

Obesity and Metabolic syndrome

Obesity is an increasingly significant U.S. health problem. Over 4 decades, the prevalence of obesity (body mass index [BMI] ≥ 30) has increased from 13 percent to 31 percent in adults and the prevalence of overweight (BMI 25-29.9 kg/m²) has increased from 31 percent to 34 percent.¹ Concurrent increases occurred in adolescents and children. Obesity is especially common in African Americans, some Hispanic populations, and Native Americans and some health sequelae reflect similar ethnic differences. Obesity is more common in women, and overweight is more common in men. Obesity is a risk factor for major causes of death, including cardiovascular disease, numerous cancers, and diabetes, and is linked with markedly diminished life expectancy. Osteoarthritis, gall bladder disease, sleep apnea, respiratory impairment, diminished mobility, and social stigmatization are associated with obesity.

Steps for Treating overweight and Obesity in the Primary care setting

Step 1:

Measure height and weight so that you can estimate your patient's BMI

If pounds and inches are used

BMI = weight (pounds) x 703 / height squared (inches²)

<http://www.nhlbisupport.com/bmi/>

Classification of BMI:

- Underweight <18.5 kg/m²
- Normal weight 18.5–24.9 kg/m²
- Overweight 25–29.9 kg/m²
- Obesity (Class 1) 30–34.9 kg/m²
- Obesity (Class 2) 35–39.9 kg/m²
- Extreme obesity (Class 3) 40 kg/m²

Step 2:

Measure waist circumference

- Excess abdominal fat is an independent risk factor for diabetes, dyslipidemia, hypertension, and cardiovascular disease.
- It is particularly useful in patients who are categorized as normal or overweight.
- It is not necessary to measure waist circumference in individuals with BMIs ≥ 35 kg/m² since it adds little to the predictive power of the disease risk classification of BMI.
- High Risk waist circumference :
 - Men = > 40 inches, and
 - Women = > than 35 inches.

Classification of Overweight and Obesity by BMI, Waist Circumference and Associated Disease Risk

	BMI (kg/m ²)	Obesity Class	Disease Risk* (Relative to Normal Weight and Waist Circumference)	
			Men ≤40 in (≤ 102 cm) Women ≤ 35 in (≤ 88 cm)	> 40 in (> 102 cm) > 35 in (> 88 cm)
Underweight	< 18.5			
Normal†	18.5–24.9			
Overweight	25.0–29.9		Increased	High
Obesity	30.0–34.9	I	High	Very High
	35.0–39.9	II	Very High	Very High
Risk* Extreme Obesity	≥ 40	III	Extremely High	Extremely High

* Disease risk for type 2 diabetes, hypertension, and CVD.

† Increased waist circumference can also be a marker for increased risk even in persons of normal weight.

Adapted from “Preventing and Managing the Global Epidemic of Obesity. Report of the World Health Organization Consultation of Obesity.” WHO, Geneva, June 1997.26

Table

Step 3:

Assess co morbidities for the “Assessment of Risk Status.”

The following diseases/risk factors place patient at a high absolute risk for subsequent mortality, and they require aggressive treatment:

- 1) Established coronary heart disease, other atherosclerotic diseases, DM-2, and sleep apnea
- 2) Three or more of the following are considered high risk,
 - a. hypertension,
 - b. cigarette smoking,
 - c. high low-density lipoprotein cholesterol (LDL-C),
 - d. low high-density lipoprotein cholesterol (HDL-C),
 - e. impaired fasting glucose,
 - f. family history of early cardiovascular disease, and age (male 45 years, female 55 years).

- 3) Other disease/conditions that denote high absolute risk but are not generally life threatening are:
 - a. Osteoarthritis,
 - b. gallstones,
 - c. stress incontinence, and
 - d. gynecological abnormalities such as amenorrhea and menorrhagia also increase risk.

Step 4:

Decide if the patient should be treated?

Weight loss therapy is recommended for patients:

- 1) With a BMI > 30 and
- 2) For BMI between 25-29.9
- 3) Or a high risk waist circumference and 2 or more risk factors.

Step 5:

Is the patient ready and motivated to lose weight? Evaluation of readiness should include the following:

- 1) reasons and motivation for weight loss,
- 2) previous attempts at weight loss,
- 3) support expected from family and friends,
- 4) understanding of risks and benefits,
- 5) attitudes toward physical activity,
- 6) time availability, and
- 7) Potential barriers to the patient's adoption of change.

Step 6:

If the answer is "yes" to treatment, decide which treatment is best using the following table.

A Guide to Selecting Treatment

Treatment	BMI Category				
	25-26.9	27-29.9	30-34.9	35-39.9	> 40
Diet, physical activity and behavior therapy	With comorbidities	With comorbidities	+	+	+
Pharmacotherapy		With comorbidities	+	+	+
Surgery				With comorbidities	

Goals of therapy:

Goals of therapy are to reduce body weight and maintain a lower body weight for the long term; the prevention of further weight gain is the minimum goal.

- 1) An initial weight loss of 10 percent of body weight achieved over 6 months is a recommended target.
- 2) The rate of weight loss should be 1 to 2 pounds per week.

- 3) Greater rates of weight loss do not achieve better long-term results.
- 4) After the first 6 months of weight loss therapy, the priority should be weight maintenance achieved through combined changes in diet, physical activity, and behavior.
- 5) Further weight loss can be considered after a period of weight maintenance.

Dietary Therapy:

- 1) Caloric intake should be reduced by 500 to 1,000 calories per day (kcal/day) from the current level this will produce the recommended weight loss of 1-2 pounds per week..
- 2) The diet should be low in calories, but it should not be too low (less than 800 kcal/day). Diets lower than 800 kcal/day have been found to be no more effective than low-calorie diets in producing weight loss. They should not be used routinely, especially not by providers untrained in their use.
- 3) In general, diets containing 1,000 to 1,200 kcal/day should be selected for most women;
- 4) A diet between 1,200 kcal/day and 1,600 kcal/day should be chosen for men and may be appropriate for women who weigh 165 pounds or more, or who exercise regularly.
- 5) If the patient can stick with the 1,600 kcal/day diet but does not lose weight you may want to try the 1,200 kcal/day diet.
- 6) If a patient on either diet is hungry, you may want to increase the calories by 100 to 200 per day. Included in Appendix D are samples of both a 1,200 and 1,600 calorie diet.
- 7) Long-term changes in food choices are more likely to be successful when the patient's preferences are taken into account and when the patient is educated about food composition, labeling, preparation, and portion size.
- 8) Although dietary fat is a rich source of calories, reducing dietary fat without reducing calories will not produce weight loss.
- 9) Frequent contact with practitioners during the period of diet adjustment is likely to improve compliance.

Physical Therapy

Increasing physical activity has direct and indirect effects:

- 1) Increases the energy expenditure and helps in weight loss.
- 2) Reduces the risk of heart disease more than that achieved by weight loss.
- 3) Physical activity should be increased gradually in an obese individual to avoid any injury.
- 4) All adults should set a long term goal to accumulate at least 30 minutes or more of moderate intensity physical activity on most and preferably all, days of the week.

Check Guide to physical activity **appendix -1**

Behavior Therapy

Strategies, based on learning principles such as reinforcement, that provide tools for overcoming barriers to compliance with dietary therapy and/or increased physical activity are helpful in achieving weight loss and weight maintenance.

Specific strategies include

- 1) self-monitoring of both eating habits and physical activity,
- 2) stress management,
- 3) stimulus control,
- 4) problem solving,
- 5) contingency management,
- 6) cognitive restructuring, and
- 7) social support.

Check guide to behavior change **appendix 2**

Pharmacotherapy

Drugs can be used as an adjunct to diet, physical activity changes and behavior therapy in some patients. The decision to add a drug should be made after consideration of all potential risks and benefits and only after all behavioral options have been exhausted. Currently, their use is limited to those patients:

- 1) who have a BMI of > 30, or
- 2) >27 if concomitant obesity related disease or risk factors exist.
- 3) It should be considered in patients in whom life style changes of 6 months duration did not promote any weight loss.

Drugs currently approved by FDA are:

Drug	Action	Adverse Effects
Sibutramine	Norepinephrine, dopamine, and serotonin reuptake inhibitor	Increase in heart rate and blood pressure
Orlistat	Inhibits pancreatic lipase, Decreases fat absorption	Decrease in absorption of fat-soluble vitamins; soft stools and anal leakage

Surgery

Weight loss surgery should be reserved for patients in whom efforts at medical therapy have failed and who are suffering from the complications of extreme obesity.

Gastrointestinal surgery (gastric restriction [vertical gastric banding] or gastric bypass [Roux-en Y]) is an intervention weight loss option for motivated subjects with acceptable operative risks.

An integrated program must be in place to provide guidance on diet, physical activity, and behavioral and social support both prior to and after the surgery.

Surgery is an option for the following patients:

- 1) BMIs \geq 40 or
- 2) \geq 35 with comorbid conditions.

Gastric Bypass Surgery Complications: 14-Year Follow-Up

Complications	Number	Percent
Vitamin B12 deficiency	239	39.9
Readmit for various reasons	229	38.2
Incisional hernia	143	23.9
Depression	142	23.7
Staple line failure	90	15.0
Gastritis	79	13.2
Cholecystitis	68	11.4
Anastomotic problems	59	9.8
Dehydration malnutrition	35	5.8
Dilated pouch	19	3.2

Step 7:

- Review the Weekly Food and Activity Diary with the patient.
- 1) Remind the patient that record-keeping has been shown to be one of the most successful behavioral techniques for weight loss and maintenance.
 - 2) Write down the diet, physical activity, and behavioral goals you have agreed on at the bottom.

Step 8:

- Give the patient copies of the
- 1) dietary information
 - 2) the Guide to Physical Activity (appendix 1)
 - 3) the Guide to Behavior Change (appendix 2)
 - 4) the Weekly Food and Activity Diary

Step 9:

Enter the patient's information and the goals you have agreed on in the Weight and Goal Record

- 1) It is important to keep track of the goals you have set and to ask the patient about them at the next visit to maximize compliance.
- 2) Have the patient schedule an appointment to see you or your staff for follow up in 2 to 4 weeks.