Rethink Obesity™

Discover the science behind the causes, effects, and management

Obesity is a chronic disease requiring long-term management[1–5]

Professional associations have recognized obesity as a global health challenge requiring a "chronic disease management model"[1,5]

WHO

"Obesity is a chronic disease, prevalent in both developed and developing countries, and affecting children as well as adults."[1]

AMA

"Recognizing obesity as a disease will help change the way the medical community tackles this complex issue that affects approximately one in three Americans."[2]

AACE

"… obesity is a primary disease, and the full force of our medical knowledge should be brought to bear on the prevention and treatment of obesity as a primary disease entity."[3]

TOS

It is the official position of The Obesity Society that obesity should be declared a disease.[4]

Obesity is a complex disease influenced by multiple factors[6,7]:

- Genetic
- Physiologic
- Environmental
- Psychologic

1. WHO. *World Health Organ Tech Rep Ser*. 2000;894:1–253. **2.** AMA. At: http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page. Accessed December 13, 2014. **3.** Mechanick JI et al. *Endocr Pract*. 2012;18(5):642–648. **4.** Allison DB et al. *Obesity*. 2008;16(6):1161–1177. **5.** Jensen MD et al. *J Am Coll Cardiol*. 2014;63(25 pt B):2985–3023. **6.** NHLBI; 1998. NIH publication 98-4083. **7.** Badman MK & Flier JS. *Science*. 2005;307(5717):1909–1914.

Obesity is considered a global pandemic[1]

The global prevalence of obesity has increased significantly over the last 30 years[1]

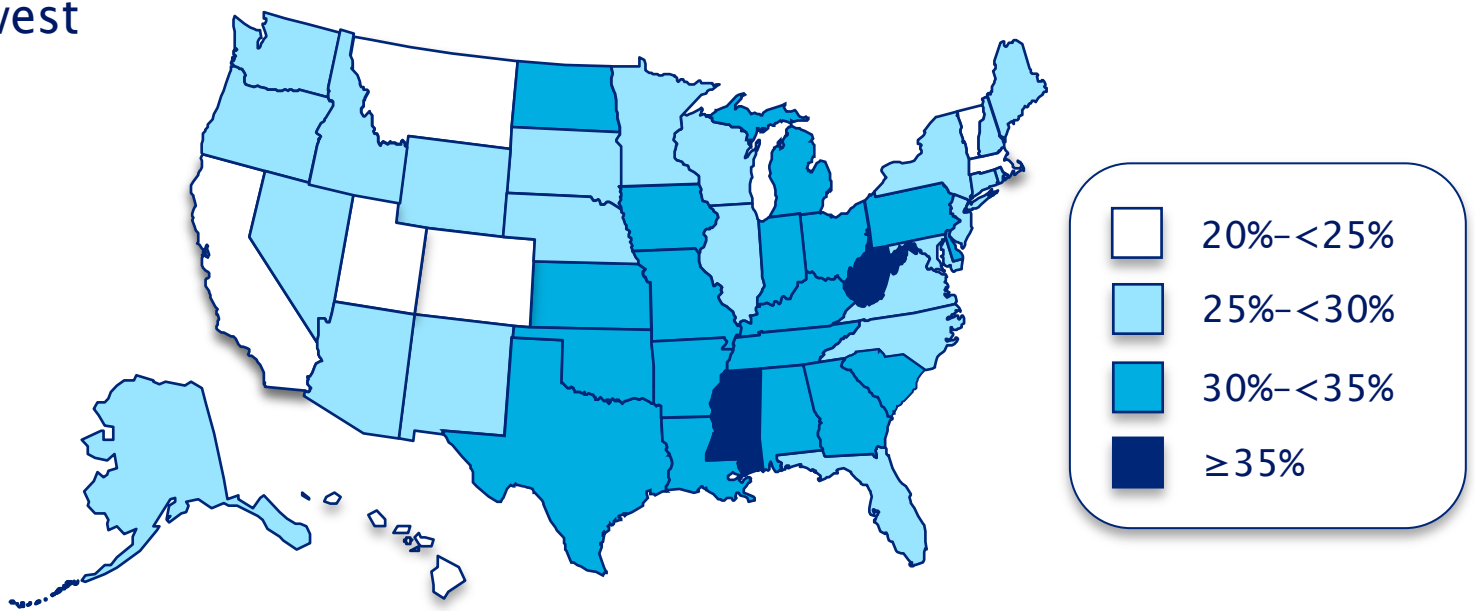
In 2012, more than one-third of adults in the United States were obese[2]

35%

1. Ng M et al. *Lancet.* 2014;384(9945):766–781. **2.** Ogden CL et al. *JAMA.* 2014;311(8):806–814.

Obesity prevalence in the United States

Prevalence varies by state and region and is highest in the South and Midwest



Prevalence reflects Behavioral Risk Factor Surveillance System (BRFSS) methodological changes started in 2011, and these estimates should not be compared to those before 2011. Centers for Disease Control and Prevention. Obesity Prevalence Maps. http://www.cdc.gov/obesity/data/prevalence-maps.html. Accessed September 5, 2014.

Definition of obesity

Definition of obesity

- Obesity is defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation[1]
- BMI (body mass index) provides a convenient population-level measure of obesity[1]

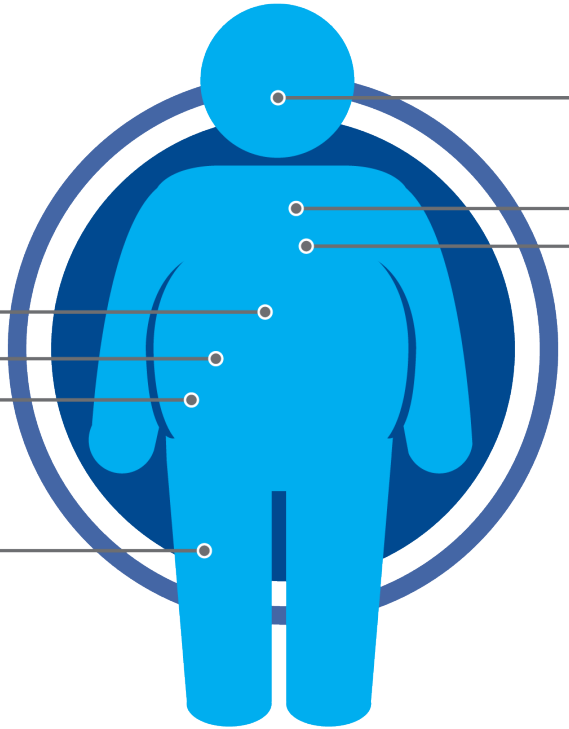
Classification based on BMI[1]

Classification	Underweight	Normal range	Overweight	Obese	Obese, class I	Obese, class II	Obese, class III
BMI	**<18.5**	**≥18.5 and <25**	**≥25 and <30**	**≥30**	**≥30 and <35**	**≥35 and <40**	**≥40**

BMI=the weight in kilograms divided by the square of the height in meters (kg/m^2)

1. WHO. *World Health Organ Tech Rep Ser.* 2000;894:1-253.

Obesity is associated with multiple comorbidities[1–4]



Sleep apnea

Dyslipidemia

Cardiovascular Disease
- Hypertension
- Coronary artery disease
- Congestive heart failure
- Pulmonary embolism
- Stroke

Type 2 diabetes

Gallbladder disease

Cancer (various)

Osteoarthritis

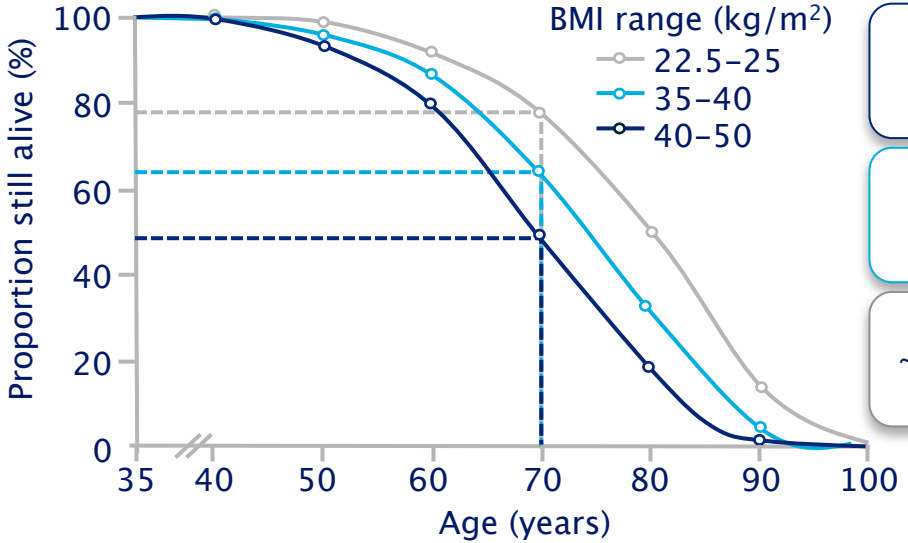
> "… obesity … threatens to reduce [a person's] health in the future even if no health impairment is observed … in a present."[5]

1. Guh DP et al. *BMC Public Health.* 2009;9:88. **2.** Must A et al. *JAMA.* 1999;282(16):1523–1529. **3.** Li C et al. *Prev Med.* 2010;51(1):18–23.
4. Bhaskaran K et al. *Lancet.* 2014;384(9945):755–765. **5.** Allison DB et al. *Obesity.* 2008;16(6):1161–1177.

Risk of mortality is significantly increased

Research showed a decreased life expectancy of up to 10 years[1,a]

Increased BMI associated with decreased life expectancy



BMI 22.5–25 kg/m2= ~80% chance of reaching age 70 years

BMI 35–40 kg/m2= ~60% chance of reaching age 70 years

BMI 40–50 kg/m2= ~50% chance of reaching age 70 years

For every 5 kg/m² BMI increment above the range of 22.5 kg/m² to 25 kg/m², there is a 30% increase in overall mortality

[a]Data from male subjects.

1. Prospective Studies Collaboration et al. *Lancet*. 2009;373(9669):1083–1096.

Patients with obesity can lose years off their life[1,a]

		Years of life lost per age group		
		20–39 years	40–59 years	60–79 years
BMI: 30 to <35[b]	Men	5.9 years	1.7 years	0.8 years
	Women	5.6 years	3.0 years	1.6 years
BMI: ≥35[b]	Men	8.4 years	3.7 years	0.9 years
	Women	6.1 years	5.3 years	0.9 years

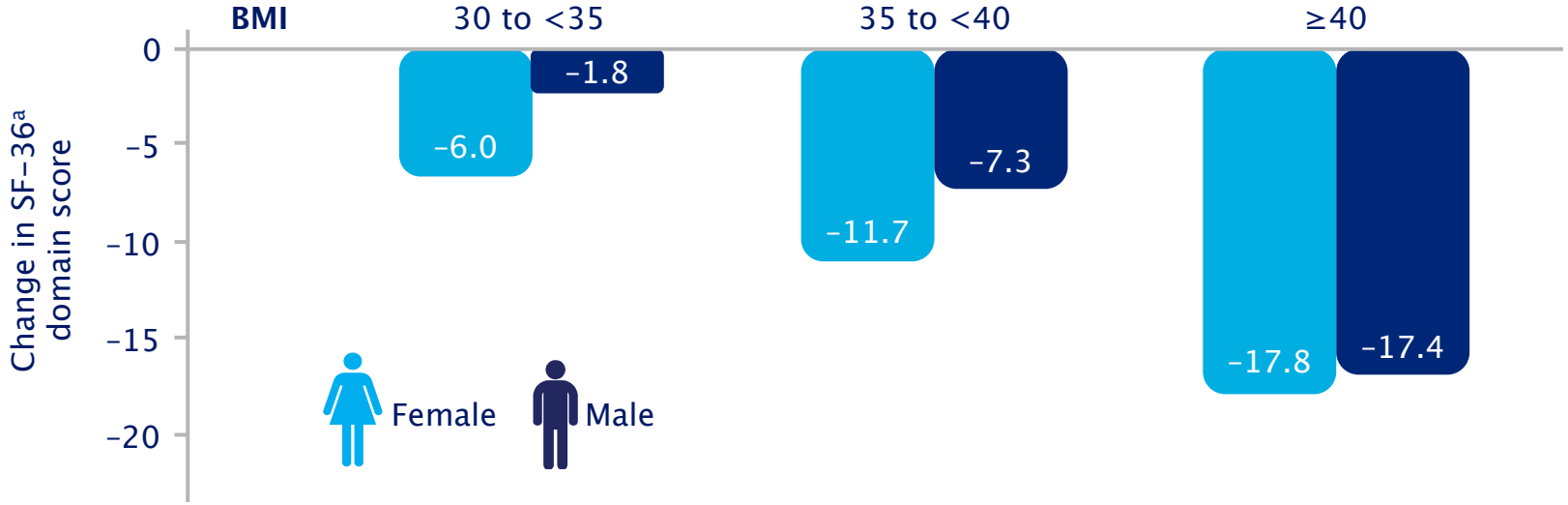
Younger patients with obesity lose the most years off their life

[a]Based on modelling of data from the 2003–2010 National Health and Nutrition Examination Survey. [b]BMI is in units of kg/m^2.

1. Grover SA et al. *Lancet Diabetes Endocrinol*. 2015;3:114–122.

Obesity is associated with impaired physical functioning[1]

The higher the BMI, the greater the risk of impaired physical functioning, which may include limitations in mobility activities such as walking and dressing[2]

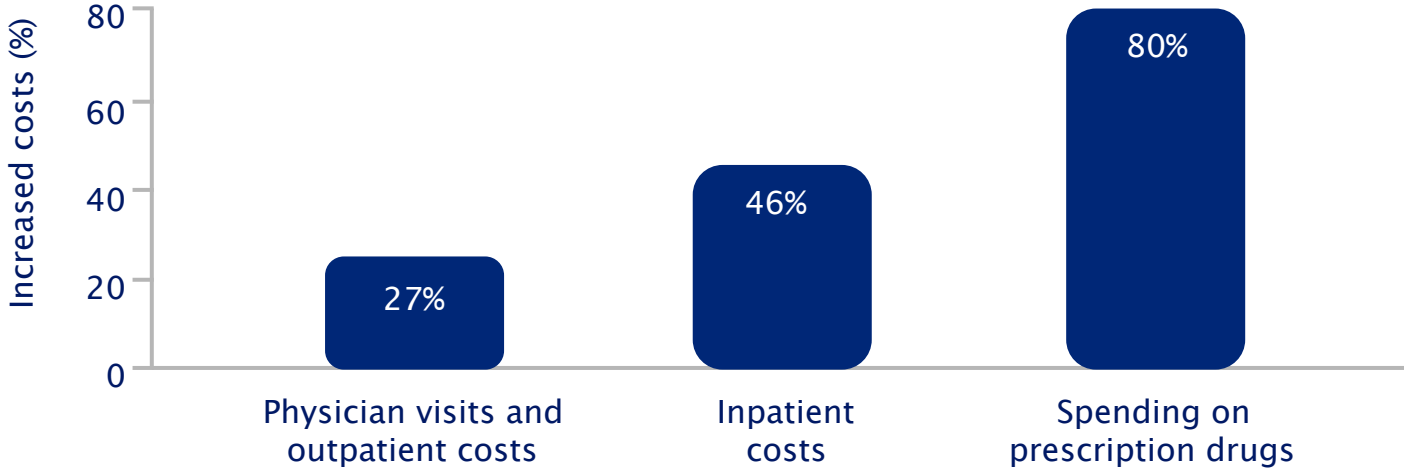


[a]SF-36=international health-related quality of life survey.

1. Hopman WM et al. *Qual Life Res*. 2007;16(10):1595-1603. **2.** Syddall HE et al. *J Nutr Health Aging*. 2009;13(1):57-62.

People with obesity have higher health care costs

With increased medical spending, obesity can become an economic burden on both public and private payers

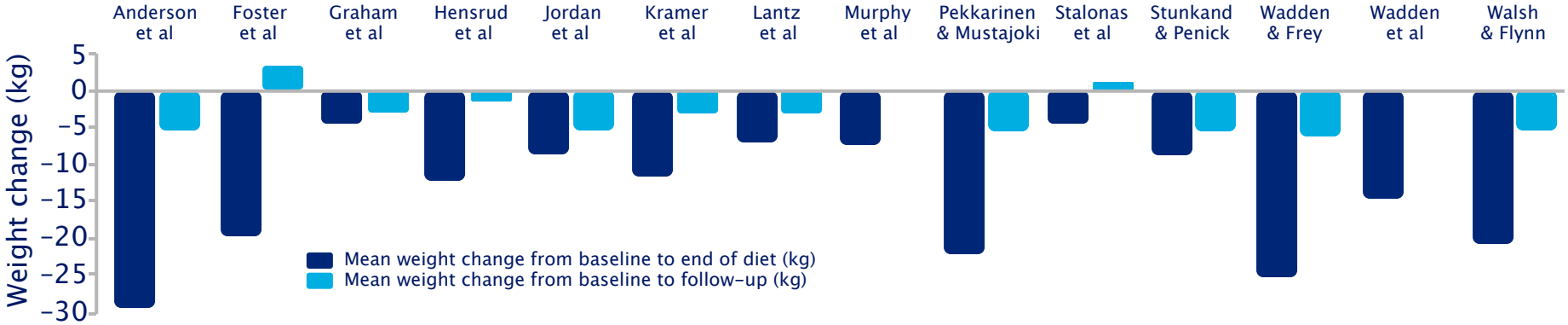


[a]Health care costs associated with obesity are mostly due to treating obesity-related comorbidities

1. Finkelstein EA et al. *Health Aff (Millwood)*. 2009;28(5):w822-w831.

Maintaining weight loss is challenging[1,2]

A review of 14 long-term studies showed that participants regained weight after weight loss achieved by diet[1]



"… the high rate of relapse among obese people who have lost weight has a strong physiological basis and is not simply the result of the voluntary resumption of old habits.[3]"

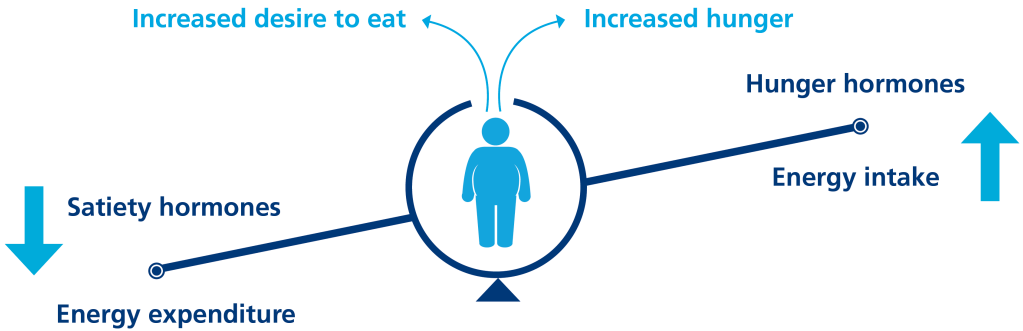
1. Mann T et al. *Am Psychol*. 2007;62(3):220-233. **2.** MacLean PS et al. *Obesity (Silver Spring)*. 2015;23(1):7-15.
3. Sumithran P et al. *N Engl J Med*. 2011;365(17):1597-1604.

Science has discovered that physiologic responses to weight loss trigger weight regain[1–5]

Weight loss in people with obesity causes changes in appetite hormones that increase hunger and the desire to eat for at least 1 year[1]

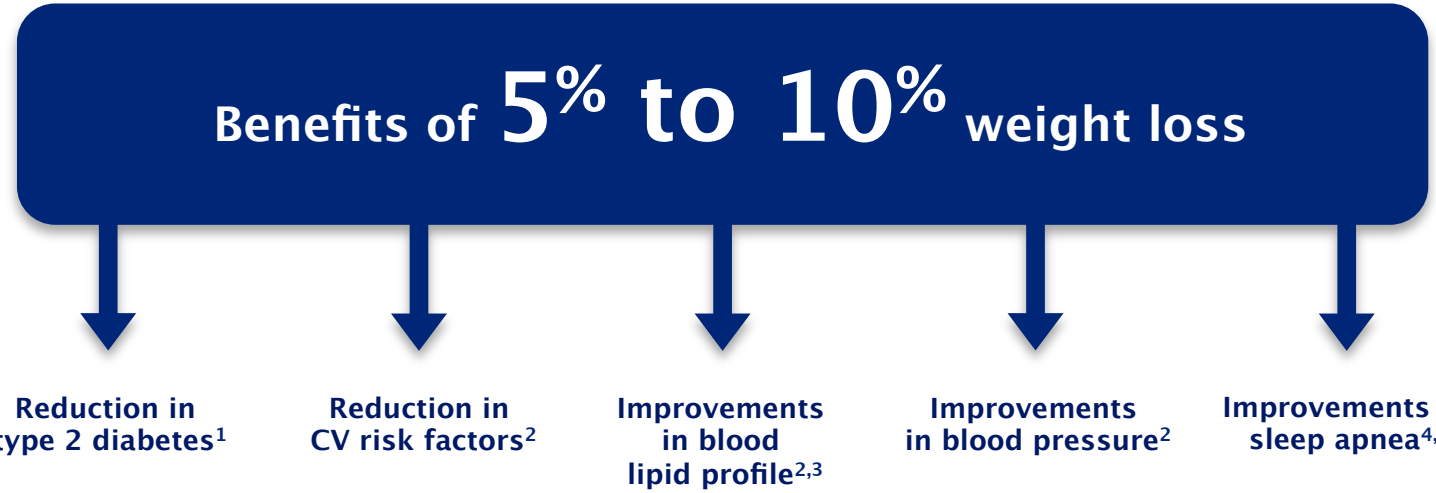
- Multiple hormones, such as ghrelin, GLP-1, and leptin, play an important role in regulating appetite[6]

The brain has a central role in regulating appetite and energy balance. Metabolic adaptations to weight loss include[1–5]:



1. Sumithran P et al. *N Engl J Med*. 2011;365(17):1597–1604. **2.** Schwartz A et al. *Obes Rev*. 2010;11(7):531–547. **3.** Sumithran P et al. *Clin Sci (Lond)*. 2013;124(4):231–241. **4.** Rosenbaum M et al. *Int J Obes (Lond)*. 2010;34(suppl 1):S47–S55. **5.** Rosenbaum M et al. *Brain Res*. 2010;1350:95–102. **6.** Badman MK & Flier JS. *Science*. 2005;307(5717):1909–1914.

A 5% to 10% weight loss may improve obesity-related comorbidities[1–5]



1. Knowler WC et al. *N Engl J Med*. 2002;346(6):393–403. **2.** Wing RR et al. *Diabetes Care*. 2011;34(7):1481–1486.
3. Dattilo AM et al. *Am J Clin Nutr*. 1992;56(2):320–328. **4.** Tuomilehto H et al. *Sleep Med*. 2014;15(3):329–335.
5. Foster GD et al. *Arch Intern Med*. 2009;169(17):1619–1626.

Multiple treatment options are needed to help people with obesity lose weight and improve their health[1,2]

Clinical management of obesity: AHA/ACC/TOS guidelines[1,a]

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, with comorbidities	Yes	Yes	Yes
Pharmacotherapy		Yes, with comorbidities	Yes	Yes	Yes
Surgery				Yes, with comorbidities	Yes

Healthy eating and physical activity must be part of any weight-loss intervention, but are not always sufficient to maintain weight loss[1]

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

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

1. Jensen MD et al. *J Am Coll Cardiol*. 2014;63(25 pt B):2985-3023. **2.** Ferguson C et al. At: https://publichealth.gwu.edu/pdf/obesitydrugmeasures.pdf. Accessed January 8, 2015.

Approaches for physical activity

Get in step

- Begin with short walks and gradually increase your time or distance
- Focus on your posture with your head lifted, tummy pulled in, and shoulders relaxed
- Warm up at an easy pace for the first several minutes
- Stop walking and check with your health care professional if you experience pain when walking

Approaches for healthier eating

In proportion: Sizing up healthy eating

- Set aside small portions of snacks to eat when you have a craving
- Use a portioned plate: ½ for vegetables or fruits, ¼ for whole grains, and ¼ for proteins
- Think of reducing amounts, rather than cutting out your favorite foods
- Establish regular meal times to avoid overeating later in the day
- Pre-portion your servings to control the amount by placing a single serving in a container ahead of time rather than eating from the package

Diet should be **individualized**—there is no **"Best"** diet.

Support from health care professionals can help patients achieve clinically significant and maintained weight loss[1]

Physician-initiated discussions motivate patients to lose weight and change behavior[1,2]

- Patients are less likely to start the dialogue for many reasons, including:
  - Potential for hearing hurtful comments about their weight[3]
  - Fear of being blamed for their weight problems[4]
  - Shame and embarrassment about their weight[4]
- To achieve sustainable weight loss, long-term intervention is often required[5]

1. Loureiro ML et al. *Soc Sci Med*. 2006;62(10):2458-2468. **2.** Rueda-Clausen CF et al. *Clin Obes*. 2014;4(1):39-44. **3.** NIH; 2003. Updated 2011. NIH publication 03-5335. **4.** Ruelaz AR et al. *J Gen Intern Med*. 2007;22(4):518-522. **5.** Jensen MD et al. *J Am Coll Cardiol*. 2014;63 (25 pt B):2985-3023.

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