14,15]

- Even if people with obesity achieve weight loss through calorie reduction, this weight loss can be difficult to maintain because of the body's metabolic and hormonal responses
- In people with obesity, the body will try to put the weight back on for at least 12 months after weight loss



Weight loss due to calorie restriction may cause the body to react by slowing metabolism and altering appetite-regulating hormones in a process called metabolic adaptation, making long-term weight management difficult[14,15]

Clinical Guidelines for Treatment of Obesity

Evidence-based guidelines from AHA/ACC/TOS suggest a stepwise approach to obesity management, which may include pharmacotherapy or bariatric surgery.[3,a]

AHA/ACC/TOS Evidence-Based Guidelines for Adults[3]

Treatment	BMI Category (kg/m²)				
	25-26.9	27-29.9	30-34.9	35-39.9	≥40
Diet, physical activity, and behavior therapy	Yes, with comorbidities →	Yes →	Yes →	Yes →	Yes
Pharmacotherapy		Yes, with comorbidities →	Yes →	Yes →	Yes
Surgery				Yes, with comorbidities →	Yes

ACC=American College of Cardiology; AHA=American Heart Association; TOS=The Obesity Society.

[a]Yes alone means that the treatment is indicated regardless of presence or absence of comorbidities. The solid arrow signifies the point at which treatment may be initiated.

Weight Loss of 2% to >15% May Lead to Clinical Improvements in Many Obesity-Related Complications[16]

2.5%	helps prevent progression to diabetes; maximal impact at 10%	Glycemic improvement—diabetes prevention in impaired glucose tolerance
2% to 5%	improves ovulatory cycles; greater weight loss associated with greater improvement	Polycystic ovarian syndrome and infertility
2.5% to >15%	greater weight loss associated with greater improvement; true for all BMI classes	• Glycemic improvement—Type 2 diabetes[a] • Triglyceride reduction
5% to 10%	improves knee functionality, speed, walk distance, and pain	Knee pain and function in osteoarthritis
5% to >15%	greater weight loss associated with greater improvement	• HDL cholesterol increase[b] • Hepatic steatosis reduction

HDL=high-density lipoprotein.

[a]Improvement in fasting glucose and hemoglobin A1c is observed beginning at a weight loss of ≥2 to <5%.

[b]Greater weight loss is not associated with greater improvement for BMI >40 kg/m^2.

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