

**The Practical  
Guide**

Identification,  
Evaluation,  
and Treatment  
of Overweight and  
Obesity in Adults

Obesity

Waist Circumference

BMI

Treatment  
overweight



**ACKNOWLEDGMENTS:**

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National Institutes of Health



NHLBI Obesity Education Initiative



National Heart, Lung, and Blood Institute



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# Table of Contents

<b>Foreword</b> .....	<b>v</b>
<b>How To Use This Guide</b> .....	<b>vi</b>
<b>Executive Summary</b> .....	<b>1</b>
Assessment .....	1
Body Mass Index.....	1
Waist Circumference .....	1
Risk Factors or Comorbidities .....	1
Readiness To Lose Weight.....	2
Management.....	2
Weight Loss .....	2
Prevention of Weight Gain .....	2
Therapies.....	2
Dietary Therapy .....	2
Physical Activity .....	3
Behavior Therapy .....	3
Pharmacotherapy.....	3
Weight Loss Surgery.....	4
Special Situations .....	4
<b>Introduction</b> .....	<b>5</b>
The Problem of Overweight and Obesity .....	5
<b>Treatment Guidelines</b> .....	<b>7</b>
Assessment and Classification of Overweight and Obesity .....	8
Assessment of Risk Status .....	11
Evaluation and Treatment Strategy .....	15
Ready or Not: Predicting Weight Loss .....	21
Management of Overweight and Obesity .....	23
<b>Weight Management Techniques</b> .....	<b>25</b>
Dietary Therapy .....	26
Physical Activity.....	28
Behavior Therapy .....	30
Making the Most of the Patient Visit.....	30
Pharmacotherapy .....	35
Weight Loss Surgery .....	38
<b>Weight Reduction After Age 65</b> .....	<b>41</b>
<b>References</b> .....	<b>42</b>

<b>Introduction to the Appendices .....</b>	<b>45</b>
Appendix A. Body Mass Index Table.....	46
Appendix B. Shopping—What to Look For .....	47
Appendix C. Low Calorie, Lower Fat Alternatives .....	49
Appendix D. Sample Reduced Calorie Menus.....	51
Appendix E. Food Exchange List.....	57
Appendix F. Food Preparation—What to Do .....	59
Appendix G. Dining Out—How To Choose.....	60
Appendix H. Guide to Physical Activity .....	62
Appendix I. Guide to Behavior Change .....	68
Appendix J. Weight and Goal Record .....	71
Appendix K. Weekly Food and Activity Diary.....	74
Appendix L. Additional Resources.....	75

**List of Tables**

Table 1.	Classifications for BMI .....	1
Table 2.	Classification of Overweight and Obesity by BMI, Waist Circumference, and Associated Disease Risk.....	10
Table 3.	A Guide to Selecting Treatment.....	25
Table 4.	Low-Calorie Step I Diet .....	27
Table 5.	Examples of Moderate Amounts of Physical Activity .....	29
Table 6.	Weight Loss Drugs .....	36

**List of Figures**

Figure 1.	Age-Adjusted Prevalence of Overweight (BMI 25–29.9) and Obesity (BMI $\geq$ 30) .....	6
Figure 2.	NHANES III Age-Adjusted Prevalence of High Blood Pressure (HBP), High Total Blood Cholesterol (TBC), and Low-HDL by Two BMI Categories ..	6
Figure 3.	Measuring-Tape Position for Waist (Abdominal) Circumference in Adults .....	9
Figure 4.	Treatment Algorithm .....	16
Figure 5.	Surgical Procedures in Current Use.....	38

# Foreword

In June 1998, the *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: Evidence Report* was released by the National Heart, Lung, and Blood Institute's (NHLBI) Obesity Education Initiative in cooperation with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The impetus behind the clinical practice guidelines was the increasing prevalence of overweight and obesity in the United States and the need to alert practitioners to accompanying health risks.

The Expert Panel that developed the guidelines consisted of 24 experts, 8 ex-officio members, and a consultant methodologist representing the fields of primary care, clinical nutrition, exercise physiology, psychology, physiology, and pulmonary disease. The guidelines were endorsed by representatives of the Coordinating Committees of the National Cholesterol Education Program and the National High Blood Pressure Education Program, the North American Association for the Study of Obesity, and the NIDDK National Task Force on the Prevention and Treatment of Obesity.

This *Practical Guide to the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* is largely based on the evidence report prepared by the Expert Panel and describes how health care practitioners can provide their patients with the direction and support needed to effectively lose weight and keep it off. It provides the basic tools needed to appropriately assess and manage overweight and obesity. The guide includes practical information on dietary therapy, physical activity, and behavior therapy, while also providing guidance on the appropriate use of pharmacotherapy and surgery as treatment options.

The Guide was prepared by a working group convened by the North American Association for the Study of Obesity and the National Heart, Lung, and Blood Institute. Three members of the American Society for Bariatric Surgery also participated in the working group. Members of the Expert Panel, especially the Panel Chairman, assisted in the review and development of the final product. Special thanks are also due to the 50 representatives of the various disciplines in primary care and others who reviewed the preprint of the document and provided the working group with excellent feedback.

The Practical Guide will be distributed to primary care physicians, nurses, registered dietitians, and nutritionists as well as to other interested health care practitioners. It is our hope that the tools provided here help to complement the skills needed to effectively manage the millions of overweight and obese individuals who are attempting to manage their weight.



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# How to Use This Guide

**O**verweight and obesity, serious and growing health problems, are not receiving the attention they deserve from primary care practitioners. Among the reasons cited for not treating overweight and obesity is the lack of authoritative information to guide treatment. This *Practical Guide to the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* was developed cooperatively by the North American Association for the Study of Obesity (NAASO) and the National Heart, Lung, and Blood Institute (NHLBI). It is based on the *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: Evidence Report* developed by the NHLBI Expert Panel and released in June 1998. The Expert Panel used an evidence-based methodology to develop key recommendations for assessing and treating overweight and obese patients. The goal of the Practical Guide is to provide you with the tools you need to effectively manage your overweight and obese adult patients in an efficient manner.

The Guide has been developed to help you easily access all of the information you need.

- The Executive Summary contains the essential information in an abbreviated form.
- The Treatment Guidelines section offers details on assessment and management of patients and features the Expert Panel’s Treatment Algorithm, which provides a step-by-step approach to learning how to manage patients.
- The Appendix contains practical tools related to diet, physical activity, and behavioral modification needed to educate and inform your patients. The Appendix has been formatted so that you can copy it and explain it to your patients.

Managing overweight and obese patients requires a variety of skills. Physicians play a key role in evaluating and treating such patients. Also important are the special skills of nutritionists, registered dietitians, psychologists, and exercise physiologists. Each health care practitioner can help patients learn to make some of the changes they may need to make over the long term. Organizing a “team” of various health care practitioners is one way of meeting the needs of patients. If that approach is not possible, patients can be referred to other specialists required for their care.

**To get started, just follow the Ten Step approach.**



## Ten Steps to Treating Overweight and Obesity in the Primary Care Setting

- 1 Measure height and weight** so that you can estimate your patient's BMI from the table in Appendix A.
- 2 Measure waist circumference** as described on page 9.
- 3 Assess comorbidities** as described on pages 11–12 in the section on “Assessment of Risk Status.”
- 4 Should your patient be treated?** Take the information you have gathered above and use Figure 4, the Treatment Algorithm, on pages 16–17 to decide. Pay particular attention to Box 7 and the accompanying explanatory text. If the answer is “yes” to treatment, decide which treatment is best using Table 3 on page 25.
- 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.
- 6 Which diet should you recommend?** In general, diets containing 1,000 to 1,200 kcal/day should be selected for most women; 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. 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. 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 Discuss a physical activity goal** with the patient using the Guide to Physical Activity (see Appendix H). Emphasize the importance of physical activity for weight maintenance and risk reduction.
- 8 Review the Weekly Food and Activity Diary** (see Appendix K) with the patient. Remind the patient that record-keeping has been shown to be one of the most successful behavioral techniques for weight loss and maintenance. Write down the diet, physical activity, and behavioral goals you have agreed on at the bottom.
- 9 Give the patient copies of the dietary information** (see Appendices B–G), the Guide to Physical Activity (see Appendix H), the Guide to Behavior Change (see Appendix I), and the Weekly Food and Activity Diary (see Appendix K).
- 10 Enter the patient's information** and the goals you have agreed on in the Weight and Goal Record (see Appendix J). 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. Have the patient schedule an appointment to see you or your staff for followup in 2 to 4 weeks.



# Executive Summary

## Successful treatment ... A lifelong effort.

Treatment of an overweight or obese person incorporates a two-step process: assessment and management. Assessment includes determination of the degree of obesity and overall health status. Management involves not only weight loss and maintenance of body weight but also measures to control other risk factors. Obesity is a chronic disease; patient and practitioner must understand that successful treatment requires a lifelong effort. Convincing evidence supports the benefit of weight loss for reducing blood pressure, lowering blood glucose, and improving dyslipidemias.

## Assessment

### Body Mass Index

Assessment of a patient should include the evaluation of body mass index (BMI), waist circumference, and overall medical risk. To estimate BMI, multiply the individual's weight (in pounds) by 703, then divide by the height (in inches) squared. This approximates BMI in kilograms per meter squared ( $\text{kg}/\text{m}^2$ ). There is evidence to support the use of BMI in risk assessment since it provides a more accurate measure of total body fat compared with the assessment of body

weight alone. Neither bioelectric impedance nor height-weight tables provide an advantage over BMI in the clinical management of all adult patients, regardless of gender. Clinical judgment must be employed when evaluating very muscular patients because BMI may overestimate the degree of fatness in these patients. The recommended classifications for BMI, adopted by the Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults and endorsed by leading organizations of health professionals, are shown in Table 1.

Table 1

Classifications for BMI	
	BMI
Underweight	<18.5 $\text{kg}/\text{m}^2$
Normal weight	18.5–24.9 $\text{kg}/\text{m}^2$
Overweight	25–29.9 $\text{kg}/\text{m}^2$
Obesity (Class 1)	30–34.9 $\text{kg}/\text{m}^2$
Obesity (Class 2)	35–39.9 $\text{kg}/\text{m}^2$
Extreme obesity (Class 3)	$\geq 40$ $\text{kg}/\text{m}^2$

### Waist Circumference

Excess abdominal fat is an important, independent risk factor for disease. The evaluation of waist circumference to assess the risks associated with obesity or overweight is supported by research. The measurement of waist-to-hip ratio provides no advantage over waist circumference alone. Waist circumference measurement is particularly useful in

patients who are categorized as normal or overweight. It is not necessary to measure waist circumference in individuals with BMIs  $\geq 35$   $\text{kg}/\text{m}^2$  since it adds little to the predictive power of the disease risk classification of BMI. Men who have waist circumferences greater than 40 inches, and women who have waist circumferences greater than 35 inches, are at higher risk of diabetes, dyslipidemia, hypertension, and cardiovascular disease because of excess abdominal fat. Individuals with waist circumferences greater than these values should be considered one risk category above that defined

by their BMI. The relationship between BMI and waist circumference for defining risk is shown in Table 2 on page 10.

### Risk Factors or Comorbidities

Overall risk must take into account the potential presence of other risk factors. Some diseases or risk factors associated with obesity place patients at a high absolute risk for

subsequent mortality; these will require aggressive management. Other conditions associated with obesity are less lethal but still require treatment.

Those diseases or conditions that denote high absolute risk are established coronary heart disease, other atherosclerotic diseases, type 2 diabetes, and sleep apnea. Osteoarthritis, gallstones, stress incontinence, and gynecological abnormalities such as amenorrhea and menorrhagia increase risk but are not generally life-threatening. Three or more of the following risk factors also confer high absolute risk: hypertension, cigarette smoking, high low-density lipoprotein cholesterol, low high-density lipoprotein cholesterol, impaired fasting glucose, family history of early cardiovascular disease, and age (male  $\geq 45$  years, female  $\geq 55$  years). The integrated approach to assessment and management is portrayed in Figure 4 on pages 16–17 (Treatment Algorithm).

### Readiness To Lose Weight

The decision to attempt weight-loss treatment should also consider the patient's readiness to make the necessary lifestyle changes. Evaluation of readiness should include the following:

- Reasons and motivation for weight loss
- Previous attempts at weight loss

- Support expected from family and friends
- Understanding of risks and benefits
- Attitudes toward physical activity
- Time availability
- Potential barriers, including financial limitations, to the patient's adoption of change

## Management

### Weight Loss

Individuals at lesser risk should be counseled about effective lifestyle changes to prevent any further

**Weight loss therapy is recommended for patients**

**with a BMI  $\geq 30$  and for patients with a BMI between 25 and 29.9 OR a high-risk waist circumference, and two or more risk factors.**

weight gain. 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. An initial weight loss of 10 percent of body weight achieved over 6 months is a recommended target. The rate of weight loss should be 1 to 2 pounds each week. Greater rates of weight loss do not achieve better long-term results. After the first 6 months of weight loss thera-

py, the priority should be weight maintenance achieved through combined changes in diet, physical activity, and behavior. Further weight loss can be considered after a period of weight maintenance.

### Prevention of Weight Gain

In some patients, weight loss or a reduction in body fat is not achievable. A goal for these patients should be the prevention of further weight gain. Prevention of weight gain is also an appropriate goal for people with a BMI of 25 to 29.9 who are not otherwise at high risk.

## Therapies

A combination of diet modification, increased physical activity, and behavior therapy can be effective.

### Dietary Therapy

*Caloric intake should be reduced by 500 to 1,000 calories per day (kcal/day) from the current level.* Most overweight and obese people should adopt long-term nutritional adjustments to reduce caloric intake. Dietary therapy includes instructions for modifying diets to achieve this goal. Moderate caloric reduction is the goal for the majority of cases; however, diets with greater caloric deficits are used during active weight loss. The diet should be low in calories, but it should not be too low (less than 800 kcal/day). Diets

**Reductions of 500 to 1,000 kcal/day**

**will produce a recommended weight loss of 1 to 2 pounds per week.**

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. In general, diets containing 1,000 to 1,200 kcal/day should be selected for most women; 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. 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. Although dietary fat is a rich source of calories, reducing dietary fat without reducing calories will not produce weight loss. Frequent contact with practitioners during the period of diet adjustment is likely to improve compliance.

### **Physical Activity**

*Physical activity has direct and indirect benefits.*

Increased physical activity is important in efforts to lose weight because it increases energy expen-

diture and plays an integral role in weight maintenance. Physical activity also reduces the risk of heart disease more than that achieved by weight loss alone. In addition, increased physical activity may help reduce body fat and prevent the decrease in muscle mass often found during weight loss. For the obese patient, activity should generally be increased slowly, with care taken to avoid injury. A wide variety of activities and/or household chores, including walking, dancing, gardening, and team or individual sports, may help satisfy this goal. 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.

### **Behavior Therapy**

*Including behavioral therapy helps with compliance.*

Behavior therapy is a useful adjunct to planned adjustments in food intake and physical activity. Specific behavioral strategies include the following: self-monitor-

ing, stress management, stimulus control, problem-solving, contingency management, cognitive restructuring, and social support. Behavioral therapies may be employed to promote adoption of diet and activity adjustments; these will be useful for a combined approach to therapy. Strong evidence supports the recommendation that weight loss and weight maintenance programs should employ a combination of low-calorie diets, increased physical activity, and behavior therapy.

### **Pharmacotherapy**

*Pharmacotherapy may be helpful for eligible high-risk patients.*

Pharmacotherapy, approved by the FDA for long-term treatment, can be a helpful adjunct for the treatment of obesity in some patients. These drugs should be used only in the context of a treatment program that includes the elements described previously—diet, physical activity changes, and behavior therapy. If lifestyle changes do not promote weight loss after 6 months, drugs

**1,000 to 1,200 kcal/day  
for most women**

**1,200 to 1,600 kcal/day  
should be chosen for men**



## Effective Therapies

**A combination of diet modification, increased physical activity, and behavior therapy can be effective.**

should be considered. Pharmacotherapy is currently limited to those patients who have a BMI  $\geq 30$ , or those who have a BMI  $\geq 27$  if concomitant obesity-related risk factors or diseases exist. However, not all patients respond to a given drug. If a patient has not lost 4.4 pounds (2 kg) after 4 weeks, it is not likely that this patient will benefit from the drug. Currently, sibutramine and orlistat are approved by the FDA for long-term use in weight loss. Sibutramine is an appetite suppressant that is proposed to work via norepinephrine and serotonergic mechanisms in the brain. Orlistat inhibits fat absorption from the intestine. Both of these drugs have side effects. Sibutramine may increase blood pressure and induce tachycardia; orlistat may reduce the



absorption of fat-soluble vitamins and nutrients. The decision to add a drug to an obesity treatment program should be made after consideration of all potential risks and benefits and only after all behavioral options have been exhausted.

### Weight Loss Surgery

*Surgery is an option for patients with extreme obesity.*

Weight loss surgery provides medically significant sustained weight loss for more than 5 years in most patients. Although there are risks associated with surgery, it is not yet known whether these risks are greater in the long term than those of any other form of treatment. Surgery is an option for well-informed and motivated patients who have clinically severe obesity (BMI  $\geq 40$ ) or a BMI  $\geq 35$

and serious comorbid conditions. (The term “clinically severe obesity” is preferred to the once commonly used term “morbid obesity.”) Surgical patients should be monitored for complications and lifestyle adjustments throughout their lives.

## Special Situations

*Involve other health professionals when possible, especially for special situations.*

Although research regarding obesity treatment in older people is not abundant, age should not preclude therapy for obesity. In people who smoke, the risk of weight gain is often a barrier to smoking cessation. In these patients, cessation of smoking should be encouraged first, and weight loss therapy should be an additional goal.

A weight loss and maintenance program can be conducted by a practitioner without specialization in weight loss so long as that person has the requisite interest and knowledge. However, a variety of practitioners with special skills are available and may be enlisted to assist in the development of a program.

### clinically severe obesity

**(BMI  $\geq 40$ ) or a BMI  $\geq 35$  and serious comorbid conditions may warrant surgery for weight loss.**



# Introduction

**O**besity is a complex, multifactorial disease that develops from the interaction between genotype and the environment. Our understanding of how and why obesity occurs is incomplete; however, it involves the integration of social, behavioral, cultural, physiological, metabolic, and genetic factors.<sup>1</sup>

Today, health care practitioners are encouraged to play a greater role in the management of obesity. Many physicians are seeking guidance in effective methods of treatment. This guide provides the basic tools needed to assess and manage overweight and obesity in an office setting. A physician who is familiar with the basic elements of these services can more successfully fulfill the critical role of helping the patient improve health by identifying the problem and coordinating other resources within the community to assist the patient.

Effective management of overweight and obesity can be delivered by a variety of health care professionals with diverse skills working as a team. For example, physician involvement is needed for the initial assessment of risk and the prescription of appropriate treatment programs that may include pharmacotherapy, surgery, and the medical management of the comorbidities of obesity. In addition, physicians can

and should engage the assistance of other professionals. This guide provides the basic tools needed to assess and manage overweight and obesity for a variety of health professionals, including nutritionists, registered dietitians, exercise physiologists, nurses, and psychologists. These professionals offer expertise in dietary counseling, physical activity, and behavior changes and can be used for assessment, treatment, and followup during weight loss and weight maintenance. The relationship between the practitioner and these professionals can be a direct, formal one (as a “team”), or it may be based on an indirect referral. A positive, supportive attitude and encouragement from all professionals are crucial to the continuing success of the patient.

## The Problem of Overweight and Obesity

An estimated 97 million adults in the United States are overweight or obese.<sup>2</sup> These conditions substantially increase the risk of morbidity from hypertension,<sup>3</sup> dyslipidemia,<sup>4</sup> type 2 diabetes,<sup>5,6,7,8</sup> coronary artery disease,<sup>9</sup> stroke,<sup>10</sup> gallbladder disease,<sup>11</sup> osteoarthritis,<sup>12</sup> and sleep apnea and respiratory problems,<sup>13</sup> as well as cancers of the endometrium, breast, prostate, and colon.<sup>14</sup> Higher body weights are also associated with an increase in mortality from all causes.<sup>5</sup> Obese individuals may also suffer from social stigmatization and discrimination. As a major cause

of preventable death in the United States today,<sup>15</sup> overweight and obesity pose a major public health challenge.

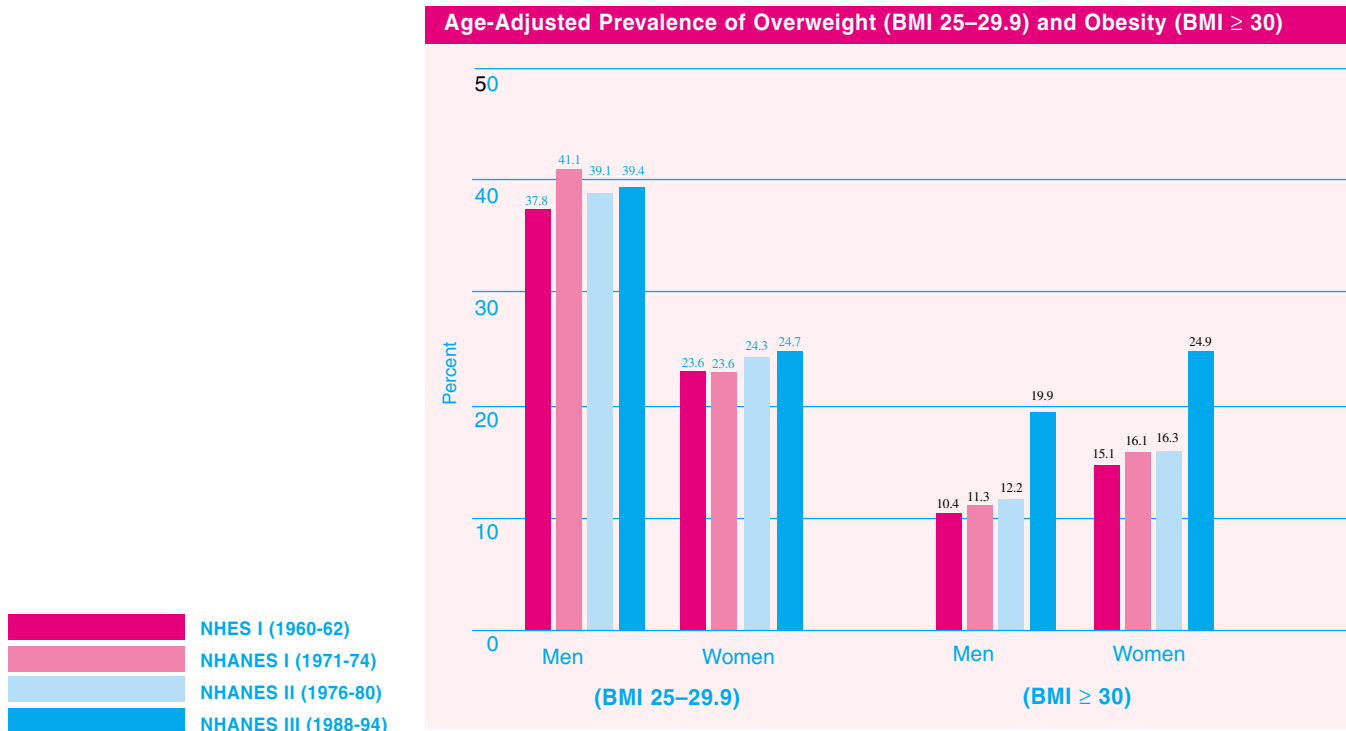
**According to the Expert Panel, overweight is defined as a body mass index (BMI) of 25 to 29.9 kg/m<sup>2</sup>, and obesity is defined as a BMI ≥ 30 kg/m<sup>2</sup>.**

However, overweight and obesity are not mutually exclusive, since obese persons are also overweight. A BMI of 30 indicates an individual is about 30 pounds overweight; it may be exemplified by a 221-pound person who is 6 feet tall or a 186-pound individual who is 5 feet 6 inches tall. The number of overweight and obese men and women has risen since 1960 (Figure 1); in the last decade, the percentage of adults, ages 20 years or older, who are in these categories has increased to 54.9 percent.<sup>2</sup> Overweight and obesity are especially evident in some minority groups, as well as in those with lower incomes and less education.<sup>16,17</sup>

The presence of overweight and obesity in a patient is of medical concern for several reasons. It increases the risk for several diseases, particularly cardiovascular diseases (CVD) and diabetes mellitus.<sup>7,8</sup> Data from NHANES III show that morbidity for a number of health conditions increases as BMI increases in both men and women (Figure 2).

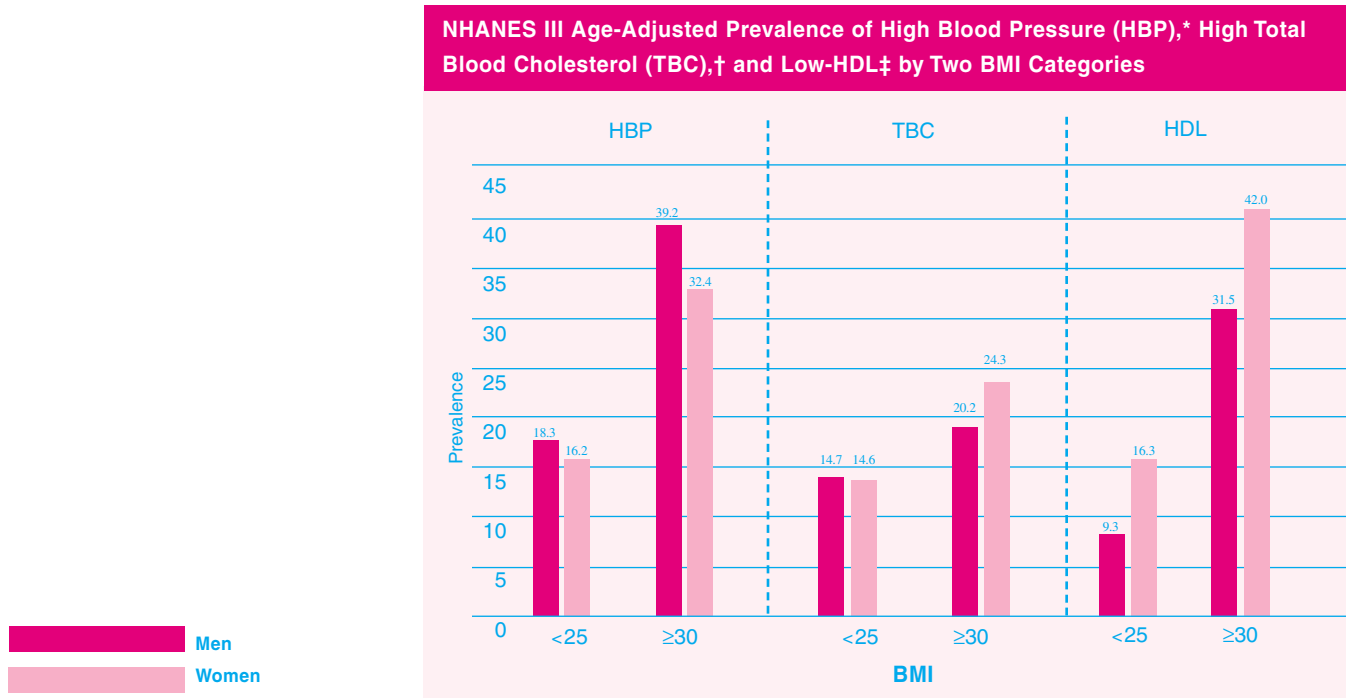


Figure 1



Source: CDC/NCHS. United States. 1960-94, Ages 20-74 years. For comparison across surveys, data for subjects ages 20 to 74 years were age-adjusted by the direct method to the total U.S. population for 1980, using the age-adjusted categories 20-29y, 30-39y, 40-49y, 50-59y, 60-69y, and 70-79y.

Figure 2



\* Defined as mean systolic blood pressure ≥ 140 mm Hg, mean diastolic blood pressure ≥ 90 mm Hg, or currently taking antihypertensive medication.

† Defined as ≥ 240 mg/dl.

‡ Defined as < 35 mg/dl in men and < 45 mg/dl in women.

Source: Brown C et al. Body mass index and the prevalence of hypertension and dyslipidemia (in press).

# Treatment Guidelines

**A**lthough there is agreement about the health risks of overweight and obesity, there is less agreement about their management. Some have argued against treating obesity because of the difficulty in maintaining long-term weight loss, and because of the potentially negative consequences of weight cycling, a pattern frequently seen in obese individuals. Others argue that the potential hazards of treatment do not outweigh the known hazards of being obese. The treatment guidelines provided are based on the most thorough examination of the scientific evidence reported to date on the effectiveness of various treatment strategies available for weight loss and weight maintenance.

Treatment of the overweight and obese patient is a two-step process: assessment and management.

- **Assessment** requires determination of the degree of obesity and the absolute risk status.
- **Management** includes the reduction of excess weight and maintenance of this lower body weight, as well as the institution of additional measures to control any associated risk factors.

The aim of this guide is to provide useful advice on how to achieve weight reduction and how to maintain a lower body weight. Obesity is a chronic disease; the patient and the practitioner need to understand that successful treatment requires a lifelong effort.

## Tailor Treatment to the Needs of the Patient

Standard treatment approaches for overweight and obesity must be tailored to the needs of various patients or patient groups. Large individual variation exists within any social or cultural group; furthermore, substantial overlap occurs among subcultures within the larger society. There is, therefore, no “cookbook” or standardized set of rules to optimize weight reduction with a given type of patient. However, obesity treatment programs that are culturally sensitive and incorporate a patient’s characteristics must do the following:

- Adapt the setting and staffing for the program.
- Understand how the obesity treatment program integrates into other aspects of the patient’s health care and self-care.
- Expect and allow modifications to a program based on a patient’s response and preferences.

## Assessment and Classification of Overweight and Obesity

### You can calculate BMI as follows

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height squared (m}^2\text{)}}$$

### If pounds and inches are used

$$\text{BMI} = \frac{\text{weight (pounds)} \times 703}{\text{height squared (inches}^2\text{)}}$$

A BMI chart is provided in Appendix A.

### Calculation Directions and Sample

Here is a shortcut method for calculating BMI. (Example: for a person who is 5 feet 5 inches tall weighing 180 lbs.)

1. Multiply weight (in pounds) by 703

$$180 \times 703 = 126,540$$

2. Multiply height (in inches) by height (in inches)

$$65 \times 65 = 4,225$$

3. Divide the answer in step 1 by the answer in step 2 to get the BMI.

$$126,540 / 4,225 = 29.9$$

**BMI = 29.9**

### High-Risk Waist Circumference

Men: > 40 in (> 102 cm)

Women: > 35 in (> 88 cm)

**A**lthough accurate methods to assess body fat exist, the measurement of body fat by these techniques is expensive and is often not readily available to most clinicians. Two surrogate measures are important to assess body fat:

- Body mass index (BMI)
- Waist circumference

BMI is recommended as a practical approach for assessing body fat in the clinical setting. It provides a more accurate measure of total body fat compared with the assessment of body weight alone.<sup>18</sup>

The typical body weight tables are based on mortality outcomes, and they do not necessarily predict morbidity. However, BMI has some limitations. For example, BMI overestimates body fat in persons who are very muscular, and it can underestimate body fat in persons who have lost muscle mass (e.g., many elderly). BMI is a direct calculation based on height and weight, regardless of gender.

Waist circumference is the most practical tool a clinician can use to evaluate a patient's abdominal fat

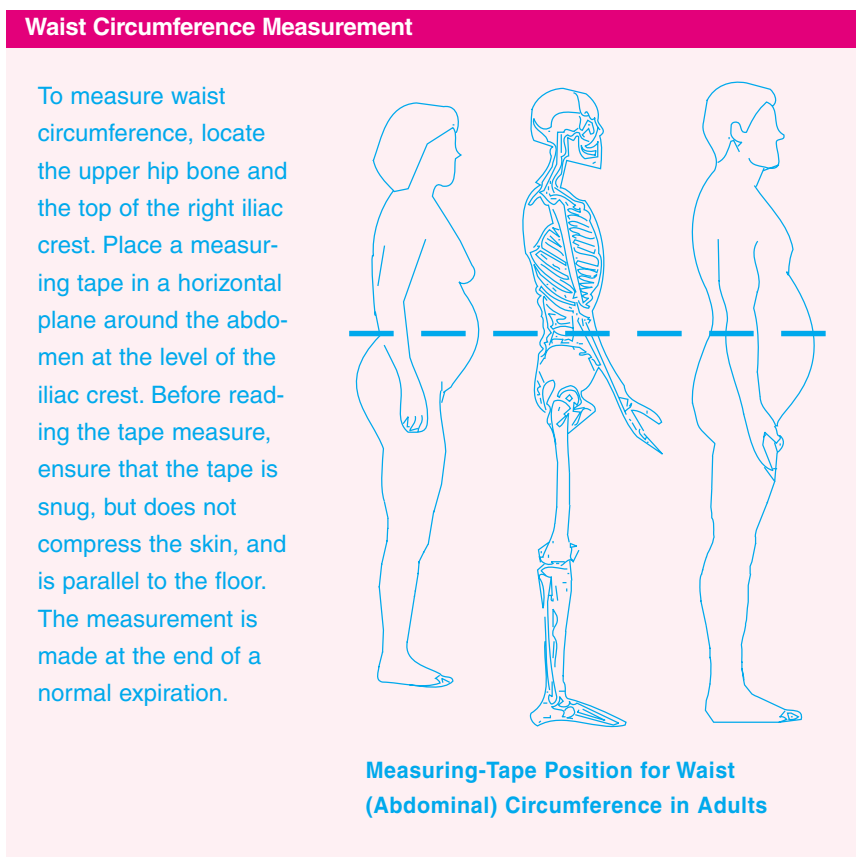
before and during weight loss treatment (Figure 3). Computed tomography<sup>19</sup> and magnetic resonance imaging<sup>20</sup> are both more accurate but are impractical for routine clinical use. Fat located in the abdominal region is associated with a greater health risk than peripheral fat (i.e., fat in the gluteal-femoral region). Furthermore, abdominal fat appears to be an independent risk predictor when BMI is not markedly increased.<sup>21,22</sup> Therefore, waist or abdominal circumference and BMI should be measured not only for the initial assessment of obesity but also for monitoring the efficacy of the weight loss treatment for patients with a BMI < 35.

The primary classification of overweight and obesity is based on the assessment of BMI. This classification, shown in Table 2, relates BMI to the risk of disease. It should be noted that the relationship between BMI and disease risk varies among individuals and among different populations. Some individuals with mild obesity may have multiple risk factors; others with more severe obesity may have fewer risk factors.

### Disease Risks

A high waist circumference is associated with an increased risk for type 2 diabetes, dyslipidemia, hypertension, and CVD in patients with a BMI between 25 and 34.9 kg/m<sup>2</sup>.

Figure 3



It should be noted that the risk levels for disease depicted in Table 2 are relative risks; in other words, they are relative to the risk at normal body weight. There are no randomized, controlled trials that support a specific classification system to establish the degree of disease risk for patients during weight loss or weight maintenance.

Although waist circumference and BMI are interrelated, waist circumference provides an independent prediction of risk over and above that of BMI. The waist circumfer-

ence measurement is particularly useful in patients who are categorized as normal or overweight in terms of BMI. For individuals with a BMI  $\geq 35$ , waist circumference adds little to the predictive power of the disease risk classification of BMI. A high waist circumference is associated with an increased risk for type 2 diabetes, dyslipidemia, hypertension, and CVD in patients with a BMI between 25 and 34.9 kg/m.<sup>2,25</sup>

In addition to measuring BMI, monitoring changes in waist cir-

**Clinical judgment must be used in interpreting BMI**

in situations that may affect its accuracy as an indicator of total body fat. Examples of these situations include the presence of edema, high muscularity, muscle wasting, and individuals who are limited in stature. The relationship between BMI and body fat content varies somewhat with age, gender, and possibly ethnicity because of differences in the composition of lean tissue, sitting height, and hydration state.<sup>23,24</sup> For example, older persons often have lost muscle mass; thus, they have more fat for a given BMI than younger persons. Women may have more body fat for a given BMI than men, whereas patients with clinical edema may have less fat for a given BMI compared with those without edema. Nevertheless, these circumstances do not markedly influence the validity of BMI for classifying individuals into broad categories of overweight and obesity in order to monitor the weight status of individuals in clinical settings.<sup>23</sup>

cumference over time may be helpful; it can provide an estimate of increases or decreases in abdominal fat, even in the absence of changes in BMI. Furthermore, in obese patients with metabolic complications, changes in waist circumfer-

Table 2

Classification of Overweight and Obesity by BMI, Waist Circumference, and Associated Disease Risk*				
	BMI (kg/m <sup>2</sup> )	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)
<b>Underweight</b>	< 18.5		-	-
<b>Normal†</b>	18.5–24.9		-	-
<b>Overweight</b>	25.0–29.9		Increased	High
<b>Obesity</b>	30.0–34.9	I	High	Very High
	35.0–39.9	II	Very High	Very High
<b>Extreme Obesity</b>	≥ 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.<sup>26</sup>

ence are useful predictors of changes in cardiovascular disease (CVD) risk factors.<sup>27</sup> Men are at increased relative risk if they have a waist circumference greater than 40 inches (102 cm); women are at an increased relative risk if they have a waist circumference greater than 35 inches (88 cm).

There are ethnic and age-related differences in body fat distribution that modify the predictive validity of waist circumference as a surro-

gate for abdominal fat.<sup>23</sup> In some populations (e.g., Asian Americans or persons of Asian descent), waist circumference is a better indicator of relative disease risk than BMI.<sup>28</sup> For older individuals, waist circumference assumes greater value for estimating risk of obesity-related diseases. Table 2 incorporates both BMI and waist circumference in the classification of overweight and obesity and provides an indication of relative disease risk.

## Assessment of Risk Status

**A**ssessment of the patient's risk status includes the determination of the following: the degree of overweight or obesity using BMI, the presence of abdominal obesity using waist circumference, and the presence of concomitant CVD risk factors or comorbidities. Some obesity-associated diseases and risk factors place patients in a very high-risk category for subsequent mortality. Patients with these diseases will require aggressive modification of risk factors in addition to the clinical management of the disease. Other obesity-associated diseases are less lethal but still require appropriate clinical therapy. Obesity also has an aggravating influence on several cardiovascular risk factors. Identification of these risk factors is required to determine the intensity of a clinical intervention.

**1. Determine the relative risk status based on overweight and obesity parameters.** Table 2 defines relative risk categories

according to BMI and waist circumference. They relate to the need to institute weight loss therapy, but they do not define the required intensity of risk factor modification. The latter is determined by the estimation of absolute risk based on the presence of associated disease or risk factors.

**2. Identify patients at very high absolute risk.** Patients with the following diseases have a very high absolute risk that triggers the need for intense risk-factor modification and management of the diseases present:

- *Established coronary heart disease (CHD)*, including a history of myocardial infarction, angina pectoris (stable or unstable), coronary artery surgery, or coronary artery procedures (e.g., angioplasty).
- *Presence of other atherosclerotic diseases*, including peripheral

arterial disease, abdominal aortic aneurysm, or symptomatic carotid artery disease.

- *Type 2 diabetes (fasting plasma glucose  $\geq 126$  mg/dL or 2-h postprandial plasma glucose  $\geq 200$  mg/dL)* is a major risk factor for CVD. Its presence alone places a patient in the category of very high absolute risk.
- *Sleep apnea.* Symptoms and signs include very loud snoring or cessation of breathing during sleep, which is often followed by a loud clearing breath, then brief awakening.

**3. Identify other obesity-associated diseases.** Obese patients are at increased risk for several conditions that require detection and appropriate management but that generally do not lead to widespread or life-threatening consequences. These include gynecological abnormalities (e.g., menorrhagia, amenorrhea), osteoarthritis, gallstones and



Men are at increased relative risk for disease if they have a waist circumference greater than 40 inches (102 cm); women are at an increased relative risk if they have a waist circumference greater than 35 inches (88 cm).

## Risk Factors

- Cigarette smoking.
- Hypertension (systolic blood pressure of  $\geq 140$  mm Hg or diastolic blood pressure  $\geq 90$  mm Hg) or current use of antihypertensive agents.
- High-risk low-density lipoprotein (LDL) cholesterol (serum concentration  $\geq 160$  mg/dL). A borderline high-risk LDL-cholesterol (130 to 159 mg/dL) plus two or more other risk factors also confers high risk.
- Low high-density lipoprotein (HDL) cholesterol (serum concentration  $< 35$  mg/dL).
- Impaired fasting glucose (IFG) (fasting plasma glucose between 110 and 125 mg/dL). IFG is considered by many authorities to be an independent risk factor for cardiovascular (macrovascular) disease, thus justifying its inclusion among risk factors contributing to high absolute risk. IFG is well established as a risk factor for type 2 diabetes.
- Family history of premature CHD (myocardial infarction or sudden death experienced by the father or other male first-degree relative at or before 55 years of age, or experienced by the mother or other female first-degree relative at or before 65 years of age).
- Age  $\geq 45$  years for men or age  $\geq 55$  years for women (or postmenopausal).

their complications, and stress incontinence. Although obese patients are at increased risk for gallstones, the risk of this disease increases during periods of rapid weight reduction.

- 4. Identify cardiovascular risk factors that impart a high absolute risk.** Patients can be classified as being at high absolute risk for obesity-related disorders if they have three or more of the multiple risk factors

listed in the chart above. The presence of high absolute risk increases the attention paid to cholesterol-lowering therapy<sup>29</sup> and blood pressure management.<sup>30</sup>

**Other risk factors** deserve special consideration because their presence heightens the need for weight reduction in obese persons.

- *Physical inactivity* imparts an increased risk for both CVD and

type 2 diabetes.<sup>31</sup> Physical inactivity exacerbates the severity of other risk factors, but it also has been shown to be an independent risk factor for all-cause mortality or CVD mortality.<sup>32,33</sup> Although physical inactivity is not listed as a risk factor that modifies the intensity of therapy required for elevated cholesterol or blood pressure, increased physical activity is indicated for management of these conditions (please see the Adult Treatment



### Risk Factors and Weight Loss

In overweight and obese persons weight loss is recommended to accomplish the following:

- Lower elevated blood pressure in those with high blood pressure.
- Lower elevated blood glucose levels in those with type 2 diabetes.
- Lower elevated levels of total cholesterol, LDL-cholesterol, and triglycerides, and raise low levels of HDL-cholesterol in those with dyslipidemia.

Panel II [ATP II<sup>29</sup>] of the National Cholesterol Education Program and the Sixth Report of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure [JNC VI<sup>30</sup>]. Increased physical activity is especially needed in obese patients because it promotes weight reduction as well as weight maintenance, and favorably modifies obesity-associated risk factors.

Conversely, the presence of physical inactivity in an obese person warrants intensified efforts to remove excess body weight because physical inactivity and obesity both heighten disease risks.

- *Obesity is commonly accompanied by elevated serum triglycerides.* Triglyceride-rich lipoproteins may be directly atherogenic, and they are also the most common manifestation of the atherogenic lipoprotein phenotype (high triglycerides, small LDL particles, and low HDL-cholesterol levels).<sup>34</sup> In the presence of obesity, high serum triglycerides are commonly associated with a clustering of metabolic risk factors known as the metabolic syndrome (atherogenic lipoprotein phenotype, hypertension, insulin resistance, glucose intolerance, and prothrombotic states). Thus, in obese patients, elevated serum triglycerides are a marker for increased cardiovascular risk.

### Risk Factor Management

Management options of risk factors for preventing CVD, diabetes, and other chronic diseases are described in detail in other reports. For details on the management of serum cholesterol and other lipoprotein disorders, refer to the National Cholesterol Education Program's Second Report of the Expert Panel on the Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel II, ATP II).<sup>29</sup> For the treatment of hypertension, see the National High Blood Pressure Education Program's Sixth Report of the Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VI).<sup>30</sup>

See the Additional Resources list for ordering information from the National Heart, Lung, and Blood Institute (see Appendix L).

A photograph of a middle-aged man with a full beard and mustache, wearing a light-colored polo shirt. He is focused on measuring his waist circumference with a white tape measure. The background is a blurred indoor setting. The entire image has a light blue color overlay.

RISKS

BMI

Waist Circumference

Obesity



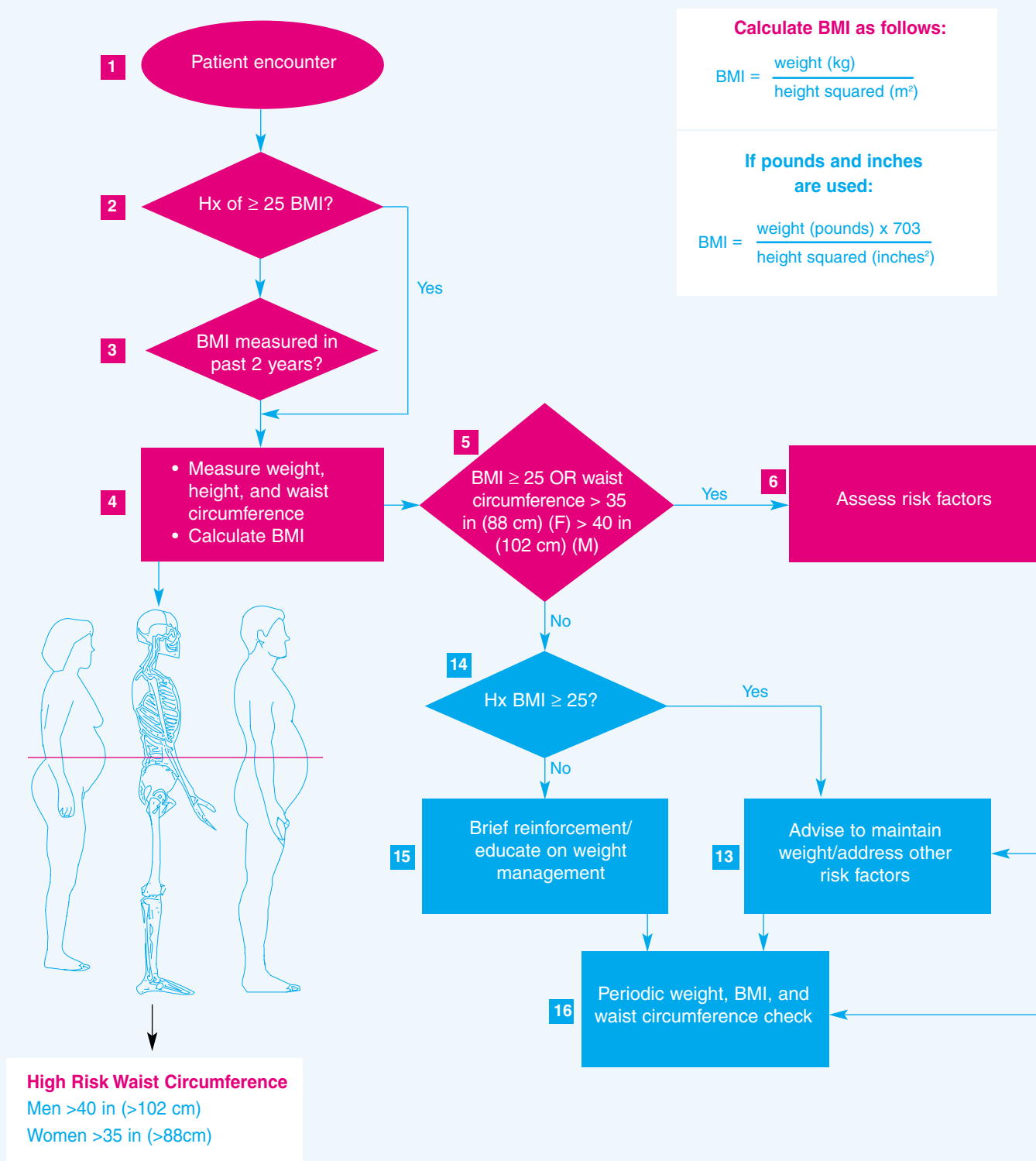
When health care practitioners encounter patients in the clinical setting, opportunities exist for identifying overweight and obesity and their accompanying risk factors, as well as for initiating treatments for

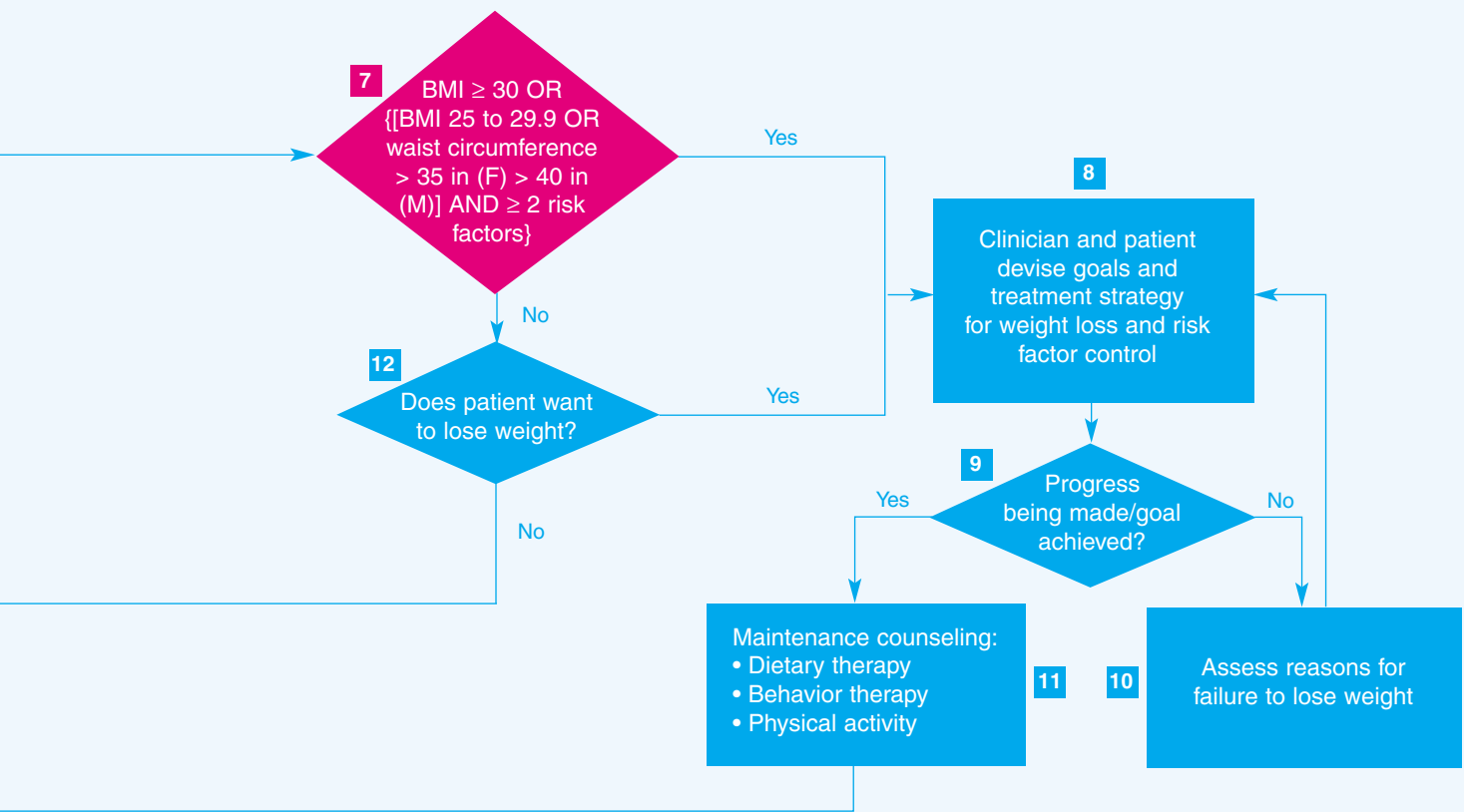
reducing weight, risk factors, and chronic diseases such as CVD and type 2 diabetes. When assessing a patient for treatment of overweight and obesity, consider the patient's weight, waist circumference, and presence of risk factors. The strategy for the evaluation and treatment of overweight patients is presented in Figure 4 (Treatment Algorithm). This algorithm applies only to the assessment for overweight and obesity; it does not reflect the overall evaluation of other conditions and diseases performed by the clinician. Therapeutic approaches for cholesterol disorders and hypertension are described in ATP II and JNC VI, respectively.<sup>29,30</sup> In overweight patients, control of cardiovascular risk factors deserves the same emphasis as weight loss therapy. Reduction of risk factors will reduce the risk for CVD, whether or not weight loss efforts are successful.

Figure 4.

# Treatment Algorithm\*

Each step (designated by a box) in this process is reviewed in this section and expanded upon in subsequent sections.





■ Examination

■ Treatment

\* This algorithm applies only to the assessment for overweight and obesity and subsequent decisions based on that assessment. It does not reflect any initial overall assessment for other cardiovascular risk factors that are indicated.

**Each step (designated by a box) in the treatment algorithm is reviewed in this section and expanded upon in subsequent sections.**

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### **1 Patient encounter**

Any interaction between a health care practitioner (generally a physician, nurse practitioner, or physician's assistant) and a patient that provides the opportunity to assess a patient's weight status and provide advice, counseling, or treatment.

### **2 History of overweight or recorded BMI $\geq$ 25**

Seek to determine whether the patient has ever been overweight. A simple question such as "Have you ever been overweight?" may accomplish this goal. Questions directed toward weight history, dietary habits, physical activities, and medications may provide useful information about the origins of obesity in particular patients.

### **3 BMI measured in past 2 years**

For those who have not been overweight, a 2-year interval is appropriate for the reassessment of BMI. Although this timespan is not evidence-based, it is a reasonable compromise between the need to identify weight gain at an early stage and the need to limit the time, effort, and cost of repeated measurements.

### **4 Measure weight, height, waist circumference; calculate BMI**

Weight must be measured so BMI can be calculated. Most charts are based on weights obtained with the patient wearing undergarments and no shoes.

### **5 BMI $\geq$ 25 OR waist circumference $>$ 35 in (88 cm) (women) or $>$ 40 in (102 cm) (men)**

These cutoff values divide overweight from normal weight and are consistent with other national and international guidelines. The relationship between weight and mortality is J-shaped, and evidence suggests that the right side of the "J" begins to rise at a BMI of 25. Waist circumference is incorporated as an "or" factor because some patients with a BMI lower than 25 will have a disproportionate amount of abdominal fat, which increases their cardiovascular risk despite their low BMI (see pages 9–10). These abdominal circumference values are not necessary for patients with a BMI  $\geq$  35 kg/m<sup>2</sup>.

### **6 Assess risk factors**

Risk assessment for CVD and diabetes in a person with evident obesity will include special considerations for the medical history, physical examination, and laboratory examination. Detection of existing CVD or end-organ

damage presents the greatest urgency. Because the major risk of obesity is indirect (obesity elicits or aggravates hypertension, dyslipidemias, and type 2 diabetes; each of these leads to cardiovascular complications), the management of obesity should be implemented in the context of these other risk factors. Although there is no direct evidence that addressing risk factors increases weight loss, treating the risk factors through weight loss is a recommended strategy. The risk factors that should be considered are provided on pages 11–13. A nutrition assessment will also help to assess the diet and physical activity habits of overweight patients.

### **7 BMI $\geq$ 30 OR ([BMI 25 to 29.9 OR waist circumference $>$ 35 in (88 cm) (women) or $>$ 40 in (102 cm) (men)] AND $\geq$ 2 risk factors)**

The panel recommends that all patients who meet these criteria should attempt to lose weight. However, it is important to ask the patient whether or not he or she wants to lose weight. Those with a BMI between 25 and 29.9 kg/m<sup>2</sup> and who have one or no risk factors should work on maintaining their current weight rather than embark on a weight reduction program. The panel recognizes that the decision to lose weight must be made in the context of other risk factors (e.g., quitting smoking is more important than losing weight) and patient preferences.

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## **8 Clinician and patient devise goals**

The decision to lose weight must be made jointly between the clinician and patient. Patient involvement and investment is crucial to success. The patient may choose as a goal not to lose weight but rather to prevent further weight gain. As an initial goal for weight loss, the panel recommends the loss of 10 percent of baseline weight at a rate of 1 to 2 pounds per week and the establishment of an energy deficit of 500 to 1,000 kcal/day (see page 23). For individuals who are overweight, a deficit of 300 to 500 kcal/day may be more appropriate, providing a weight loss of about 0.5 pounds per week. Also, there is evidence that an average of 8 percent of body weight can be lost over 6 months. Since this observed average weight loss includes people who do not lose weight, an individual goal of 10 percent is reasonable. After 6 months, most patients will equilibrate (caloric intake balancing energy expenditure); thus, they will require an adjustment of their energy balance if they are to lose more weight (see page 24).

The three major components of weight loss therapy are dietary therapy, increased physical activity, and behavior therapy (see pages 26 to 34). These lifestyle therapies should

be attempted for at least 6 months before considering pharmacotherapy. In addition, pharmacotherapy should be considered as an adjunct to lifestyle therapy for patients with a BMI 30 kg/m<sup>2</sup> and who have no concomitant obesity-related risk factors or diseases. Pharmacotherapy may also be considered for patients with a BMI 27 kg/m<sup>2</sup> and who have concomitant obesity-related risk factors or diseases. The risk factors or diseases considered important enough to warrant pharmacotherapy at a BMI of 27 to 29.9 kg/m<sup>2</sup> are hypertension, dyslipidemia, CHD, type 2 diabetes, and sleep apnea.

Two drugs approved for weight loss by the FDA for long-term use are sibutramine and orlistat. However, sibutramine should not be used in patients with a history of hypertension, CHD, congestive heart failure, arrhythmias, or stroke. Certain patients may be candidates for weight loss surgery.

Each component of weight loss therapy should be introduced to the patient briefly. The selection of weight loss methods should be made in the context of patient preferences, analysis of failed attempts, and consideration of available resources.

## **9 Progress being made/goal achieved**

During the acute weight loss period and at the 6-month and 1-year followup visits, patients should be weighed, their BMI should be calculated, and their progress should be assessed. If at any time it appears that the program is failing, a reassessment should take place to determine the reasons (see Box 10). If pharmacotherapy is used, appropriate monitoring for side effects is recommended (see pages 35–37). If a patient can achieve the recommended 10-percent reduction in body weight within 6 months to 1 year, this change in weight can be considered good progress. The patient can then enter the phase of weight maintenance and long-term monitoring. It is important for the practitioner to recognize that some persons are more apt to lose or gain weight on a given regimen; this phenomenon cannot always be attributed to the degree of compliance. However, if significant obesity persists and the obesity-associated risk factors remain, an effort should be made to reinstitute weight loss therapy to achieve further weight reduction. Once the limit of weight loss has been reached, the practitioner is responsible for long-term monitoring of risk factors and for encouraging the patient to maintain the level of weight reduction.



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**10 Assess reasons for failure to lose weight**

If a patient fails to achieve the recommended 10-percent reduction in body weight within 6 months or 1 year, a reevaluation is required. A critical question to consider is whether the patient's level of motivation is high enough to continue clinical therapy. If motivation is high, revise goals and strategies (see Box 8). If motivation is not high, clinical therapy should be discontinued, but the patient should be encouraged to embark on efforts to lose weight or to avoid further weight gain. Even if weight loss therapy is stopped, risk factor management must be continued. Failure to achieve weight loss should prompt the practitioner to investigate the following: (1) energy intake (i.e., dietary recall including alcohol intake and daily intake logs), (2) energy expenditure (physical activity diary), (3) attendance at psychological/behavioral counseling sessions, (4) recent negative life events, (5) family and societal pressures, and (6) evidence of detrimental psychiatric problems (e.g., depression, binge eating disorder). If attempts to lose weight have failed, and the BMI is  $\geq 40$ , or 35 to 39.9 with comorbidities or significant reduction in quality of life, surgical therapy should be considered.

**11 Maintenance counseling**

Evidence suggests that more than 80 percent of the individuals who lose weight will gradually regain it. Patients who continue to use weight maintenance programs have a greater chance of keeping weight off. Maintenance includes continued contact with the health care practitioner for education, support, and medical monitoring (see page 24).

**12 Does the patient want to lose weight?**

Patients who do not want to lose weight but who are overweight (BMI 25 to 29.9), without a high waist circumference and with one or no cardiovascular risk factors, should be counseled regarding the need to maintain their weight at or below its present level. Patients who wish to lose weight should be guided according to Boxes 8 and 9. The justification of offering these overweight patients the option of maintaining (rather than losing) weight is that their health risk, although higher than that of persons with a BMI  $< 25$ , is only moderately increased (see page 11).

**13 Advise to maintain weight/address other risk factors**

Patients who have a history of overweight and who are now at an appropriate body weight, and those patients who are overweight but

not obese and who wish to focus on maintenance of their current weight, should be provided with counseling and advice so their weight does not increase. An increase in weight increases their health risk and should be prevented. The clinician should actively promote prevention strategies, including enhanced attention to diet, physical activity, and behavior therapy. See Box 6 for addressing other risk factors; even if weight loss cannot be addressed, other risk factors should be treated.

**14 History of BMI  $\geq 25$**

This box differentiates those who presently are not overweight and never have been from those with a history of overweight (see Box 2).

**15 Brief reinforcement**

Those who are not overweight and never have been should be advised of the importance of staying in this category.

**16 Periodic weight, BMI, and waist circumference check**

Patients should receive periodic monitoring of their weight, BMI, and waist circumference. Patients who are not overweight or have no history of overweight should be screened for weight gain every 2 years. This timespan is a reasonable compromise between the need to identify weight gain at an early stage and the need to limit the time, effort, and cost of repeated measurements.

## Ready or Not: Predicting Weight Loss

**P**redicting a patient's readiness for weight loss and identifying potential variables associated with weight loss success is an important step in understanding the needs of patients. However, it may be easier said than done. Researchers have tried for years with some success to identify predictors of weight loss. Such predictors would allow health care practitioners, before treatment, to identify individuals who have a high or low likelihood of success. Appropriate steps potentially could be taken to improve the chances of patients in the latter category. Among biological variables, initial body weight and resting metabolic rate (RMR) are both positively related to weight loss. Heavier individuals tend to lose more weight than do lighter individuals, although the

two groups tend to lose comparable percentages of initial weight. Studies have not found that weight cycling is associated with a poorer treatment outcome. Behavioral predictors of weight loss have proved to be less consistent. Depression, anxiety, or binge eating may be associated with suboptimal weight loss, though findings have been contradictory. Similarly, measures of readiness or motivation to lose weight have generally failed to predict outcome. By contrast, self-efficacy—a patient's report that she or he can perform the behaviors required for weight loss—is a modest but consistent predictor of success. Several studies have also suggested that positive coping skills contribute to weight control.

### Exclusion From Weight Loss Therapy

Patients for whom weight loss therapy is not appropriate are most pregnant or lactating women, persons with a serious uncontrolled psychiatric illness such as a major depression, and patients who have a variety of serious illnesses and for whom caloric restriction might exacerbate the illness. Patients with active substance abuse and those with a history of anorexia nervosa or bulimia nervosa should be referred for specialized care.

**Consider a patient's readiness for weight loss and identify potential variables associated with weight loss success.**



## A Brief Behavioral Assessment

Clinical experience suggests that health care practitioners briefly consider the following issues when assessing an obese individual's readiness for weight loss:

- **“Has the individual sought weight loss on his or her own initiative?”** Weight loss efforts are unlikely to be successful if patients feel that they have been forced into treatment by family members, their employer, or their physician. Before initiating treatment, health care practitioners should determine whether patients recognize the need and benefits of weight reduction and want to lose weight.
- **“What events have led the patient to seek weight loss now?”** Responses to this question will provide information about the patient's weight loss motivation and goals. In most cases, individuals have been obese for many years. Something has happened to make them seek weight loss. The motivator differs from person to person.
- **“What are the patient's stress level and mood?”** There may not be a perfect time to lose weight, but some are better than others. Individuals who report higher-than-usual stress levels with work, family life, or financial problems may not be able to focus on weight control.

In such cases, treatment may be delayed until the stressor passes, thus increasing the chances of success. Briefly assess the patient's mood to rule out major depression or other complications. Reports of poor sleep, a low mood, or lack of pleasure in daily activities can be followed up to determine whether intervention is needed: it is usually best to treat the mood disorder before undertaking weight reduction.

- **“Does the individual have an eating disorder, in addition to obesity?”** Approximately 20 percent to 30 percent of obese individuals who seek weight reduction at university clinics suffer from binge eating. This involves eating an unusually large amount of food and experiencing loss of control while overeating. Binge eaters are distressed by their overeating, which differentiates them from persons who report that they “just enjoy eating and eat too much.” Ask patients which meals they typically eat and the times of consumption. Binge eaters usually do not have a regular meal plan; instead, they snack throughout the day. Although some of these individuals respond well to weight reduction therapy, the greater the patient's distress or depression, or the more chaotic the eating pattern, the more likely

the need for psychological or nutritional counseling.

- **“Does the individual understand the requirements of treatment and believe that he or she can fulfill them?”** Practitioner and patient together should select a course of treatment and identify the changes in eating and activity habits that the patient wishes to make. It is important to select activities that patients believe they can perform successfully. Patients should feel that they have the time, desire, and skills to adhere to a program that you have planned together.
- **“How much weight does the patient expect to lose? What other benefits does he or she anticipate?”** Obese individuals typically want to lose 2 to 3 times the 8 to 15 percent often observed and are disappointed when they do not. Practitioners must help patients understand that modest weight losses frequently improve health complications of obesity. Progress should then be evaluated by achievement of these goals, which may include sleeping better, having more energy, reducing pain, and pursuing new hobbies or rediscovering old ones, particularly when weight loss slows and eventually stops.

## Management of Overweight and Obesity

**T**he initial goal of weight loss therapy for overweight patients is a reduction in body weight of about 10 percent. If this target is achieved, consideration may be given to further weight loss. In general, patients will wish to lose more than 10 percent of body weight; they will need to be counseled about the appropriateness of this initial goal.<sup>35,36</sup> Further weight loss can be considered after this initial goal is achieved and maintained for 6 months. The rationale for the initial 10-percent goal is that a moderate weight loss of this magnitude can significantly decrease the severity of obesity-associated risk factors. It is better to maintain a moderate weight loss over a prolonged period than to regain weight from a marked

weight loss. The latter is counterproductive in terms of time, cost, and self-esteem.

### Rate of Weight Loss

A reasonable time to achieve a 10-percent reduction in body weight is 6 months of therapy. To achieve a significant loss of weight, an energy deficit must be created and maintained. Weight should be lost at a rate of 1 to 2 pounds per week, based on a caloric deficit between 500 and 1,000 kcal/day. After 6 months, theoretically, this caloric deficit should result in a loss of between 26 and 52 pounds. However, the average weight loss actually observed over this time is between 20 and 25 pounds. A greater rate of weight loss does not yield a better result at the end of 1 year.<sup>37</sup>

### Goals for Weight Loss and Management

The following are general goals for weight loss and management:

- Reduce body weight
- Maintain a lower body weight over the long term
- Prevent further weight gain (a minimum goal)

It is difficult for most patients to continue to lose weight after 6 months because of changes in resting metabolic rates and problems with adherence to treatment strategies. Because energy requirements decrease as weight is decreased, diet and physical activity goals need to be revised so that an energy deficit is created at the lower weight, allowing the patient to continue to lose weight. To achieve additional weight loss, the patient must further



**A 10 percent reduction in body weight reduces disease risk factors. Weight should be lost at a rate of 1 to 2 pounds per week based on a calorie deficit of 500–1,000 kcal/day.**

decrease calories and/or increase physical activity. Many studies show that rapid weight reduction is almost always followed by gain of the lost weight. Moreover, with rapid weight reduction, there is an increased risk for gallstones and, possibly, electrolyte abnormalities.

### **Weight Maintenance at a Lower Weight**

Once the goals of weight loss have been successfully achieved, maintenance of a lower body weight becomes the major challenge. In the past, obtaining the goal of weight loss was considered the end of weight loss therapy. Unfortunately, once patients are dismissed from clinical therapy, they frequently regain the lost weight.

After 6 months of weight loss, the rate at which the weight is lost usually declines, then plateaus.

The primary care practitioner and patient should recognize that, at this point, weight maintenance, the second phase of the weight loss effort, should take priority. Successful weight maintenance is defined as a regain of weight that is less than 6.6 pounds (3 kg) in 2 years and a sustained reduction in waist circumference of at least 1.6 inches (4 cm). If a patient wishes to lose more weight after a period of weight maintenance, the procedure for weight loss, outlined above, can be repeated.

After a patient has achieved the targeted weight loss, the combined modalities of therapy (dietary therapy, physical activity, and behavior

therapy) must be continued indefinitely; otherwise, excess weight will likely be regained. Numerous strategies are available for motivating the patient; all of these require that the practitioner continue to communicate frequently with the patient. Long-term monitoring and encouragement can be accomplished in several ways: by regular clinic visits, at group meetings, or via telephone or e-mail. The longer the weight maintenance phase can be sustained, the better the prospects for long-term success in weight reduction. Drug therapy with either of the two FDA-approved drugs for weight loss may also be helpful during the weight maintenance phase.

**Long-term monitoring and encouragement to maintain weight loss requires regular clinic visits, group meetings, or encouragement via telephone or e-mail.**



# Weight Management Techniques

**E**ffective weight control involves multiple techniques and strategies including dietary therapy, physical activity, behavior therapy, pharmacotherapy, and surgery as well as combinations of these strategies. Relevant treatment strategies can also be used to foster long-term weight control and prevention of weight gain.

Some strategies such as modifying dietary intake and physical activity can also impact on obesity-related comorbidities or risk factors. Since the diet recommended is a low-calorie Step-1 diet, it not only modifies

calorie intake but also reduces saturated fat, total fat, and cholesterol intake in order to help lower high blood cholesterol levels. The diet also includes the current recommendations for sodium, calcium and fiber intakes. Increased physical activity is not only important for weight loss and weight loss maintenance but also impacts on other comorbidities and risk factors such as high blood pressure, and high blood cholesterol levels. Reducing body weight in overweight and obese patients not only helps reduce the risk of these comorbidities from developing but also helps in their management.

Weight management techniques need to take into account the needs of individual patients so they should be culturally sensitive and incorporate the patient's perspectives and characteristics. Treatment of overweight and obesity is to be taken seriously since it involves treating an individual's disease over the long term as well as making modifications to a way of life for entire families.

Table 3 illustrates the therapies appropriate for use at different BMI levels taking into account the existence of other comorbidities or risk factors.

Table 3

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	

- Prevention of weight gain with lifestyle therapy is indicated in any patient with a BMI  $\geq 25$  kg/m<sup>2</sup>, even without comorbidities, while weight loss is not necessarily recommended for those with a BMI of 25–29.9 kg/m<sup>2</sup> or a high waist circumference, unless they have two or more comorbidities.
- Combined therapy with a low-calorie diet (LCD), increased physical activity, and behavior therapy provide the most successful intervention for weight loss and weight maintenance.
- Consider pharmacotherapy only if a patient has not lost 1 pound per week after 6 months of combined lifestyle therapy.

The + represents the use of indicated treatment regardless of comorbidities.



## Dietary Therapy

In the majority of overweight and obese patients, adjustment of the diet will be required to reduce caloric intake. Dietary therapy includes instructing patients in the modification of their diets to achieve a decrease in caloric intake. A diet that is individually planned to help create a deficit of 500 to 1,000 kcal/day should be an integral part of any program aimed at achieving a weight loss of 1 to 2 pounds per week. A key element of the current recommendation is the use of a moderate reduction in caloric intake, which is designed to achieve a slow, but progressive, weight loss. Ideally, caloric intake should be reduced only to the level that is required to maintain weight at a desired level. If this level of caloric intake is achieved, excess weight will gradually decrease. In practice, somewhat greater caloric deficits are used in the period of active weight loss, but diets with a very low-calorie content are to be avoided. Finally, the composition of the diet should be modified to minimize other cardiovascular risk factors.

**See Appendices B-H for diets and information on physical activity that you can use with your patients.**

The centerpiece of dietary therapy for weight loss in overweight or obese patients is a low calorie diet (LCD). This diet is different from a very low calorie diet (VLCD) (less than 800 kcal/day). The recommended LCD in this guide, i.e., the Step I Diet, also contains the nutrient composition that will decrease other risk factors such as high blood cholesterol and hypertension. The composition of the diet is presented in Table 4. In general, diets containing 1,000 to 1,200 kcal/day should be selected for most women; 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. 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. If a patient on either diet is hungry, you may want to increase the calories by 100 to 200 per day.

VLCDs should not be used routinely for weight loss therapy because they require special monitoring and supplementation.<sup>50</sup> VLCDs are used only in very limited circumstances by specialized practitioners experienced in their use. Moreover, clinical trials show that LCDs are as effective as VLCDs in producing weight loss after 1 year.<sup>37</sup>

### Low calorie diet (LCD)

1,000 to 1,200 kcal/day  
for most women

1,200 to 1,600 kcal/day  
should be chosen for men

Successful weight reduction by LCDs is more likely to occur when consideration is given to a patient's food preferences in tailoring a particular diet. Care should be taken to ensure that all of the recommended dietary allowances are met; this may require the use of a dietary or vitamin supplement. Dietary education is necessary to assist in the adjustment to a LCD. Educational efforts should pay particular attention to the following topics:

- Energy value of different foods.
- Food composition—fats, carbohydrates (including dietary fiber), and proteins.
- Evaluation of nutrition labels to determine caloric content and food composition.
- New habits of purchasing—give preference to low-calorie foods.
- Food preparation—avoid adding high-calorie ingredients during cooking (e.g., fats and oils).
- Avoiding overconsumption of high-calorie foods (both high-fat and high-carbohydrate foods).
- Adequate water intake.
- Reduction of portion sizes.
- Limiting alcohol consumption.



Table 4

<b>Low-Calorie Step I Diet</b>	
<b>Nutrient</b>	<b>Recommended Intake</b>
Calories <sup>1</sup>	Approximately 500 to 1,000 kcal/day reduction from usual intake
Total fat <sup>2</sup>	30 percent or less of total calories
Saturated fatty acids <sup>3</sup>	8 to 10 percent of total calories
Monounsaturated fatty acids	Up to 15 percent of total calories
Polyunsaturated fatty acids	Up to 10 percent of total calories
Cholesterol <sup>3</sup>	<300 mg/day
Protein <sup>4</sup>	Approximately 15 percent of total calories
Carbohydrate <sup>5</sup>	55 percent or more of total calories
Sodium chloride	No more than 100 mmol/day (approximately 2.4 g of sodium or approximately 6 g of sodium chloride)
Calcium <sup>6</sup>	1,000 to 1,500 mg/day
Fiber <sup>5</sup>	20 to 30 g/day

1. A reduction in calories of 500 to 1,000 kcal/day will help achieve a weight loss of 1 to 2 pounds/week. Alcohol provides unneeded calories and displaces more nutritious foods. Alcohol consumption not only increases the number of calories in a diet but has been associated with obesity in epidemiologic studies<sup>38-41</sup> as well as in experimental studies.<sup>42-45</sup> The impact of alcohol calories on a person's overall caloric intake needs to be assessed and appropriately controlled.
2. Fat-modified foods may provide a helpful strategy for lowering total fat intake but will only be effective if they are also low in calories and if there is no compensation by calories from other foods.
3. Patients with high blood cholesterol levels may need to use the Step II diet to achieve further reductions in LDL-cholesterol levels; in the Step II diet, saturated fats are reduced to less than 7 percent of total calories, and cholesterol levels to less than 200 mg/day. All of the other nutrients are the same as in Step I.
4. Protein should be derived from plant sources and lean sources of animal protein.
5. Complex carbohydrates from different vegetables, fruits, and whole grains are good sources of vitamins, minerals, and fiber. A diet rich in soluble fiber, including oat bran, legumes, barley, and most fruits and vegetables, may be effective in reducing blood cholesterol levels. A diet high in all types of fiber may also aid in weight management by promoting satiety at lower levels of calorie and fat intake. Some authorities recommend 20 to 30 grams of fiber daily, with an upper limit of 35 grams.<sup>46-48</sup>
6. During weight loss, attention should be given to maintaining an adequate intake of vitamins and minerals. Maintenance of the recommended calcium intake of 1,000 to 1,500 mg/day is especially important for women who may be at risk of osteoporosis.<sup>49</sup>

## Physical Activity

**P**hysical activity should be an integral part of weight loss therapy and weight maintenance. Initially, moderate levels of physical activity for 30 to 45 minutes, 3 to 5 days per week, should be encouraged.

An increase in physical activity is an important component of weight loss therapy,<sup>31</sup> although it will not lead to a substantially greater weight loss than diet alone over 6 months.<sup>51</sup>

Most weight loss occurs because of decreased caloric intake. Sustained physical activity is most helpful in the prevention of weight regain.<sup>52,53</sup> In addition, physical activity is beneficial for reducing risks for cardiovascular disease and type 2 diabetes, beyond that produced by weight reduction alone. Many people live sedentary lives, have little training or skills in physical activity, and are difficult to motivate toward increasing their activity. For these reasons, starting a physical activity regimen

may require supervision for some people. The need to avoid injury during physical activity is a high priority. Extremely obese persons may need to start with simple exercises that can be intensified gradually. The practitioner must decide whether exercise testing for cardiopulmonary disease is needed before embarking on a new physical activity regimen. This decision should be based on a patient's age, symptoms, and concomitant risk factors.

For most obese patients, physical activity should be initiated slowly, and the intensity should be increased gradually. Initial activities may be increasing small tasks of daily living such as taking the stairs or walking or swimming at a slow pace. With time, depending on progress, the amount of weight lost, and functional capacity, the patient may engage in more strenuous activities. Some of these include fitness walking, cycling, rowing,

cross-country skiing, aerobic dancing, and jumping rope. Jogging provides a high-intensity aerobic exercise, but it can lead to orthopedic injury. If jogging is desired, the patient's ability to do this must first be assessed. The availability of a safe environment for the jogger is also a necessity. Competitive sports, such as tennis and volleyball, can provide an enjoyable form of physical activity for many, but again, care must be taken to avoid injury, especially in older people.

As the examples listed in Table 5 show, a moderate amount of physical activity can be achieved in a variety of ways. People can select activities that they enjoy and that fit into their daily lives. Because amounts of activity are functions of duration, intensity, and frequency, the same amounts of activity can be obtained in longer sessions of moderately intense activities (such as brisk walking) as in shorter sessions of more strenuous activities (such as running).

A regimen of daily walking is an attractive form of physical activity for many people, particularly those who are overweight or obese. The patient can start by walking 10 minutes, 3 days a week, and can build to 30 to 45 minutes of more intense walking at least 3 days a week and increase to most, if not all, days.<sup>52,53</sup> With this regimen, an additional



**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.**

Table 5

Examples of Moderate Amounts of Physical Activity*		
Common Chores	Sporting Activities	
Washing and waxing a car for 45–60 minutes	Playing volleyball for 45–60 minutes	<p style="text-align: center;">Less Vigorous, More Time<sup>†</sup></p> <p style="text-align: center;">More Vigorous, Less Time</p>
Washing windows or floors for 45–60 minutes	Playing touch football for 45 minutes	
Gardening for 30–45 minutes	Walking 1¾ miles in 35 minutes (20 min/mile)	
Wheeling self in wheelchair for 30–40 minutes	Basketball (shooting baskets) for 30 minutes	
Pushing a stroller 1½ miles in 30 minutes	Bicycling 5 miles in 30 minutes	
Raking leaves for 30 minutes	Dancing fast (social) for 30 minutes	
Walking 2 miles in 30 minutes (15 min/mile)	Water aerobics for 30 minutes	
Shoveling snow for 15 minutes	Swimming laps for 20 minutes	
Stairwalking for 15 minutes	Basketball (playing a game) for 15–20 minutes	
	Jumping rope for 15 minutes	
	Running 1½ miles in 15 minutes (15 min/mile)	

\* A moderate amount of physical activity is roughly equivalent to physical activity that uses approximately 150 calories of energy per day, or 1,000 calories per week.

† Some activities can be performed at various intensities; the suggested durations correspond to expected intensity of effort.

100 to 200 kcal/day of physical activity can be expended. Caloric expenditure will vary depending on the individual’s body weight and the intensity of the activity.

This regimen can be adapted to other forms of physical activity, but walking is particularly attractive because of its safety and accessibility. With time, a larger weekly volume of physical activity can be performed that would normally cause a greater weight loss if it were not compensated by a higher caloric intake.

Reducing sedentary time, i.e., time spent watching television or playing video games, is another approach to increasing activity. Patients should be encouraged to build physical activities into each day. Examples include leaving public transportation one stop before the usual one, parking farther than usual from work or shopping, and walking up stairs instead of taking elevators or escalators. New forms of physical activity should be suggested (e.g., gardening, walking a dog daily, or new athletic activities). Engaging in physical activity can be facilitated by identifying a safe area to per-

form the activity (e.g., community parks, gyms, pools, and health clubs). However, when these sites are not available, an area of the home can be identified and perhaps outfitted with equipment such as a stationary bicycle or a treadmill. Health care professionals should encourage patients to plan and schedule physical activity 1 week in advance, budget the time necessary to do it, and document their physical activity by keeping a diary and recording the duration and intensity of exercise. The following are examples of activities at different levels of intensity. A moderate amount of

## Behavior Therapy

physical activity is roughly equivalent to physical activity that uses approximately 150 calories of energy per day, or 1,000 calories per week.

- For the beginner, or someone who leads a very sedentary lifestyle, **very light activity** would include increased standing activities, room painting, pushing a wheelchair, yard work, ironing, cooking, and playing a musical instrument.
- **Light activity** would include slow walking (24 min/mile), garage work, carpentry, house cleaning, child care, golf, sailing, and recreational table tennis.
- **Moderate activity** would include walking a 15-minute mile, weeding and hoeing a garden, carrying a load, cycling, skiing, tennis, and dancing.
- **High activity** would include jogging a mile in 10 minutes, walking with a load uphill, tree felling, heavy manual digging, basketball, climbing, and soccer.
- **Other key activities** would include flexibility exercises to attain full range of joint motion, strength or resistance exercises, and aerobic conditioning.

**B**ehavior therapy provides methods for overcoming barriers to compliance with dietary therapy and/or increased physical activity, and these methods are important components of weight loss treatment. The following approach is designed to assist the caregiver in delivering behavior therapy. The importance of individualizing behavioral strategies to the needs of the patient must be emphasized for behavior therapy, as it was for diet and exercise strategies.<sup>54</sup>

In addition, the practitioner must assess the patient's motivation to enter weight loss therapy and the patient's readiness to implement the plan. Then the practitioner can take appropriate steps to motivate the patient for treatment.

### Making the Most of the Patient Visit

#### Consider Attitudes, Beliefs, and Histories.

In the patient-provider interaction, individual histories, attitudes, and beliefs may affect both parties. The diagnosis of obesity is rarely new or news for the patient. Except for patients with very recent weight gain, the patient brings into the consulting room a history of dealing with a frustrating, troubling, and visible problem. Obese people are often the recipients of scorn and discrimina-

tion from strangers and, sometimes, hurtful comments from previous health care professionals. The patient with obesity may be understandably defensive about the problem.

- *Be careful to communicate a nonjudgmental attitude that distinguishes between the weight problem and the patient with the problem. Ask about the patient's weight history and how obesity has affected his or her life. Express your concerns about the health risks associated with obesity, and how obesity is affecting the patient.*

Similarly, most providers have had some frustrating experiences in dealing with patients with weight problems. Appropriate respect for the difficulty of long-term weight control may mutate into a reflexive sense of futility. When efforts to help patients lose weight are unsuccessful, the provider may be disappointed and may blame the patient for the failure, seeing obese people as uniquely noncompliant and difficult. Providers too may feel some antifat prejudice.

- *Objectively examine your own attitudes and beliefs about obesity and obese people. Remember, obesity is a chronic disease, like diabetes or hypertension. In a sense, patients are struggling against their own body's coordinated effort to*

*stop them from losing weight. Remember, compliance with most long-term treatment regimens that require behavior change is poor. Keep your expectations realistic regarding the ease, amount, speed, and permanence of weight change.*

### **Build a Partnership with the Patient.**

The patient must be an active partner in the consultation and must participate in setting goals for behavior change. It is the patient who must make the changes to achieve weight loss; the patient already has goals concerning weight loss and how to achieve it. These goals may be different from those the provider would select. The provider can be a source of general information, perspective, support, and some measure of guidance but cannot cause the patient to meet goals that he or she does not endorse.

- *When weight is first brought up, ask what the patient's weight goals are. You may indicate that the patient's weight goals are more ambitious than necessary for health improvement, but acknowledge that the patient may have many other reasons for selecting a different goal. Distinguish between the long-term result of weight loss and the short-term behavior changes (diet, activity, etc.) that are the means to that end. Emphasize that the patient will judge which specific goals to attempt and that your review of goal attainment is meant to evaluate the plan, not the patient. Also, emphasize that the most important thing the patient can do is to keep return appointments, even if goals have not been met.*

### **Set Achievable Goals.**

Setting goals should be a collaborative activity. From all the available dietary and physical activity changes that might be made, a small number should be selected on the basis of their likely impact on weight and health, the patient's current status, and the patient's willingness and ability to implement them. Once goals are selected, an action plan can be devised to implement change.

- *After considering the recommended dietary and physical activity guidelines, the patient should be encouraged to select two or three goals that he or she is willing and able to take on. If the patient does not select an area that appears in need of change, inquire about the perceived costs and benefits of that achievement, without presenting it as mandatory. ("One thing that seems very important for most patients is physical activity. What are your thoughts about increasing your activity level?") Assess the patient's perceived ability to meet a specific goal. ("On a scale from 1 to 10, how confident are you that you can meet this goal?")*



**Patients must be active partners and participate in setting goals for behavioral changes.**

Effective goals are specific, attainable, and forgiving (less than perfect). Thus, "exercise more" would become "walk for





**Focus on positive changes and adapt a problem-solving approach toward the shortfalls. Weight control is a journey, not a destination.**

30 minutes, 3 days a week, for now.” *Shaping* is a behavioral technique that involves selecting a series of short-term goals that get closer and closer to the ultimate goal (e.g., an initial reduction of fat intake from 40 percent of calories to 35 percent of calories and later to 30 percent). Once the patient has selected a goal, address briefly what has to be done to achieve it. (“What are the best days for you to take your walks? What time of day is best for you? What arrangements will you need to make for child care?”) Provide the patient with a written behavioral “prescription” listing the selected goals.

The Weight and Goal Record (see Appendix J) can be copied for use in the chart to keep track

of the patient’s goals and weight changes. Write down the patient’s goals on the Weekly Food and Activity Diary (see Appendix K).

#### **Cultivate the Partnership**

Followup visits are occasions for monitoring health and weight status and for monitoring responses to any medication regimens. They also provide the opportunity to assess progress toward the goals selected at the previous visit, to provide support and additional information, and to establish goals for the next visit. Imperfect goal attainment is often the norm. Focus on the positive changes, and adopt a problem-solving approach toward the shortfalls. This is achieved by communicating that the goal, not the patient, is at issue.

- *While in the waiting room, the patient can write down the outcomes of the previous goals, effects of the various aspects of the treatment program (diet, activity, medication), items to discuss with you, and possible targets for new goals. In the consultation, a matter-of-degree approach can be communicated by questions such as “How many days a week were you able to walk?” rather than “Did you meet your walking goal?” Successes should receive positive attention and praise. If the patient has not successfully met a desired goal, emphasize the extent to which he or she approached the goal. (“So even though you weren’t able to walk 4 days each week, you did get out there at least twice a week.”)*

Acknowledge the challenging nature of weight control by adopting problem-solving responses to goals that are not fully met. Emphasize that examining the circumstances of unmet goals can lead to new and more effective strategies. (“What do you think interfered with your walking plans on the days you didn’t walk?”) Emphasize that weight control is a journey, not a destination, and that some missteps are inevitable opportunities to learn how to be more successful.

- *Set goals for the next visit in collaboration with the patient. These goals should be based on the outcome of the previous goals, consideration of the patient-selected targets, and assessment of the patient's status. If a previous goal was missed by a wide margin, it may be useful to lower the goal somewhat.*

#### **Keep in Touch.**

Frequency of treatment contact is a major determinant of success at weight control, but the contact need not be limited to direct, in-person visits with the provider. Use whatever means exist to maintain frequent contact with patients.

- *Encourage patients to drop by the office between consultations for a weight check (with the office nurse or other staff), to bring in the Weekly Food and Activity Diary, to view educational videotapes, or to pick up other materials. Such interim visits can be scheduled or left on an as-needed basis, depending on the patient's needs and preferences. Educational material or responses from you or your staff may be transmitted by mail, e-mail, or telephone. A member of your staff may contact the patient between visits for support.*

#### **Help the Patient to Modify Behaviors.**

Proven behavior modification techniques can be used to assist patients in weight control. Some can be communicated readily in person or via written materials. Goals may include the use of one or more of these techniques. Copy the written handouts in Appendix J for your patients.

- *Self-monitoring refers to observing and recording some aspect of behavior, such as caloric intake, exercise sessions, medication usage, etc., or an outcome of these behaviors, such as changes in body weight. Self-monitoring of a behavior usually changes the behavior in the desired direction and can produce real-time records for your review. Some patients find that specific self-monitoring forms make it easier, while others prefer to use their own recording system. Recording dietary intake (food choices, amounts, times), although seen as a chore by some patients, is a very useful application of self-monitoring. Although some patients prefer daily weighing and others do better with less frequent steps on the scale, regular self-monitoring of weight is crucial for long-term maintenance.*
- *Rewards can be used to encourage attainment of behavioral goals, especially those that have been difficult to reach. An effective reward is something that is desirable, timely, and contingent on meeting the goal. Patient-administered rewards may be tangible (e.g., a movie, music CD, or payment toward buying a more costly item) or intangible (e.g., an afternoon off work or an hour of quiet time away from family). Numerous small rewards, delivered for meeting smaller goals, are preferable to bigger rewards that require a long, difficult effort.*
- *Stimulus control changes involve learning what social or environmental cues seem to encourage undesired eating and then modifying those cues. For example, a patient may learn from reflection or from self-monitoring records that he or she is more likely to overeat while watching television, or whenever treats are on display by the office coffeepot, or when around a certain friend. The resulting strategies may be to sever the association of eating from the cue (do not eat while watching television), avoid or eliminate the cue (leave the coffee room immediately after pouring coffee), or change the circumstances surrounding the cue (plan to meet with the friend*



*in a setting where food is not available). In general, visible and accessible food items are often cues for unplanned eating.*

Dietary behavior changes can make it easier to eat less without feeling deprived. An important change is to slow the rate of eating to allow satiety signals to begin to develop before the end of the meal. Another tactic is to use smaller plates so that moderate portions do not appear meager. Changing the scheduling of eating can be helpful for patients who skip or delay meals, then overeat later.

### **Focus on What Matters.**

Improvement of the patient's health is the goal of obesity treatment. Monitoring progress is a continuous process of motivational importance to the patient and provider. Simple, clear records of body weight, relevant risk factors, other health parameters, and goal attainment should be kept.

- *Use simple charts or graphs to summarize changes in weight and the associated risk factors that were present initially or suggested by the patient's family*

*history. For example, for a patient presenting with a BMI of 33, hypertension, and a family history of type 2 diabetes, a chart might include successive measures of weight, BMI, waist circumference, blood pressure, and fasting blood glucose. Copy these records for the patient. Provide the patient with a written behavioral "prescription" listing the selected goals. The Weight and Goal Record (see Appendix J) can be copied for use in the chart to keep track of the patient's goals and weight changes.*



### **Focus on What Matters**

**Improvement of the patient's health is the goal of obesity treatment. Monitoring progress is a continuous process of motivational importance to the patient and provider.**

## Pharmacotherapy

**W**eight loss drugs approved by the FDA for long-term use may be useful as an adjunct to diet and physical activity for patients with a BMI  $\geq 30$  and without concomitant obesity-related risk factors or diseases. Drug therapy may also be useful for patients with a BMI  $\geq 27$  who also have concomitant obesity-related risk factors or diseases.

**Drugs may be used as adjunctive therapy in patients with a BMI  $\geq 30$  or  $\geq 27$  with other risk factors or diseases.**

Our thinking about drug therapy has undergone radical changes over the past few years. Following the publication of the 4-year trials with phentermine and fenfluramine by Weintraub in 1992 and the discovery of leptin, an adipose-tissue hormone, drug therapy began to change from short-term to long-term use. Dexfenfluramine, fenfluramine, and the combination of phentermine and fenfluramine were used long term. However, reported concerns about unacceptable side effects, such as regurgitant valvular lesions of the heart,<sup>55</sup> led to the withdrawal of dexfenfluramine and fenfluramine from the market in September 1997.<sup>56</sup> No drug approved by the FDA for use beyond 3 months remained

available until November 1997, when the FDA approved sibutramine for long-term use in obesity. In April 1999, the FDA approved orlistat for long-term use.

The purpose of weight loss and weight maintenance is to reduce health risks. If weight is regained, health risks increase. A majority of patients who lose weight regain it,<sup>57</sup> so the challenge to the patient and the practitioner is to maintain weight loss. Because of the tendency to regain weight after weight loss, the use of long-term medication to aid in the treatment of obesity may be indicated for carefully selected patients.

The drugs used to promote weight loss have been anorexiant or appetite suppressants. Three classes of anorexiatic drugs have been developed, all of which affect neurotransmitters in the brain. They may be designated as follows: (1) those that affect catecholamines, such as dopamine and norepinephrine; (2) those that affect serotonin; and (3) those that affect more than one neurotransmitter. These drugs work by increasing the secretion of

dopamine, norepinephrine, or serotonin into the synaptic neural cleft, by inhibiting the reuptake of these neurotransmitters into the neuron, or by a combination of both mechanisms. Sibutramine inhibits the reuptake of norepinephrine and serotonin. Orlistat is not an appetite suppressant and has a different mechanism of action; it blocks about one-third of fat absorption. Very few trials longer than 6 months have been done with any of the new drugs.

These drugs are modestly effective in their ability to produce weight loss. Net weight loss attributable to drugs has generally been reported to range from 2 to 10 kilograms

### Drugs used only

**as part of a program that includes diet, physical activity, and behavior therapy.**



Table 6

Weight Loss Drugs*			
Drug	Dose	Action	Adverse Effects
Sibutramine (Meridia)	5, 10, 15 mg 10 mg po qd to start, may be increased to 15 mg or decreased to 5 mg	Norepinephrine, dopamine, and serotonin reuptake inhibitor.	Increase in heart rate and blood pressure.
Orlistat (Xenical)	120 mg 120 mg po tid before meals	Inhibits pancreatic lipase, decreases fat absorption.	Decrease in absorption of fat-soluble vitamins; soft stools and anal leakage.

\* Ephedrine plus caffeine, and fluoxetine have also been tested for weight loss but are not approved for use in the treatment of obesity. Mazindol, diethylpropion, phentermine, benzphetamine, and phendimetrazine are approved for only short-term use for the treatment of obesity. Herbal preparations are not recommended as part of a weight loss program. These preparations have unpredictable amounts of active ingredients and unpredictable, and potentially harmful, effects.

(4.4 to 22 lbs), although some patients lose significantly more weight. It is not possible to predict precisely how much weight an individual may lose. Most of the weight loss occurs within the first 6 months of therapy.

Adverse effects noted for sibutramine therapy include increases in blood pressure and pulse.<sup>58</sup> People with high blood pressure, CHD, congestive heart failure, arrhythmias, or history of stroke should not take sibutramine. The package insert for sibutramine states that because substantial increases in blood pressure occur in some patients, regular monitoring of blood pressure is required when prescribing sibutramine. With orlistat, a possible decrease

in the absorption of fat-soluble vitamins, and oily and loose stools are side effects; a multivitamin supplement is recommended when taking this drug. Side effects from these drugs are generally mild and may improve with continued use, although their persistence may result in discontinuation of drug treatment. Table 6 provides the dose, action, and adverse effects of sibutramine and orlistat.

Ephedrine plus caffeine, and fluoxetine have also been tested for weight loss but are not approved for use in the treatment of obesity. Mazindol, diethylpropion, phentermine, benzphetamine, and phendimetrazine are approved for only short-term use for the treatment of obesity. Herbal prepa-

rations are not recommended as part of a weight loss program. These preparations have unpredictable amounts of active ingredients and unpredictable, and potentially harmful, effects.

If a patient has not lost the recommended 1 pound per week after at least 6 months on a weight loss regimen that includes an LCD, increased physical activity, and behavior therapy, then careful consideration may be given to pharmacotherapy. There are few long-term studies that evaluate the safety or efficacy of most currently approved weight loss medications. At present, sibutramine and orlistat are available for long-term use. Based on their risk/benefit ratio, these drugs can be recommended

for use as an adjunct to diet and physical activity for patients with a BMI  $\geq$  30, without concomitant obesity-related risk factors or diseases, and for patients with a BMI  $\geq$  27 who have concomitant obesity-related risk factors or diseases.<sup>59</sup> Only patients who are at increased medical risk because of their weight should use weight loss medications; they should not be used for cosmetic weight loss.

Not every patient responds to drug therapy. Trials have shown that initial responders tend to continue to respond, whereas initial nonresponders are less likely to respond, even with an increase in dosage.<sup>60,61</sup> If a patient does not lose 2 kilograms (4.4 lbs) in the first 4 weeks after initiating therapy, the likelihood of long-term response is very low.<sup>61</sup> This may be used to guide treatment by continuing medication for the responders or by discontinuing it for the nonresponders. If weight is lost within the initial 6 months of therapy or if weight is maintained after the initial weight loss phase, the drug may be continued. It is important to remember that the major role of these medications is to help patients comply with their diet and physical activity plans while losing weight. Medications cannot be expected to continue to be effective in weight loss or weight maintenance once the drug has been stopped.<sup>62,63</sup> The use of a drug

may be continued as long as it is effective and the adverse effects are manageable and not serious. There are no indications for specifying how long a weight loss drug should be continued. Therefore, an initial trial period of several weeks with a given drug may help determine its efficacy for a given patient. If a patient does not respond to a drug with reasonable weight loss, the clinician should reassess the patient to determine adherence to the medication regimen and adjunctive therapies, or he/she should consider the need for adjustment of the dosage. If the patient continues to be unresponsive to the medication, or serious adverse effects occur, the clinician should consider discontinuing the treatment.<sup>64</sup>

There is great interest in weight loss drugs among consumers. Because of the possibility of serious adverse effects, it is incumbent upon the practitioner to use drug therapy with caution. Herbal medications are not recommended as part of a weight loss program. These preparations have unpredictable amounts of active ingredients and unpredictable—and potentially harmful—effects. In those patients with a lower risk of obesity, nonpharmacologic therapies are the treatments of choice. It is important that the clinician monitor the efficacy and side effects of the drugs currently on the market.

Because adverse events may increase with combination drug therapy, it seems wise that, until further safety data are available, using weight loss drugs individually would be more prudent. Some patients will respond to lower doses, so the full dosage is not always necessary.

Drugs should be used only as part of a comprehensive program that includes behavior therapy, diet, and physical activity. Appropriate monitoring for side effects must be continued while drugs are part of the regimen. Patients will need to return for followup visits in 2 to 4 weeks, then monthly for 3 months, then every 3 months for the first year after initiating the medication. After the first year, the doctor will advise the patient on appropriate return visits. The purpose of these visits is to monitor weight, blood pressure, and pulse, discuss side effects, conduct laboratory tests, and answer the patient's questions.

Since obesity is a chronic disease, the short-term use of drugs is not helpful. The health professional should include drugs only in the context of a long-term treatment strategy.<sup>65</sup> The risk/benefit ratio cannot be predicted at this time, since not enough long-term data (> 1 year) are available on any of the available drugs.

## Weight Loss Surgery

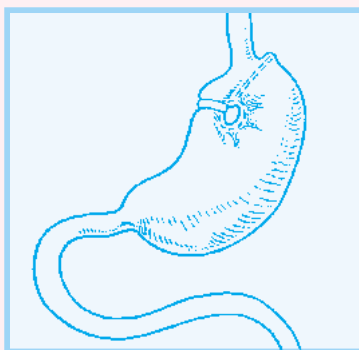
**W**eight loss surgery is an option for weight reduction in patients with clinically severe obesity, i.e., a BMI  $\geq 40$ , or a BMI  $\geq 35$  with comorbid conditions. Weight loss surgery should be reserved for patients in whom other methods of treatment have failed and who have clinically severe obesity (once commonly referred to as “morbid obesity”<sup>66</sup>). Weight loss surgery provides medically significant sustained weight loss for more than 5 years in most patients. Two types of operations have proven to be effective: those that restrict gastric volume (banded gastroplasty) and those that, in addition to limiting food intake, also alter digestion (Roux-en-Y gastric bypass). See Figure 5.

Lifelong medical monitoring after surgery is a necessity. Perioperative complications vary with weight and the overall health of the individual. In the published literature, young patients without comorbidities with a BMI  $< 50$  kg/m<sup>2</sup> who have undergone surgery have mortality rates less than 1 percent, whereas massively obese patients with a BMI  $> 60$  kg/m<sup>2</sup> who are also diabetic, hypertensive, and in

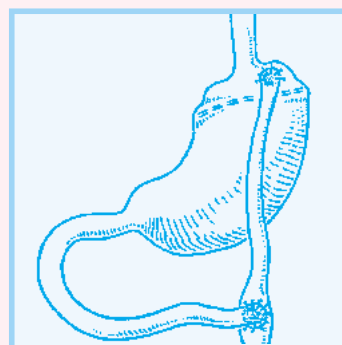
Figure 5

### Surgical Procedures in Current Use

Vertical Banded Gastroplasty



Roux-en-Y Gastric Bypass



cardiopulmonary failure may have mortality rates that range from 2 to 4 percent. Operative complications, including anastomotic leak, subphrenic abscess, splenic injury, pulmonary embolism, wound infection, and stoma stenosis, occur in less than 10 percent of patients.<sup>67</sup>

An integrated program that provides guidance on diet, physical activity, and psychosocial concerns before and after surgery is necessary. Most patients fare remarkably well with reversal of diabetes, control of hypertension, marked improvement in mobility, return of fertility, cure of pseudotumor cerebri, and significant

improvement in quality of life. Late complications are uncommon, but some patients may develop incisional hernias, gallstones, and, less commonly, weight loss failure and dumping syndrome. Patients who do not follow the instructions to maintain an adequate intake of vitamins and minerals may develop deficiencies of vitamin B<sub>12</sub> and iron with anemia. Neurologic symptoms may occur in unusual cases. Thus, surveillance should include monitoring indices of inadequate nutrition. Documentation of improvement in preoperative comorbidities is beneficial and advised.

## Medical Evaluation, Treatment, and Monitoring of the Obese Patient on a Weight Loss Regimen— A Clinician's Approach and Perspective

### ■ Pretreatment Evaluation

A physical examination and routine laboratory evaluation should be performed on an obese patient starting a weight loss regimen if this has not been done within the past year. The medical history and physical exam should focus on causes and complications of obesity. BMI should be calculated and waist circumference measured to better assess risk and to offer measures of outcome in addition to weight loss. Although the causes of obesity are not fully known, certain factors clearly play a role. Family history is important because of the strong heritability of obesity; polycystic ovarian disease and hypothyroidism are known causes of overweight. The use of antidepressants, lithium, phenothiazines, glucocorticoids, progestational hormones, cyproheptadine and perhaps other antihistamines, sulfonylureas, insulin, and other medications is associated with weight gain. In some cases, it may be possible to change medications in favor of those that do not promote weight gain.

The practitioner should search for complications of obesity, such as hypertension, type 2 diabetes,

hyperlipidemia, atherosclerotic cardiovascular disease, osteoarthritis of the lower extremities, gallbladder disease, gout, and cancers. In men, obesity is associated with colorectal and prostate cancer; in women, it is associated with endometrial, gallbladder, cervical, ovarian, and breast cancer.<sup>3</sup> Signs and symptoms of these disorders may have been overlooked by the patient and should be carefully reviewed by the practitioner. For example, weight loss is frequently a symptom of the onset of type 2 diabetes. Some patients may come to their initial visit, proud of their recent weight loss and unaware of its significance.

The practitioner should also be alert to the possible presence of obstructive sleep apnea, a disorder that is often overlooked in obese patients. Symptoms and signs include very loud snoring or cessation of breathing during sleep, which is often followed by a loud clearing breath, then brief awakening. The patient may be a restless sleeper; some find that they can sleep comfortably only in the sitting position. The patient's partner may best describe these symptoms. Daytime fatigue, with episodes of sleepiness at inappropriate times,

and morning headaches also occur. On exam, hypertension, narrowing of the upper airway, scleral injection, and leg edema, secondary to pulmonary hypertension, may be observed. Laboratory studies may show polycythemia. If signs of sleep apnea are present, referral to a pulmonologist, or sleep specialist, is appropriate.

Examine the thyroid and look for manifestations of hypothyroidism. In addition, leg edema, cellulitis, acanthosis nigricans (coarse pigmented skin that is a sign of hyperinsulinemia), and intertriginous rashes with signs of skin breakdown are commonly seen in the very obese.

### ■ Laboratory Tests

Baseline and diagnostic laboratory tests may include assessment of electrolytes, liver function tests, complete blood counts, total cholesterol, HDL- and LDL-cholesterol, triglycerides, and thyroid-stimulating hormone, or full thyroid function tests. A recent baseline electrocardiogram should be available; if not, it should be performed. Other laboratory studies should be performed on the basis of findings from the initial evaluation.





### ■ Lifestyle, Diet, and Physical Activity

If the patient is not seeing a registered dietitian or other counselor, food and exercise records should be reviewed during office visits in order to assess compliance with the prescribed dietary and exercise recommendations. A supportive, sympathetic approach (rather than a judgmental one) is recommended, as described on pages 30–33.

Frequent visits to weigh patients and review their adherence to medication, diet, and exercise may be associated with better weight loss. Such visits may be brief and may be conducted by a nurse or other staff person.

### ■ Routine Monitoring

In general, healthy patients on a weight loss regimen should be seen in the office within 2 to 4 weeks of starting treatment in order to monitor both the treatment's effectiveness and its side effects. Visits approximately every 4 weeks are adequate during the first 3 months if the patient has a favorable weight loss and few side effects. More frequent visits may be required based on clinical judgment, particularly if the patient has medical complications. Blood pressure, pulse, and weight should be monitored each visit, with waist circumference measured intermittently. Less frequent followup is required after the first 6 months.

### ■ Demonstrating Medical Improvement

Before beginning treatment, results of the physical examination and laboratory tests should be shared with the patient. Emphasis should be placed on any new findings, particularly those associated with obesity that would be expected to improve with weight loss. The patient should focus on improvements in these health parameters, rather than focus on achieving an ideal body weight or a similarly large weight loss that may or may not be attainable. Improvements in health complications should be discussed on an ongoing basis. Many patients find this a helpful motivator because, at some point, weight is likely to stabilize at a level above their own "ideal" weight. By focusing patients on the medical rather than the cosmetic benefits of weight loss, you may better help them to attain their goals.



# Weight Reduction After Age 65

**T**here is a growing prevalence of obesity among older persons. Age alone should not preclude treatment for obesity in adult men and women. A clinical decision to forgo obesity treatment in an older adult should be guided by an evaluation of the potential benefits of weight reduction for day-to-day functioning and reduction of the risk of future cardiovascular events, as well as the patient's motivation for weight reduction. Being obese does not appear to benefit older persons. However, care must be taken to ensure that any weight reduction program minimizes the likelihood of adverse effects on bone health or other aspects of nutritional status. There is little evidence at present to indicate that obesity treatment should be with-

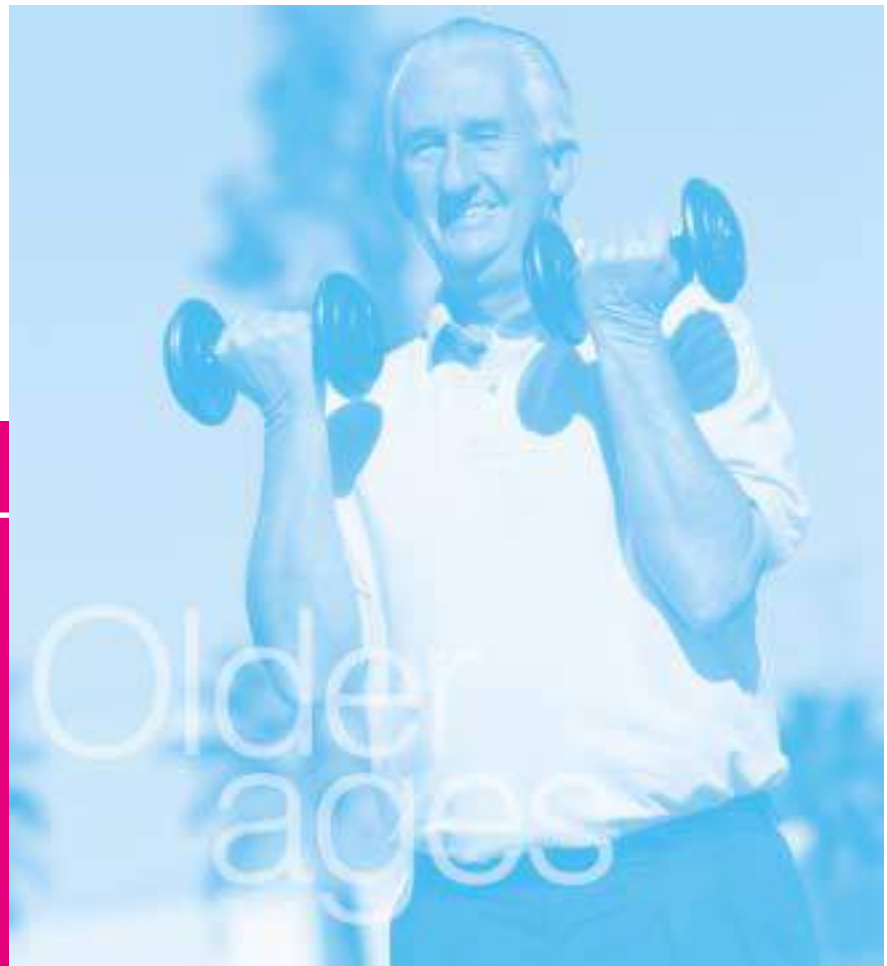
held from adult men and women on the basis of age alone up to 80 years of age.

The higher prevalence of cardiovascular risk factors in overweight versus nonoverweight persons is clearly observed at older ages. In addition, obesity is a major predictor of functional limitations and mobility impairments in older adults. Weight loss reduces risk factors and improves functional

status in older persons in the same manner as in younger adults. Weight loss requires proper nutritional and exercise counseling, including resistance training and moderate weight-bearing exercise. However, the weight control program must often be individually tailored to have a desirable outcome. This would include preservation of body cell mass and its function, and loss of fat mass.<sup>68-75</sup>

## Obesity at older ages

Age alone should not preclude treatment for obesity. However, care must be taken to minimize the likelihood of adverse effects on bone health or other aspects of nutritional status.



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## **Introduction to the Appendices**

In order to lose weight and maintain weight loss, your patients need to know what to do and be motivated to do it. These Appendices contain all the basic information they need to eat better, get in better condition, and improve health. You can help them to decide what's best for them, and this is a good place to start.

Obesity

Waist Circumference

Treatment  
overweight

BMI

## Appendix A. Body Mass Index Table

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height (inches)	Body Weight (pounds)																
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287

BMI	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
58	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443



## Appendix B. Shopping—What To Look For

### Foods Lower in Calories and Fat

Use this guide to help you shop for foods that are nutritious and lower in calories and fat to help you achieve your weight goal. Learning how to read a Nutrition Facts food label will help you save time in the store and fill your kitchen with low calorie foods.

Read labels as you shop. Pay attention to the serving size and the servings per container. All labels list total calories and fat in a serving size of the product. Compare the total calories in the product you choose with others like it; choose the

one that is lowest in calories and fat. Below is a label that identifies important information.

To achieve your weight goal, you may need to eat much less than this reference amount. For example, if you eat 1,600 calories per day, your total daily fat limit should be 53 grams (30 percent calories from fat) and 18 grams of saturated fat (10 percent calories from fat). If you eat 1,200 calories per day, your total daily fat limit should be 40 grams (30 percent calories from fat), and your total daily saturated fat limit would be 13 grams (10 percent calories from fat).

**Product:**

**Check for:**

**Nutrition Facts**  
Serving Size 1 cup (228g)  
Servings Per Container 2

---

**Amount Per Serving**  
Calories 250    Calories from Fat 110

---

% Daily Value\*

Total Fat	12g	18%
Saturated Fat	3g	15%
Cholesterol	30mg	10%
Sodium	470mg	20%
Total Carbohydrate	31g	10%
Dietary Fiber	0g	0%
Sugars	5g	
Protein	5g	

---

Vitamin A 4%    •    Vitamin C 2%  
Calcium 20%    •    Iron 4%

\* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:  
Fat 9 • Carbohydrates 4 • Protein 4

- Serving size
- Number of servings
  
- Calories
- Total fat in grams
- Saturated fat in grams
- Cholesterol in milligrams
- Sodium in milligrams

Here, the label gives the amounts for the different nutrients in one serving. Use it to help you keep track of how many calories and how much fat, saturated fat, cholesterol, and sodium you are getting from different foods.

The “% Daily Value” shows you how much of the recommended amounts the food provides in one serving, if you eat **2,000** calories a day. For example, one serving of this food gives you 18 percent of your total fat recommendation.

Here you can see the recommended daily amount for each nutrient for two calorie levels. If you eat a 2,000 calorie diet, you should be eating less than 65 grams of fat and less than 20 grams of saturated fat. If you eat 2,500 calories a day, you should eat less than 80 grams of fat and 25 grams of saturated fat. *Your daily amounts may be higher or lower, depending on the calories you eat.*

### Fat Matters, but Calories Count

A calorie is a calorie is a calorie whether it comes from fat or carbohydrate. Anything eaten in excess can lead to weight gain. You can lose weight by eating less calories and by increasing your physical activity. Reducing the amount of fat and saturated fat that you eat is one easy way to limit your overall calorie intake. However, eating fat free or reduced fat foods isn't always the answer to

weight loss. This is especially true when you eat more of the reduced fat food than you would of the regular item. For example, if you eat twice as many fat free cookies, you have actually increased your overall calorie intake.

The following list of foods and their reduced fat varieties will show you that just because a product is fat free, it doesn't mean that it is "calorie free." And, calories do count!



Fat Free or Reduced Fat		Regular	
	Calories		Calories
Reduced fat peanut butter, 2 T	187	Regular peanut butter, 2 T	191
<i>Cookies:</i> Reduced fat chocolate chip cookies, 3 cookies (30 g)	118	<i>Cookies:</i> Regular chocolate chip cookies, 3 cookies (30 g)	142
Fat free fig cookies, 2 cookies (30 g)	102	Regular fig cookies, 2 cookies (30 g)	111
<i>Ice cream:</i> Nonfat vanilla frozen yogurt (< 1% fat), 1/2 cup	100	<i>Ice cream:</i> Regular whole milk vanilla frozen yogurt (3–4% fat), 1/2 cup	104
Light vanilla ice cream (7% fat), 1/2 cup	111	Regular vanilla ice cream (11% fat), 1/2 cup	133
Fat free caramel topping, 2 T	103	Caramel topping, homemade with butter 2 T	103
Lowfat granola cereal, approx. 1/2 cup (55 g)	213	Regular granola cereal, approx. 1/2 cup (55 g)	257
Lowfat blueberry muffin, 1 small (2 1/2 inch)	131	Regular blueberry muffin, 1 small (2 1/2 inch)	138
Baked tortilla chips, 1 oz.	113	Regular tortilla chips, 1 oz.	143
Lowfat cereal bar, 1 bar (1.3 oz.)	130	Regular cereal bar, 1 bar (1.3 oz.)	140

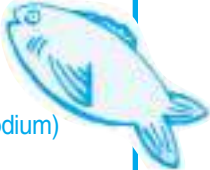




Nutrient data taken from Nutrient Data System for Research, Version v4.02/30, Nutrition Coordinating Center, University of Minnesota.

## Appendix C. Low Calorie, Lower Fat Alternatives

These low calorie alternatives provide new ideas for old favorites. When making a food choice, remember to consider vitamins and minerals. Some foods provide most of their calories from sugar and fat but give you few, if any, vitamins and minerals.

This guide is not meant to be an exhaustive list. We stress reading labels to find out just how many calories are in the specific products you decide to buy.

Instead of...		Replace with...
<ul style="list-style-type: none"> <li>• Evaporated whole milk</li> <li>• Whole milk</li> <li>• Ice cream</li> <li>• Whipping cream</li> <li>• Sour cream</li> <li>• Cream cheese</li> <li>• Cheese (cheddar, Swiss, jack)</li> <li>• American cheese</li> <li>• Regular (4%) cottage cheese</li> <li>• Whole milk mozzarella cheese</li> <li>• Whole milk ricotta cheese</li> <li>• Coffee cream (half and half) or nondairy creamer (liquid, powder)</li> </ul>	 <p><b>Dairy Products</b></p>	<ul style="list-style-type: none"> <li>• Evaporated fat free (skim) or reduced fat (2%) milk</li> <li>• Lowfat (1%), reduced fat (2%), or fat free (skim) milk</li> <li>• Sorbet, sherbet, lowfat or fat free frozen yogurt, or ice milk (check label for calorie content)</li> <li>• Imitation whipped cream (made with fat free [skim] milk) or lowfat vanilla yogurt</li> <li>• Plain lowfat yogurt</li> <li>• Neufchatel or "light" cream cheese or fat free cream cheese</li> <li>• Reduced calorie cheese, low calorie processed cheeses, etc.</li> <li>• Fat free cheese</li> <li>• Fat free American cheese or other types of fat free cheeses</li> <li>• Lowfat (1%) or reduced fat (2%) cottage cheese</li> <li>• Part skim milk, low-moisture mozzarella cheese</li> <li>• Part skim milk ricotta cheese</li> <li>• Lowfat (1%) or reduced fat (2%) milk or nonfat dry milk powder</li> </ul>
<ul style="list-style-type: none"> <li>• Ramen noodles</li> <li>• Pasta with white sauce (alfredo)</li> <li>• Pasta with cheese sauce</li> <li>• Granola</li> </ul>	<p><b>Cereals, Grains, and Pasta</b></p>	<ul style="list-style-type: none"> <li>• Rice or noodles (spaghetti, macaroni, etc.)</li> <li>• Pasta with red sauce (marinara)</li> <li>• Pasta with vegetables (primavera)</li> <li>• Bran flakes, crispy rice, etc.</li> <li>• Cooked grits or oatmeal</li> <li>• Whole grains (e.g., couscous, barley, bulgur, etc.)</li> <li>• Reduced fat granola</li> </ul>
<ul style="list-style-type: none"> <li>• Cold cuts or lunch meats (bologna, salami, liverwurst, etc.)</li> <li>• Hot dogs (regular)</li> <li>• Bacon or sausage</li> <li>• Regular ground beef</li> <li>• Chicken or turkey with skin, duck, or goose</li> <li>• Oil-packed tuna</li> </ul>	 <p><b>Meat, Fish, and Poultry</b></p>	<ul style="list-style-type: none"> <li>• Lowfat cold cuts (95% to 97% fat free lunch meats, lowfat pressed meats)</li> <li>• Lower fat hot dogs</li> <li>• Canadian bacon or lean ham</li> <li>• Extra lean ground beef such as ground round or ground turkey (read labels)</li> <li>• Chicken or turkey without skin (white meat)</li> <li>• Water-packed tuna (rinse to reduce sodium content)</li> </ul>

Instead of...		Replace with...
<ul style="list-style-type: none"> <li>• Beef (chuck, rib, brisket)</li> <li>• Pork (spareribs, untrimmed loin)</li> <li>• Frozen breaded fish or fried fish (homemade or commercial)</li> <li>• Whole eggs</li> <li>• Frozen TV dinners (containing more than 13 grams of fat per serving)</li> <li>• Chorizo sausage</li> </ul>	<b>Meat, Fish, and Poultry (continued)</b>	<ul style="list-style-type: none"> <li>• Beef (round, loin) (trimmed of external fat) (choose select grades)</li> <li>• Pork tenderloin or trimmed, lean smoked ham</li> <li>• Fish or shellfish, unbreaded (fresh, frozen, canned in water)</li> <li>• Egg whites or egg substitutes</li> <li>• Frozen TV dinners (containing less than 13 grams of fat per serving and lower in sodium)</li> <li>• Turkey sausage, drained well (read label)</li> <li>• Vegetarian sausage (made with tofu)</li> </ul> 
<ul style="list-style-type: none"> <li>• Croissants, brioches, etc.</li> <li>• Donuts, sweet rolls, muffins, scones, or pastries</li> <li>• Party crackers</li> <li>• Cake (pound, chocolate, yellow)</li> <li>• Cookies</li> </ul> 	<b>Baked Goods</b>	<ul style="list-style-type: none"> <li>• Hard french rolls or soft "brown 'n serve" rolls</li> <li>• English muffins, bagels, reduced fat or fat free muffins or scones</li> <li>• Lowfat crackers (choose lower in sodium)</li> <li>• Saltine or soda crackers (choose lower in sodium)</li> <li>• Cake (angel food, white, gingerbread)</li> <li>• Reduced fat or fat free cookies (graham crackers, ginger snaps, fig bars) (compare calorie level)</li> </ul>
<ul style="list-style-type: none"> <li>• Nuts</li> <li>• Ice cream, e.g., cones or bars</li> <li>• Custards or puddings (made with whole milk)</li> </ul>	<b>Snacks and Sweets</b>	<ul style="list-style-type: none"> <li>• Popcorn (air-popped or light microwave), fruits, vegetables</li> <li>• Frozen yogurt, frozen fruit, or chocolate pudding bars</li> <li>• Puddings (made with skim milk)</li> </ul> 
<ul style="list-style-type: none"> <li>• Regular margarine or butter</li> <li>• Regular mayonnaise</li> <li>• Regular salad dressings</li> <li>• Butter or margarine on toast or bread</li> <li>• Oils, shortening, or lard</li> </ul> 	<b>Fats, Oils, and Salad Dressings</b>	<ul style="list-style-type: none"> <li>• Light-spread margarines, diet margarine, or whipped butter, tub or squeeze bottle</li> <li>• Light or diet mayonnaise or mustard</li> <li>• Reduced calorie or fat free salad dressings, lemon juice, or plain, herb-flavored, or wine vinegar</li> <li>• Jelly, jam, or honey on bread or toast</li> <li>• Nonstick cooking spray for stir-frying or sautéing</li> <li>• As a substitute for oil or butter, use applesauce or prune puree in baked goods</li> </ul>
<ul style="list-style-type: none"> <li>• Canned cream soups</li> <li>• Canned beans and franks</li> <li>• Gravy (homemade with fat and/or milk)</li> <li>• Fudge sauce</li> <li>• Avocado on sandwiches</li> <li>• Guacamole dip or refried beans with lard</li> </ul>	<b>Miscellaneous</b>	<ul style="list-style-type: none"> <li>• Canned broth-based soups</li> <li>• Canned baked beans in tomato sauce</li> <li>• Gravy mixes made with water or homemade with the fat skimmed off and fat free milk included</li> <li>• Chocolate syrup</li> <li>• Cucumber slices or lettuce leaves</li> <li>• Salsa</li> </ul> 

## Appendix D. Sample Reduced Calorie Menus

Traditional American Cuisine—1,200 Calories				
You can use the exchange list in Appendix E to give yourself more choices.				
	Calories	Fat (grams)	% Fat	Exchange for:
<b>Breakfast</b>				
• Whole wheat bread, 1 medium slice	70	1.2	15	(1 bread/starch)
• Jelly, regular, 2 tsp	30	0	0	( $\frac{1}{2}$ fruit)
• Cereal, shredded wheat, $\frac{1}{2}$ cup	104	1	4	(1 bread/starch)
• Milk, 1%, 1 cup	102	3	23	(1 milk)
• Orange juice, $\frac{3}{4}$ cup	78	0	0	( $\frac{1}{2}$ fruit)
• Coffee, regular, 1 cup	5	0	0	(free)
<b>Breakfast total</b>	<b>389</b>	<b>5.2</b>	<b>10</b>	
<b>Lunch</b>				
• Roast beef sandwich:				
Whole wheat bread, 2 medium slices	139	2.4	15	(2 bread/starch)
Lean roast beef, unseasoned, 2 oz	60	1.5	23	(2 lean protein)
Lettuce, 1 leaf	1	0	0	
Tomato, 3 medium slices	10	0	0	(1 vegetable)
Mayonnaise, low calorie, 1 tsp	15	1.7	96	( $\frac{1}{3}$ fat)
• Apple, 1 medium	80	0	0	(1 fruit)
• Water, 1 cup	0	0	0	(free)
<b>Lunch total</b>	<b>305</b>	<b>5.6</b>	<b>16</b>	
<b>Dinner</b>				
• Salmon, 2 ounces edible	103	5	44	(2 lean protein)
• Vegetable oil, $1\frac{1}{2}$ tsp	60	7	100	( $1\frac{1}{2}$ fat)
• Baked potato, $\frac{3}{4}$ medium	100	0	0	(1 bread/starch)
• Margarine, 1 tsp	34	4	100	(1 fat)
• Green beans, seasoned, with margarine, $\frac{1}{2}$ cup	52	2	4	(1 vegetable) ( $\frac{1}{2}$ fat)
• Carrots, seasoned	35	0	0	(1 vegetable)
• White dinner roll, 1 small	70	2	28	(1 bread/starch)
• Iced tea, unsweetened, 1 cup	0	0	0	(free)
• Water, 2 cups	0	0	0	(free)
<b>Dinner total</b>	<b>454</b>	<b>20</b>	<b>39</b>	
<b>Snack</b>				
• Popcorn, $2\frac{1}{2}$ cups	69	0	0	(1 bread/starch)
• Margarine, $\frac{3}{4}$ tsp	30	3	100	( $\frac{3}{4}$ fat)
<b>Total</b>	<b>1,247</b>	<b>34–36</b>	<b>24–26</b>	

Calories . . . . . 1,247  
 Total carbohydrate, % kcals . . . . . 58  
 Total fat, % kcals . . . . . 26  
 \*Sodium, mg . . . . . 1,043

Saturated fat, % kcals . . . . . 7  
 Cholesterol, mg . . . . . 96  
 Protein, % kcals . . . . . 19

Note: Calories have been rounded.

1,200: 100% RDA met for all nutrients except vitamin E 80%, vitamin B<sub>2</sub> 96%, vitamin B<sub>6</sub> 94%, calcium 68%, iron 63%, and zinc 73%.

\* No salt added in recipe preparation or as seasoning. Consume at least 32 ounces of water.



**Traditional American Cuisine—1,600 Calories**  
 You can use the exchange list in Appendix E to give yourself more choices.

	<b>Calories</b>	<b>Fat (grams)</b>	<b>% Fat</b>	<b>Exchange for:</b>
<b>Breakfast</b>				
• Whole wheat bread, 1 medium slice	70	1.2	15.4	(1 bread/starch)
• Jelly, regular, 2 tsp	30	0	0	(1/2 fruit)
• Cereal, shredded wheat, 1 cup	207	2	8	(2 bread/starch)
• Milk, 1%, 1 cup	102	3	23	(1 milk)
• Orange juice, 3/4 cup	78	0	0	(1 1/2 fruit)
• Coffee, regular, 1 cup	5	0	0	(free)
• Milk, 1%, 1 oz	10	0.3	27	(1/8 milk)
<b>Breakfast total</b>	<b>502</b>	<b>6.5</b>	<b>10</b>	
<b>Lunch</b>				
• Roast beef sandwich:				
Whole wheat bread, 2 medium slices	139	2.4	15	(2 bread/starch)
Lean roast beef, unseasoned, 2 oz	60	1.5	23	(2 lean protein)
American cheese, lowfat and low sodium, 1 slice, 3/4 oz	46	1.8	36	(1 lean protein)
Lettuce, 1 leaf	1	0	0	
Tomato, 3 medium slices	10	0	0	(1 vegetable)
Mayonnaise, low calorie, 2 tsp	30	3.3	99	(2/3 fat)
• Apple, 1 medium	80	0	0	(1 fruit)
• Water, 1 cup	0	0	0	(free)
<b>Lunch total</b>	<b>366</b>	<b>9</b>	<b>22</b>	
<b>Dinner</b>				
• Salmon, 3 ounces edible	155	7	40	(3 lean protein)
• Vegetable oil, 1 1/2 tsp	60	7	100	(1 1/2 fat)
• Baked potato, 3/4 medium	100	0	0	(1 bread/starch)
• Margarine, 1 tsp	34	4	100	(1 fat)
• Green beans, seasoned, with margarine, 1/2 cup	52	2	4	(1 vegetable) (1/2 fat)
• Carrots, seasoned, with margarine, 1/2 cup	52	2	4	(1 vegetable) (1/2 fat)
• White dinner roll, 1 medium	80	3	33	(1 bread/starch)
• Ice milk, 1/2 cup	92	3	28	(1 bread/starch) (1/2 fat)
• Iced tea, unsweetened, 1 cup	0	0	0	(free)
• Water, 2 cups	0	0	0	(free)
<b>Dinner total</b>	<b>625</b>	<b>28</b>	<b>38</b>	
<b>Snack</b>				
• Popcorn, 2 1/2 cups	69	0	0	(1 bread/starch)
• Margarine, 1/2 tsp	58	6.5	100	(1 1/2 fat)
<b>Total</b>	<b>1,613</b>	<b>50</b>	<b>28</b>	

Calories .....1,613  
 Total carbohydrate, % kcals .....55  
 Total fat, % kcals .....29  
 \*Sodium, mg .....1,341

Saturated fat, % kcals .....8  
 Cholesterol, mg .....142  
 Protein, % kcals .....19

Note: Calories have been rounded.  
 1,600: 100% RDA met for all nutrients except vitamin E 99%,  
 iron 73%, and zinc 91%.

\* No salt added in recipe preparation or as seasoning. Consume  
 at least 32 ounces of water.



### Asian American Cuisine—Reduced Calorie

**Breakfast**

- Banana
- Whole wheat bread
- Margarine
- Orange juice
- Milk 1%, lowfat



**1,600 Calories**

- 1 small
- 2 slices
- 1 tsp
- ¾ cup
- ¾ cup

**1,200 Calories**

- 1 small
- 1 slice
- 1 tsp
- ¾ cup
- ¾ cup

**Lunch**

- Beef noodle soup, canned, low sodium
- Chinese noodle and beef salad:
  - Roast beef
  - Peanut oil
  - Soy sauce, low sodium
  - Carrots
  - Zucchini
  - Onion
  - Chinese noodles, soft type
- Apple
- Tea, unsweetened



- ½ cup
- 3 oz
- 1½ tsp
- 1 tsp
- ½ cup
- ½ cup
- ¼ cup
- ¼ cup
- 1 medium
- 1 cup

- ½ cup
- 2 oz
- 1 tsp
- 1 tsp
- ½ cup
- ½ cup
- ¼ cup
- ¼ cup
- 1 medium
- 1 cup

**Dinner**

- Pork stir-fry with vegetables:
  - Pork cutlet
  - Peanut oil
  - Soy sauce, low sodium
  - Broccoli
  - Carrots
  - Mushrooms
- Steamed white rice
- Tea, unsweetened



- 2 oz
- 1 tsp
- 1 tsp
- ½ cup
- 1 cup
- ¼ cup
- 1 cup
- 1 cup

- 2 oz
- 1 tsp
- 1 tsp
- ½ cup
- ½ cup
- ½ cup
- ½ cup
- 1 cup

**Snack**

- Almond cookies
- Milk 1%, lowfat



- 2 cookies
- ¾ cup

- 
- ¾ cup

Calories .....1,609  
 Total carbohydrate, % kcals ... .56  
 Total fat, % kcals ..... .27  
 \*Sodium, mg .....1,296  
 Saturated fat, % kcals ..... .8  
 Cholesterol, mg .....148  
 Protein, % kcals ..... .20

Calories .....1,220  
 Total carbohydrate, % kcals ... .55  
 Total fat, % kcals ..... .27  
 \*Sodium, mg .....1,043  
 Saturated fat, % kcals ..... .8  
 Cholesterol, mg .....117  
 Protein, % kcals ..... .21

1,600: 100% RDA met for all nutrients except zinc 95%, iron 87%, and calcium 93%.

1,200: 100% RDA met for all nutrients except vitamin E 75%, calcium 84%, magnesium 98%, iron 66%, and zinc 77%.

\* No salt added in recipe preparation or as seasoning. Consume at least 32 ounces of water.

### Southern Cuisine—Reduced Calorie

#### Breakfast

- Oatmeal, prepared with 1% milk, lowfat
- Milk, 1%, lowfat
- English muffin
- Cream cheese, light, 18% fat
- Orange juice
- Coffee
- Milk, 1%, lowfat



#### 1,600 Calories

- 1/2 cup
- 1/2 cup
- 1 medium
- 1 T
- 3/4 cup
- 1 cup
- 1 oz

#### 1,200 Calories

- 1/2 cup
- 1/2 cup
- 
- 
- 1/2 cup
- 1 cup
- 1 oz

#### Lunch

- Baked chicken, without skin
- Vegetable oil
- Salad:
  - Lettuce
  - Tomato
  - Cucumber
- Oil and vinegar dressing
- White rice
- Margarine, diet
- Baking powder biscuit, prepared with vegetable oil
- Margarine
- Water



- 2 oz
- 1 tsp
- 1/2 cup
- 1/2 cup
- 1/2 cup
- 2 tsp
- 1/2 cup
- 1/2 tsp
- 1 small
- 1 tsp
- 1 cup
- 2 oz
- 1/2 tsp
- 1/2 cup
- 1/2 cup
- 1/2 cup
- 1 tsp
- 1/4 cup
- 1/2 tsp
- 1/2 small
- 1 tsp
- 1 cup

#### Dinner

- Lean roast beef
- Onion
- Beef gravy, water-based
- Turnip greens
- Margarine, diet
- Sweet potato, baked
- Margarine, diet
- Ground cinnamon
- Brown sugar
- Corn bread prepared with margarine, diet
- Honeydew melon
- Iced tea, sweetened with sugar



- 3 oz
- 1/4 cup
- 1 T
- 1/2 cup
- 1/2 tsp
- 1 small
- 1/2 tsp
- 1 tsp
- 1 tsp
- 1/2 medium slice
- 1/4 medium
- 1 cup
- 2 oz
- 1/4 cup
- 1 T
- 1/2 cup
- 1/2 tsp
- 1 small
- 1/4 tsp
- 1 tsp
- 1 tsp
- 1/2 medium slice
- 1/6 medium
- 1 cup

#### Snack

- Saltine crackers, unsalted tops
- Mozzarella cheese, part skim, low sodium



- 4 crackers
- 1 oz
- 4 crackers
- 1 oz

1,600: 100% RDA met for all nutrients except vitamin E 97%, magnesium 98%, iron 78%, and zinc 90%.

1,200: 100% RDA met for all nutrients except vitamin E 82%, vitamin B<sub>1</sub> & B<sub>2</sub> 95%, vitamin B<sub>3</sub> 99%, vitamin B<sub>6</sub> 88%, magnesium 83%, iron 56%, and zinc 70%.

\* No salt added in recipe preparation or as seasoning.  
Consume at least 32 ounces of water.

Calories . . . . .1,653  
Total carbohydrate, % kcals . . .53  
Total fat, % kcals . . . . .28  
\*Sodium, mg . . . . .1,231  
Saturated fat, % kcals . . . . .8  
Cholesterol, mg . . . . .172  
Protein, % kcals . . . . .20

Calories . . . . .1,225  
Total carbohydrate, % kcals . . .50  
Total fat, % kcals . . . . .31  
\*Sodium, mg . . . . .867  
Saturated fat, % kcals . . . . .9  
Cholesterol, mg . . . . .142  
Protein, % kcals . . . . .21

## Mexican American Cuisine—Reduced Calorie

### Breakfast

- Cantaloupe
- Farina, prepared with 1% lowfat milk
- White bread
- Margarine
- Jelly
- Orange juice
- Milk, 1%, lowfat



### 1,600 Calories

- 1 cup
- 1/2 cup
- 1 slice
- 1 tsp
- 1 tsp
- 1 1/2 cup
- 1/2 cup

### 1,200 Calories

- 1/2 cup
- 1/2 cup
- 1 slice
- 1 tsp
- 1 tsp
- 3/4 cup
- 1/2 cup

### Lunch

- Beef enchilada:
- Tortilla, corn
- Lean roast beef
- Vegetable oil
- Onion
- Tomato
- Lettuce
- Chili peppers
- Refried beans, prepared with vegetable oil
- Carrots
- Celery
- Milk, 1%, lowfat
- Water



- 2 tortillas
- 2 1/2 oz
- 2/3 tsp
- 1 T
- 4 T
- 1/2 cup
- 2 tsp
- 1/4 cup
- 5 sticks
- 6 sticks
- 1/2 cup
- 

- 2 tortillas
- 2 oz
- 2/3 tsp
- 1 T
- 4 T
- 1/2 cup
- 2 tsp
- 1/4 cup
- 5 sticks
- 6 sticks
- 
- 1 cup

### Dinner

- Chicken taco:
- Tortilla, corn
- Chicken breast, without skin
- Vegetable oil
- Cheddar cheese, lowfat and low sodium
- Guacamole
- Salsa
- Corn, seasoned with
- Margarine
- Spanish rice without meat
- Banana
- Coffee
- Milk, 1%



- 1 tortilla
- 2 oz
- 2/3 tsp
- 1 oz
- 2 T
- 1 T
- 1/2 cup
- 1/2 tsp
- 1/2 cup
- 1 large
- 1 cup
- 1 oz

- 1 tortilla
- 1 oz
- 2/3 tsp
- 1/2 oz
- 1 T
- 1 T
- 1/2 cup
- 
- 1/2 cup
- 1/2 large
- 1/2 cup
- 1 oz

1,600: 100% RDA met for all nutrients except vitamin E 97% and zinc 84%.

1,200: 100% RDA met for all nutrients except vitamin E 71%, vitamin B<sub>1</sub> & B<sub>3</sub> 91%, vitamin B<sub>2</sub> & iron 90%, and calcium 92%.

\* No salt added in recipe preparation or as seasoning.  
Consume at least 32 ounces of water.

Calories .....1,638  
Total carbohydrate, % kcals . . .56  
Total fat, % kcals .....27  
\*Sodium, mg .....1,616  
Saturated fat, % kcals .....9  
Cholesterol, mg .....143  
Protein, % kcals .....20

Calories .....1,239  
Total carbohydrate, % kcals . . .58  
Total fat, % kcals .....26  
\*Sodium, mg .....1,364  
Saturated fat, % kcals .....8  
Cholesterol, mg .....91  
Protein, % kcals .....19

### Lacto-Ovo Vegetarian Cuisine—Reduced Calorie

**Breakfast**

- Orange
- Pancakes, made with 1% lowfat milk and eggs whites
- Pancake syrup
- Margarine, diet
- Milk, 1%, lowfat
- Coffee
- Milk, 1%, lowfat

**1,600 Calories**

- 1 medium
- 3 4" circles
- 2 T
- 1½ tsp
- 1 cup
- 1 cup
- 1 oz

**1,200 Calories**

- 1 medium
- 2 4" circles
- 1 T
- 1½ tsp
- ½ cup
- 1 cup
- 1 oz



**Lunch**

- Vegetable soup, canned, low sodium
- Bagel
- Processed american cheese, lowfat
- Spinach salad:
  - Spinach
  - Mushrooms
- Salad dressing, regular calorie
- Apple
- Iced tea, unsweetened

- 1 cup
- 1 medium
- ¾ oz

- ½ cup
- ½ medium
- 



- 1 cup
- ½ cup
- 2 tsp
- 1 medium
- 1 cup

- 1 cup
- ½ cup
- 2 tsp
- 1 medium
- 1 cup

**Dinner**

- Omelette:
  - Egg whites
  - Green pepper
  - Onion
  - Mozzarella cheese, made from part skim milk, low sodium
  - Vegetable oil
- Brown rice, seasoned with
- Margarine, diet
- Carrots, seasoned with
- Margarine, diet
- Whole wheat bread
- Margarine, diet
- Fig bar cookie
- Tea
- Honey
- Milk, 1%, lowfat

- 4 large eggs
- 2 T
- 2 T
- 1 oz
- 1 T
- ½ cup
- ½ tsp
- ½ cup
- ½ tsp
- ½ tsp
- 1 slice
- 1 tsp
- 1 bar
- 1 cup
- 1 tsp
- ¾ cup

- 4 large eggs
- 2 T
- 2 T
- ½ oz
- ½ T
- ½ cup
- ½ tsp
- ½ cup
- ½ tsp
- ½ tsp
- 1 slice
- 1 tsp
- 1 bar
- 1 cup
- 1 tsp
- ¾ cup



1,600: 100% RDA met for all nutrients except vitamin E 92%, vitamin B<sub>3</sub> 97%, vitamin B<sub>6</sub> 67%, iron 73%, and zinc 68%.

1,200: 100% RDA met for all nutrients except vitamin E 75%, vitamin B<sub>1</sub> 92%, vitamin B<sub>3</sub> 69%, vitamin B<sub>6</sub> 59%, iron 54%, and zinc 46%.

\* No salt added in recipe preparation or as seasoning.  
Consume at least 32 ounces of water.


Calories .....1,650  
Total carbohydrate, % kcals ... .56  
Total fat, % kcals ..... .27  
\*Sodium, mg .....1,829  
Saturated fat, % kcals ..... .8  
Cholesterol, mg ..... .82  
Protein, % kcals ..... .19

Calories .....1,205  
Total carbohydrate, % kcals ... .60  
Total fat, % kcals ..... .25  
\*Sodium, mg .....1,335  
Saturated fat, % kcals ..... .7  
Cholesterol, mg ..... .44  
Protein, % kcals ..... .18

## Appendix E. Food Exchange List


Within each group, these foods can be exchanged for each other. You can use this list to give yourself more choices.

**Vegetables** contain 25 calories and 5 grams of carbohydrate. One serving equals:

- ½ cup Cooked vegetables (carrots, broccoli, zucchini, cabbage, etc.) 
- 1 cup Raw vegetables or salad greens
- ½ cup Vegetable juice

**If you're hungry, eat more fresh or steamed vegetables.**

**Fat Free and Very Low Fat Milk** contains 90 calories and 12 grams of carbohydrate per serving. One serving equals:

- 8 oz Milk, fat free or 1% fat
- ¾ cup Yogurt, plain nonfat or lowfat 
- 1 cup Yogurt, artificially sweetened

**Very Lean Protein** choices have 35 calories and 1 gram of fat per serving. One serving equals:

- 1 oz Turkey breast or chicken breast, skin removed 
- 1 oz Fish fillet (flounder, sole, scrod, cod, haddock, halibut)
- 1 oz Canned tuna in water
- 1 oz Shellfish (clams, lobster, scallop, shrimp)
- ¾ cup Cottage cheese, nonfat or lowfat
- 2 each Egg whites
- ¼ cup Egg substitute
- 1 oz Fat free cheese
- ½ cup Beans—cooked (black beans, kidney, chickpeas, or lentils): count as 1 starch/bread and 1 very lean protein

**Fruits** contain 15 grams of carbohydrates and 60 calories. One serving equals:

- 1 small Apple, banana, orange, nectarine
- 1 medium Fresh peach 
- 1 Kiwi
- ½ Grapefruit
- ½ Mango
- 1 cup Fresh berries (strawberries, raspberries, or blueberries)
- 1 cup Fresh melon cubes
- ⅛ Honeydew melon
- 4 oz Unsweetened juice
- 4 tsp Jelly or jam

**Lean Protein** choices have 55 calories and 2 to 3 grams of fat per serving. One serving equals:

- 1 oz Chicken—dark meat, skin removed
- 1 oz Turkey—dark meat, skin removed
- 1 oz Salmon, swordfish, herring, catfish, trout 
- 1 oz Lean beef (flank steak, London broil, tenderloin, roast beef)\*
- 1 oz Veal, roast, or lean chop\*
- 1 oz Lamb, roast, or lean chop\*
- 1 oz Pork, tenderloin, or fresh ham\*
- 1 oz Lowfat cheese (3 grams or less of fat per ounce)
- 1 oz Lowfat luncheon meats (with 3 grams or less of fat per ounce)
- ¼ cup 4.5% cottage cheese
- 2 medium Sardines

\* **Limit to 1 to 2 times per week.**

**Medium Fat Proteins** have 75 calories and 5 grams of fat per serving. One serving equals:

- 1 oz Beef (any prime cut), corned beef, ground beef \*\*
- 1 oz Pork chop
- 1 each Whole egg (medium) \*\*
- 1 oz Mozzarella cheese
- 1/4 cup Ricotta cheese
- 4 oz Tofu (note that this is a heart-healthy choice)



\*\* Choose these very infrequently.

**Starches** contain 15 grams of carbohydrate and 80 calories per serving. One serving equals:

- 1 slice Bread (white, pumpernickel, whole wheat, rye)
- 2 slice Reduced calorie or “lite” bread
- 1/4 (1 oz) Bagel (varies)
- 1/2 English muffin
- 1/2 Hamburger bun
- 3/4 cup Cold cereal
- 1/3 cup Rice, brown or white—cooked
- 1/3 cup Barley or couscous—cooked
- 1/3 cup Legumes (dried beans, peas, or lentils)—cooked



- 1/2 cup Pasta—cooked
- 1/2 cup Bulgur—cooked
- 1/2 cup Corn, sweet potato, or green peas
- 3 oz Baked sweet or white potato
- 3/4 oz Pretzels
- 3 cups Popcorn, hot-air popped or microwave (80-percent light)

**Fats** contain 45 calories and 5 grams of fat per serving. One serving equals:

- 1 tsp Oil (vegetable, corn, canola, olive, etc.)
- 1 tsp Butter
- 1 tsp Stick margarine
- 1 tsp Mayonnaise
- 1 T Reduced fat margarine or mayonnaise
- 1 T Salad dressing
- 1 T Cream cheese
- 2 T Lite cream cheese
- 1/8 Avocado
- 8 large Black olives
- 10 large Stuffed green olives
- 1 slice Bacon



Source: Based on the American Dietetic Association Exchange List





### Low Calorie, Lowfat Cooking/Serving Methods

Cooking low calorie, lowfat dishes may not take a long time, but best intentions can be lost with the addition of butter or other added fats at the table. It is important to learn how certain ingredients can add unwanted calories and fat to lowfat dishes—making them no longer lower in calories and lower in fat. The following list provides examples of lower fat cooking methods and tips on how to serve your lowfat dishes.

### Lowfat Cooking Methods

These cooking methods tend to be lower in fat:

- Bake
- Broil
- Microwave
- Roast—for vegetables and/or chicken without skin
- Steam
- Lightly stir-fry or sauté in cooking spray, small amounts of vegetable oil, or reduced sodium broth
- Grill seafood, chicken, or vegetables



### How To Save Calories and Fat

Look at the following examples for how to save calories and fat when preparing and serving foods. You might be surprised at how easy it is.



- Two tablespoons of butter on a baked potato adds an extra 200 calories and 22 grams of fat. However,  $\frac{1}{4}$  cup salsa adds only 18 calories and no fat.

- Two tablespoons of regular clear Italian salad dressing adds an extra 136 calories and 14 grams of fat. Reduced fat Italian dressing adds only 30 calories and 2 grams of fat.

### Try These Lowfat Flavorings—Added During Preparation or at the Table:

- Herbs—oregano, basil, cilantro, thyme, parsley, sage, or rosemary
- Spices—cinnamon, nutmeg, pepper, or paprika
- Reduced fat or fat free salad dressing
- Mustard
- Catsup
- Fat free mayonnaise
- Fat free or reduced fat sour cream
- Fat free or reduced fat yogurt
- Reduced sodium soy sauce
- Salsa
- Lemon or lime juice
- Vinegar
- Horseradish
- Fresh ginger
- Sprinkled buttered flavoring (not made with real butter)
- Red pepper flakes
- Sprinkle of parmesan cheese (stronger flavor than most cheese)
- Sodium free salt substitute
- Jelly or fruit preserves on toast or bagels



### General Tips for Healthy Dining Out

Whether or not you're trying to lose weight, you can eat healthfully when dining out or bringing in food, if you know how. The following tips will help you move toward healthier eating as you limit your calories, as well as fat, saturated fat, cholesterol, and sodium, when eating out.

### You Are the Customer

- Ask for what you want. Most restaurants will honor your requests.
- Ask questions. Don't be intimidated by the menu—your server will be able to tell you how foods are prepared or suggest substitutions on the menu.
- If you wish to reduce portion sizes, try ordering appetizers as your main meal.
- General tips: Limiting your calories and fat can be easy as long as you know what to order. Try asking these questions when you call ahead or before you order. Ask the restaurant, whether they would, on request, do the following:
  - Serve nonfat (skim) milk rather than whole milk or cream.
  - Reveal the type of cooking oil used.
  - Trim visible fat off poultry or meat.
  - Leave all butter, gravy, or sauces off a side dish or entree.
  - Serve salad dressing on the side.
  - Accommodate special requests if made in advance by telephone or in person.



Above all, don't get discouraged. There are usually several healthy choices to choose from at most restaurants.

### Reading the Menu

- Choose lower calorie, lowfat cooking methods. Look for terms such as “steamed in its own juice” (au jus), “garden fresh,” “broiled,” “baked,” “roasted,” “poached,” “tomato juice,” “dry boiled” (in wine or lemon juice), or “lightly sautéed.”
- Be aware of foods high in calories, fat, and saturated fat. Watch out for terms such as “butter sauce,” “fried,” “crispy,” “creamed,” “in cream or cheese sauce,” “au gratin,” “au fromage,” “escaloped,” “parmesan,” “hollandaise,” “bearnaise,” “marinated (in oil),” “stewed,” “basted,” “sautéed,” “stir-fried,” “casserole,” “hash,” “prime,” “pot pie,” and “pastry crust.”

### Specific Tips for Healthy Choices

#### Breakfast

- Fresh fruit or small glass of citrus juice
- Whole grain bread, bagel, or English muffin with jelly or honey
- Whole grain cereal with lowfat (1%) or nonfat milk
- Oatmeal with nonfat milk topped with fruit
- Omelet made with egg whites or egg substitute
- Multigrain pancakes without butter on top
- Nonfat yogurt (Try adding cereal or fresh fruit.)



#### Beverages

- Water with lemon
- Flavored sparkling water (noncaloric)
- Juice spritzer (half fruit juice and half sparkling water)
- Iced tea
- Tomato juice (reduced sodium)



### Bread

Most bread and bread sticks are low in calories and low in fat. The calories add up when you add butter, margarine, or olive oil to the bread. Also, eating a lot of bread in addition to your meal will fill you up with extra unwanted calories and not leave enough room for fruits and vegetables.



### Appetizers

- Steamed seafood
- Shrimp\* cocktail (Limit cocktail sauce—it's high in sodium.)
- Melons or fresh fruit
- Bean soups
- Salad with reduced fat dressing (Or add lemon juice or vinegar.)



\* **If you are on a cholesterol-lowering diet, eat shrimp and other shellfish in moderation.**

### Entree

- Poultry, fish, shellfish, and vegetable dishes are healthy choices.
- Pasta with red sauce or with vegetables (primavera)
- Look for terms such as “baked,” “broiled,” “steamed,” “poached,” “lightly sauteed,” or “stir-fried.”
- Ask for sauces and dressings on the side.
- Limit the amount of butter, margarine, and salt you use at the table.



### Salads/Salad Bars

- Fresh greens, lettuce, and spinach
- Fresh vegetables—tomato, mushroom, carrots, cucumber, peppers, onion, radishes, and broccoli



- Beans, chickpeas, and kidney beans
- Skip the nonvegetable choices: deli meats, bacon, egg, cheese, croutons.
- Choose lower calorie, reduced fat, or fat free dressing, lemon juice, or vinegar.

### Side Dish

- Vegetables and starches (rice, potato, noodles) make good additions to meals and can also be combined for a lower calorie alternative to higher calorie entrees.
- Ask for side dishes without butter or margarine.
- Ask for mustard, salsa, or lowfat yogurt instead of sour cream or butter.



### Dessert/Coffee

- Fresh fruit
- Nonfat frozen yogurt
- Sherbet or fruit sorbet (These are usually fat free, but check the calorie content.)
- Try sharing a dessert.
- Ask for lowfat milk for your coffee (instead of cream or half-and-half).



## Appendix H. Guide to Physical Activity

An increase in physical activity is an important part of your weight management program. Most weight loss occurs because of decreased caloric intake. Sustained physical activity is most helpful in the prevention of weight regain. In addition, physical activity helps to reduce cardiovascular and diabetes risks beyond what weight reduction alone can do. Start exercising slowly, and gradually increase the intensity. Trying too hard at first can lead to injury.



Your exercise can be done all at one time or intermittently over the course of the day. Initial activities may be walking or swimming at a slow pace. You can start by walking slowly for 30 minutes 3 days a week. Then build to 45 minutes of more intense walking at least 5 days a week. With this regimen, you can burn 100 to 200 calories per day. 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. This regimen can be adapted to other forms of physical activity, but walking is particularly attractive because of its safety and accessibility. Also, try to change everyday activities; for example, take the stairs instead of the elevator. Reducing sedentary time is a good strategy to increase activity by undertaking frequent, less

### Examples of Moderate Amounts of Physical Activity\*

Common Chores	Sporting Activities	
Washing and waxing a car for 45–60 minutes	Playing volleyball for 45–60 minutes	<p>Less Vigorous, More Time<sup>†</sup></p> <p>↑</p> <p>↓</p> <p>More Vigorous, Less Time</p>
Washing windows or floors for 45–60 minutes	Playing touch football for 45 minutes	
Gardening for 30–45 minutes	Walking 1¾ miles in 35 minutes (20 min/mile)	
Wheeling self in wheelchair for 30–40 minutes	Basketball (shooting baskets) for 30 minutes	
Pushing a stroller 1½ miles in 30 minutes	Bicycling 5 miles in 30 minutes	
Raking leaves for 30 minutes	Dancing fast (social) for 30 minutes	
Walking 2 miles in 30 minutes (15 min/mile)	Water aerobics for 30 minutes	
Shoveling snow for 15 minutes	Swimming laps for 20 minutes	
Stairwalking for 15 minutes	Basketball (playing a game) for 15–20 minutes	
	Jumping rope for 15 minutes	
	Running 1½ miles in 15 minutes (15 min/mile)	

\* A moderate amount of physical activity is roughly equivalent to physical activity that uses approximately 150 calories of energy per day, or 1,000 calories per week.

† Some activities can be performed at various intensities; the suggested durations correspond to expected intensity of effort.

strenuous activities.<sup>76</sup> With time, you may be able to—and you may want to—engage in more strenuous activities. Competitive sports such as tennis and volleyball can provide an enjoyable form of exercise, but you must take care to avoid injury.

### Overcoming Obstacles to Regular Activity

Many people who are completely inactive cite various reasons for their inactivity.

#### • I don't have the time to exercise.

Physical activity does take time, but only about 1 hour per week of vigorous activity can greatly benefit your heart, lungs, muscles, and weight. Consider the amount of time you spend watching television. Many forms of physical activity, such as riding an exercise bicycle or using hand weights, can be done while watching television.



#### • I don't like to exercise.

You have bad memories of doing situps or running in high school, sweating, puffing, and panting. Now we know that you can get plenty of gain without pain! Activities you already do, such as gardening and walking, can improve your health, so just do more of the activities you like.



#### • I don't have the energy to be more active.

Once you become a little more active, you should have more energy. As you progress, daily tasks will seem easier.

#### • It's hard to remember to exercise.

Leave your sneakers near the door to remind yourself to walk, bring a change of clothes to work and head straight for exercise on the way home, or put a note on your calendar at work to remind yourself to exercise. In addition, simply try to develop the habit of integrating more activity into your daily routine.



### Gaining Health Benefits From Physical Activity

It is much easier to control your weight when you are active, and being active helps to prevent osteoporosis (bone loss) and heart disease and helps in the treatment of diabetes. In addition, physical activity helps to increase your confidence and decrease your stress. It can also decrease sadness and improve depression.

#### Benefits of Regular Activity

- Your weight is much easier to control when you are active.
- Physical activity can be lots of fun.
- You can be with other people when you are active.
- You'll feel better when you're physically active.
- You'll look better when you're physically active.
- Physical activity is good for your heart.
- Physical activity is a great way to burn off steam and stress.
- Physical activity helps you beat the blues.
- You'll feel more confident when you are active.
- You'll have more energy.



## Fitting Activity Into Your Schedule

### • What time of day is best for you to exercise?

Try walking before going to work or school, or maybe you prefer evenings. Even a few minutes of walking counts. Try to build up to accumulating 30 minutes per day. You can walk whenever it is convenient for you, or you can take an aerobics class instead. Whatever works for you is fine. The important thing is that you try to be more active. There is no one right time of day to exercise.

Try to think about the little things you can do to add more activity to your daily life. For instance, take the stairs instead of the elevator at work, park farther away from the entrance to the mall, or walk instead of driving to work or to shopping. These little things add up and are easy to fit into your schedule.

Some people want to be alone when they exercise, whereas others prefer the company of a group or class. Again, whatever works for you is fine.

### • What activities have you enjoyed in the past? Why did you stop? How can you start them again?

You may enjoy other activities that are better suited to your current lifestyle. The key is to find one or two you really like. Consider varying your activity to prevent boredom.



### You can have fun and feel healthier by doing any of the following:

- Walk or ride a bike in your neighborhood.
- Join a walking club at a mall or at work.
- Play golf at a local club.
- Join a dance class.
- Work in your garden.
- Use local athletic facilities.
- Join a hiking or biking club.
- Join a softball team or other sports team with coworkers, friends, or family.
- Chase your kids in the park. If you don't have kids, take your neighbor's. The parents will appreciate the break, the neighbors will enjoy it, and you'll benefit from getting more activity.
- Walk your dog. If you don't have a dog, pretend you do.
- Take a walk during your lunch break.

## Planning To Become More Active

### • Begin slowly.

If you have not been active for years, do not start with a 3-mile walk! Pushing yourself too hard or too fast will make you sore and discouraged.

### • Set realistic goals, and plan to succeed.

For example, set the goal of walking two times this week. Even if you walk for only 5 minutes each time, you will have met your goal. Next week, you might try to walk two times for 10 minutes each time. Being realistic helps you to feel good about yourself, and it helps you to keep up the good work. You may want to keep an activity log to track your progress.



- **Reward yourself for reaching your goals.**

Each time you meet an exercise goal, give yourself a treat to mark the occasion. Some ideas include the following: buy yourself new sports equipment, ask your spouse to take the kids for an hour, visit a friend, spend more time on your favorite hobby, buy yourself flowers or a plant, enjoy a long hot bath, or go to a movie or rent a video.

- **Be active the healthy way.**

Most healthy people can safely start a program of moderate activity. Talk to your doctor first if you have heart trouble or experience pain or pressure in your chest, neck, shoulder, or arm during or after exercise.



Drink plenty of fluids while you are active. If the weather is bad, have a backup plan. Do your activity indoors. Use the proper equipment, such as a bicycle helmet for safety, and wear comfortable shoes or sneakers for walking.



- **How hard should you exercise?**

For the beginner in a sedentary lifestyle, activity level can be very light. This would include increasing standing activities, doing special chores like room painting, pushing a wheelchair, doing yard work, ironing, cooking, and playing a musical instrument.

The next level would be light activity such as slow walking (24 minutes per mile), garage work, carpentry, house cleaning, child care, golf, sailing, and recreational table tennis.

The next level would be moderate activity such as walking at 15 minutes per mile, weeding and hoeing a garden, carrying a load, cycling, skiing, tennis, and dancing.



## Two Sample Activity Programs

There are many ways to begin an activity program. Below are two examples—a walking program and a jogging program. These activities are easy ways for most people to get regular exercise because they do not require special facilities or equipment other than good, comfortable shoes.



If you find a particular week's pattern tiring, repeat it before going on to the next pattern. You do not have to complete the walking program in 12 weeks or the jogging program in 15 weeks.

### A sample jogging program

If you are older than 40 and have not been active, you should not begin with a program as strenuous as jogging. Begin with the walking program instead. After completing the walking program, you can start with week 3 of the jogging program below.

If walking or jogging does not meet your needs, look for other exercise programs in pamphlets and books on aerobic exercise and sports medicine. Check out the programs and facilities of your local park and recreation department or community recreation centers. Many programs have adapted facilities for the disabled and for seniors.



## A sample walking program

	Warmup	Exercising	Cool down	Total time
<b>Week 1</b>				
Session A	Walk 5 min.	Then walk briskly 5 min.	Then walk more slowly 5 min.	15 min.
Session B	Repeat above pattern			
Session C	Repeat above pattern			

*Continue with at least three exercise sessions during each week of the program.*

<b>Week 2</b>	Walk 5 min.	Walk briskly 7 min.	Walk 5 min.	17 min.
<b>Week 3</b>	Walk 5 min.	Walk briskly 9 min.	Walk 5 min.	19 min.
<b>Week 4</b>	Walk 5 min.	Walk briskly 11 min.	Walk 5 min.	21 min.
<b>Week 5</b>	Walk 5 min.	Walk briskly 13 min.	Walk 5 min.	23 min.
<b>Week 6</b>	Walk 5 min.	Walk briskly 15 min.	Walk 5 min.	25 min.
<b>Week 7</b>	Walk 5 min.	Walk briskly 18 min.	Walk 5 min.	28 min.
<b>Week 8</b>	Walk 5 min.	Walk briskly 20 min.	Walk 5 min.	30 min.
<b>Week 9</b>	Walk 5 min.	Walk briskly 23 min.	Walk 5 min.	33 min.
<b>Week 10</b>	Walk 5 min.	Walk briskly 26 min.	Walk 5 min.	36 min.
<b>Week 11</b>	Walk 5 min.	Walk briskly 28 min.	Walk 5 min.	38 min.
<b>Week 12</b>	Walk 5 min.	Walk briskly 30 min.	Walk 5 min.	40 min.

### Week 13 on:

Gradually increase your brisk walking time to 30 to 60 minutes, three or four times a week. Remember that your goal is to get the benefits you are seeking and enjoy your activity.

## Walking Tips

- Hold your head up, and keep your back straight.
- Bend your elbows as you swing your arms.
- Take long, easy strides.

For additional information about physical activity, request the NHLBI booklet *Exercise and Your Heart: A Guide to Physical Activity*.

## A sample jogging program

If you are older than 40 and have not been active, you should not begin with a program as strenuous as jogging. Begin with the walking program instead. After completing the walking program, you can start with week 3 of the jogging program below.

	Warmup	Exercising	Cool down	Total time
<b>Week 1</b>				
Session A	Walk 5 min., then stretch and limber up	Then walk 10 min. Try not to stop.	Then walk more slowly 3 min. and stretch 2 min.	20 min.
Session B	Repeat above pattern			
Session C	Repeat above pattern			
<i>Continue with at least three exercise sessions during each week of the program.</i>				
<b>Week 2</b>	Walk 5 min., then stretch and limber up	Walk 5 min., jog 1 min., walk 5 min., jog 1 min.	Walk 3 min., stretch 2 min.	22 min.
<b>Week 3</b>	Walk 5 min., then stretch and limber up	Walk 5 min., jog 3 min., walk 5 min., jog 3 min.	Walk 3 min., stretch 2 min.	26 min.
<b>Week 4</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 5 min., walk 4 min., jog 5 min.	Walk 3 min., stretch 2 min.	28 min.
<b>Week 5</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 5 min., walk 4 min., jog 5 min.	Walk 3 min., stretch 2 min.	28 min.
<b>Week 6</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 6 min., walk 4 min., jog 6 min.	Walk 3 min., stretch 2 min.	30 min.
<b>Week 7</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 7 min., walk 4 min., jog 7 min.	Walk 3 min., stretch 2 min.	32 min.
<b>Week 8</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 8 min., walk 4 min., jog 8 min.	Walk 3 min., stretch 2 min.	34 min.
<b>Week 9</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 9 min., walk 4 min., jog 9 min.	Walk 3 min., stretch 2 min.	36 min.
<b>Week 10</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 13 min.	Walk 3 min., stretch 2 min.	27 min.
<b>Week 11</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 15 min.	Walk 3 min., stretch 2 min.	29 min.
<b>Week 12</b>	Walk 5 min., then stretch and limber up	Walk 4 min., jog 17 min.	Walk 3 min., stretch 2 min.	31 min.
<b>Week 13</b>	Walk 5 min., then stretch and limber up	Walk 2 min., jog slowly 2 min., jog 17 min.	Walk 3 min., stretch 2 min.	31 min.
<b>Week 14</b>	Walk 5 min., then stretch and limber up	Walk 1 min., jog slowly 3 min., jog 17 min.	Walk 3 min., stretch 2 min.	31 min.
<b>Week 15</b>	Walk 5 min., then stretch and limber up	Jog slowly 3 min., jog 17 min.	Walk 3 min., stretch 2 min.	30 min.

**Week 16 on:** Gradually increase your jogging time from 20 to 30 minutes (or more, up to 60 minutes), three or four times a week. Remember that your goal is to get the benefits you are seeking and enjoy your activity.

## Why Weight Is Important

Being overweight or obese can have a negative effect on your overall health.

Overweight and obesity are risk factors for developing health problems such as high blood cholesterol, high blood pressure, diabetes, gall-bladder disease, gynecologic disorders, arthritis, some types of cancer, and even some lung problems.



People try to lose weight for a number of reasons. You may already have a health problem that you know about, such as high blood pressure, and want to lose weight to improve your health. Others may be losing weight in order to help prevent health problems. Still others simply want to lose weight to look thinner. For whatever reason, your health care provider may have given you information to help you lose weight.

In some ways, weight is different from other health problems since it is not something that is hidden, such as high blood cholesterol levels. Patients may have had experience with health care providers who are insensitive about their weight. They may have had encounters where they felt blamed rather than helped. Please be assured that when your health care provider discusses your weight, it's because it is an important aspect of your overall health care.



Your provider also understands that weight management is a long-term challenge influenced by behavioral, emotional, and physical factors.

## How To Lose Weight and Maintain It

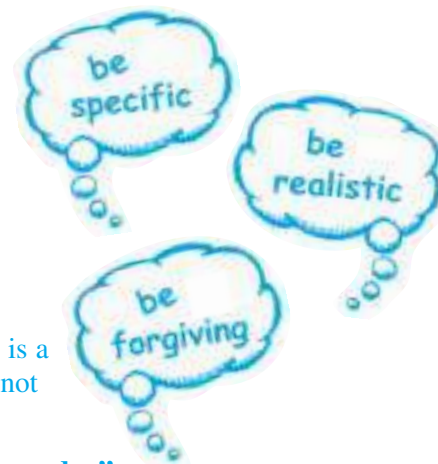
### Set the Right Goals.

Setting the right goals is an important first step. Did you know that the amount of weight loss needed to improve health may be much less than you want to lose to look thinner? If your provider suggests an initial weight loss goal that seems too heavy for you, please understand that your health can be greatly improved by a loss of 5 percent to 10 percent of your starting weight. That doesn't mean you have to stop there, but it does mean that an initial goal of 5 to 10 percent of your starting weight is both realistic and valuable.

Most people who are trying to lose weight focus on one thing: weight loss. However, focusing on dietary and exercise changes that will lead to permanent weight loss is much more productive. People who are successful at managing their weight set only two to three goals at a time.

Effective goals are:

- specific
- realistic
- forgiving (less than perfect)



For example:

“**Exercise more**” is a fine goal, but it's not specific enough.

“**Walk 5 miles every day**” is specific and measurable, but is it achievable if you're just starting out?

“**Walk 30 minutes every day**” is more attainable, but what happens if you're held up at work one day and there's a thunderstorm during your walking time on another day?

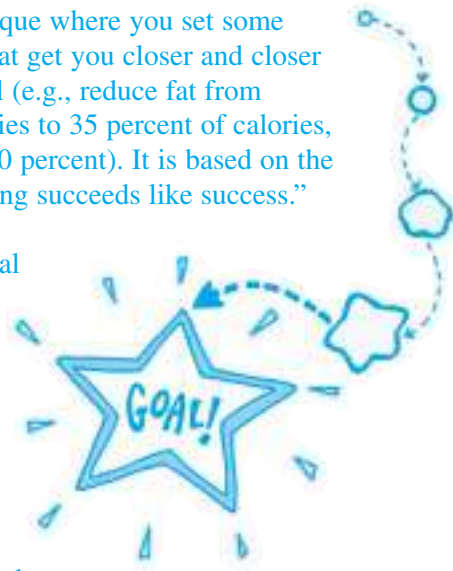
“**Walk 30 minutes, 5 days each week**” is specific, achievable, and forgiving. *A great goal!*

### Nothing Succeeds Like Success.

Shaping is a technique where you set some short-term goals that get you closer and closer to the ultimate goal (e.g., reduce fat from 40 percent of calories to 35 percent of calories, and ultimately to 30 percent). It is based on the concept that “nothing succeeds like success.”

Shaping uses two important behavioral principles:

- Continuous goals that move you ahead in small steps to reach a distant point.
- Continuous rewards to keep you motivated to make changes.

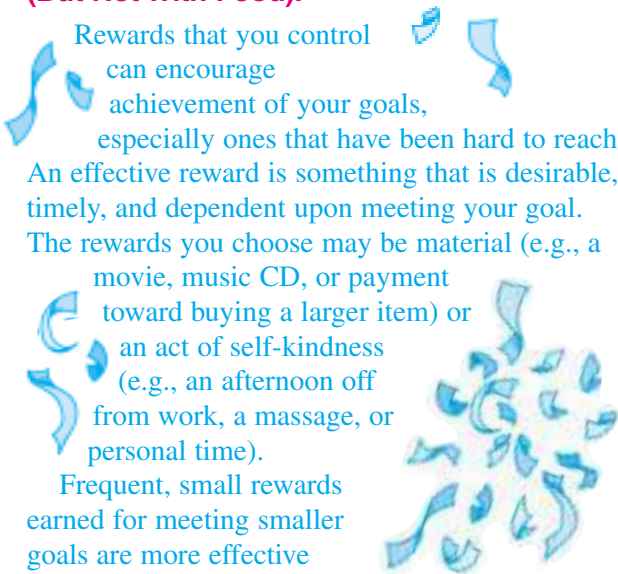


### Reward Success (But Not With Food).

Rewards that you control can encourage achievement of your goals, especially ones that have been hard to reach. An effective reward is something that is desirable, timely, and dependent upon meeting your goal.

The rewards you choose may be material (e.g., a movie, music CD, or payment toward buying a larger item) or an act of self-kindness (e.g., an afternoon off from work, a massage, or personal time).

Frequent, small rewards earned for meeting smaller goals are more effective than bigger rewards, requiring a long, difficult effort.



### Balance Your (Food) Checkbook.

Self-monitoring refers to observing and recording some aspect of your behavior, such as calorie intake, servings of fruits and vegetables eaten, and amount of physical activity, etc., or an outcome of these behaviors, such as weight. Self-monitoring of a behavior can be used at times when you’re not sure of how you are doing and at times when you want the behavior to improve. Self-monitoring of a behavior usually moves you closer to the desired behavior. When you record your behavior, you produce real-time records for you and your health care provider to discuss. For example, keeping a record of your exercise can let you and your provider know quickly how you are doing. When your record shows that your exercise is increasing, you’ll be encouraged to keep it up. Some



patients find that standard self-monitoring forms make it easier, while others like their own recording system. Use the form in Appendix K to help you keep track of your daily diet and activity levels.

Regular monitoring of your weight is key to keeping it off. Remember these four points if you are keeping a weight chart or graph:

- One day’s diet and exercise routine won’t necessarily affect your weight the next day. Your weight will change quite a bit over the course of a few days because of fluctuations in water and body fat.
- Try to weigh yourself at a set time once or twice per week. This can be when you first wake up and before eating and drinking, after exercise, or right before dinner, etc.
- Whatever time you choose, just make sure it is always the same time and use the same scale to help you keep the most accurate records.
- It may also be helpful to create a graph of your weight as a visual reminder of how you’re doing, rather than just listing numbers.





### **Avoid a Chain Reaction.**

Stimulus (cue) control involves learning what social or environmental cues encourage undesired eating, and then changing those cues. For example, you may learn from your self-monitoring techniques or from sessions with your health care provider that you're more likely to overeat when watching TV, when treats are on display by the office coffee pot, or when around a certain friend. Ways to change the situation include:

- Separating the association of eating from the cue (Don't eat while watching television.)
- Avoiding or eliminating the cue (Leave the coffee room immediately after pouring coffee.)
- Changing the environment (Plan to meet this friend in a nonfood setting.)

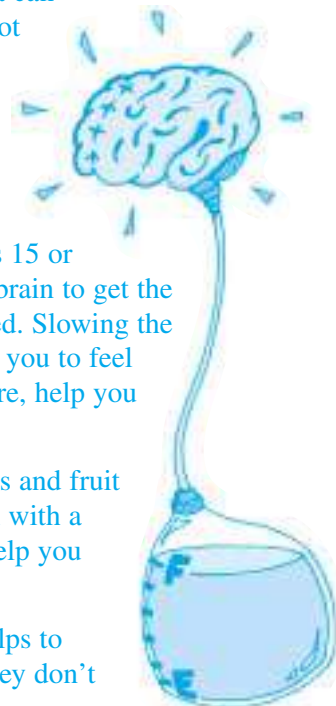


In general, visible and reachable food items often lead to unplanned eating.

### **Get the (Fullness) Message.**

Changing the way you eat can help you to eat less and not feel deprived.

- Eating slowly will help you to feel satisfied when you've eaten the right amount of food for you. It takes 15 or more minutes for your brain to get the message you've been fed. Slowing the rate of eating can allow you to feel full sooner and, therefore, help you eat less.
- Eating lots of vegetables and fruit and also starting a meal with a broth-based soup can help you feel fuller.
- Using smaller plates helps to moderate portions so they don't appear too small.
- Drinking at least eight glasses of noncaloric beverages each day will help you to feel full, possibly eat less, and benefit you in other ways.
- Changing your eating schedule, or setting one, can be helpful, especially if you tend to skip or delay meals and overeat later.





## Appendix J. Weight and Goal Record

PATIENT _____						
DATE	WEIGHT	WEIGHT CHANGE THIS VISIT	TOTAL WEIGHT CHANGE	WAIST	BMI	PATIENT GOALS SET THIS VISIT
						DIET
						PHYSICAL ACTIVITY
						BEHAVIOR
						NOTES
						DIET
						PHYSICAL ACTIVITY
						BEHAVIOR
						NOTES
						DIET
						PHYSICAL ACTIVITY
						BEHAVIOR
						NOTES

**Weight Management Chart**

You can't drive a car if you can't see where you are going. You can't control your weight if you can't see where it's going. An important behavior change is to keep a visual record of your weight, along with your physical activity habits. Beginning now, weigh yourself every day and record each day's weight and minutes of physical activity using the graph on the next page, as shown in the example below. Weigh yourself at the same time under the same conditions every day. The bottom horizontal lines show the days of the month. The vertical lines on the left side will show a range of your weights, while the vertical lines on the right side will show the minutes of physical activity.



**Chart Your Weight.**

Write in your first weight on the third line from the top of the graph on the left side. List successive weights up and down from there, one pound per line. Each day go up the line above that day until you are on the same horizontal line as your weight that day, and mark the spot with a dot. Connect the dots with a solid line.

**Chart Your Physical Activity.**

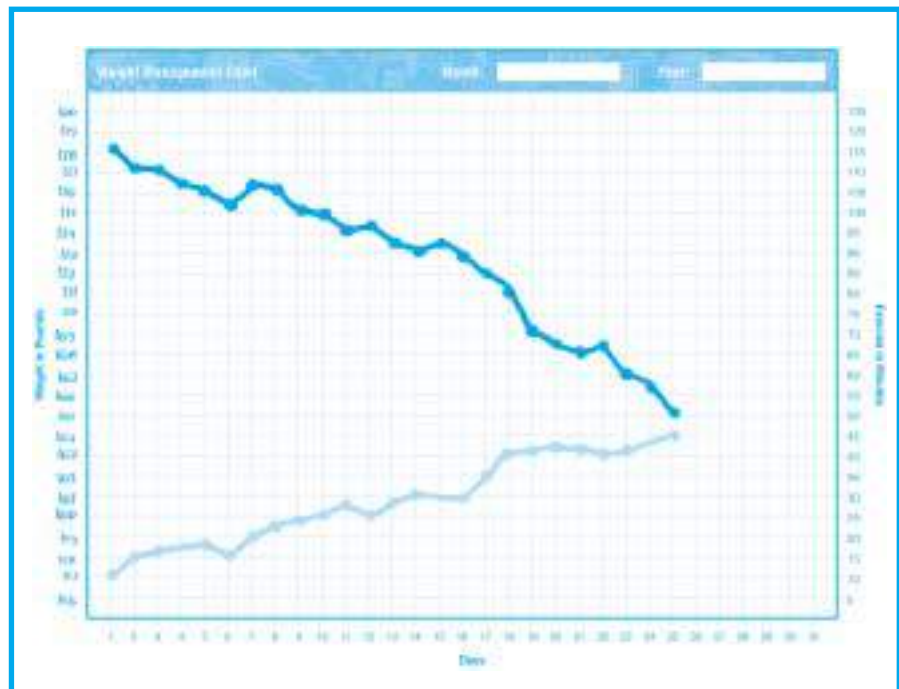
Do the same for physical activity. Write in 5 minutes of physical activity on the first line from the bottom of the graph on the right side. List additional

minutes of activity up from there using 5 minute intervals. Each day go up the line above that day until you are on the same horizontal line as your physical activity for that day, and mark the spot with a dot. Connect the dots with a solid line.

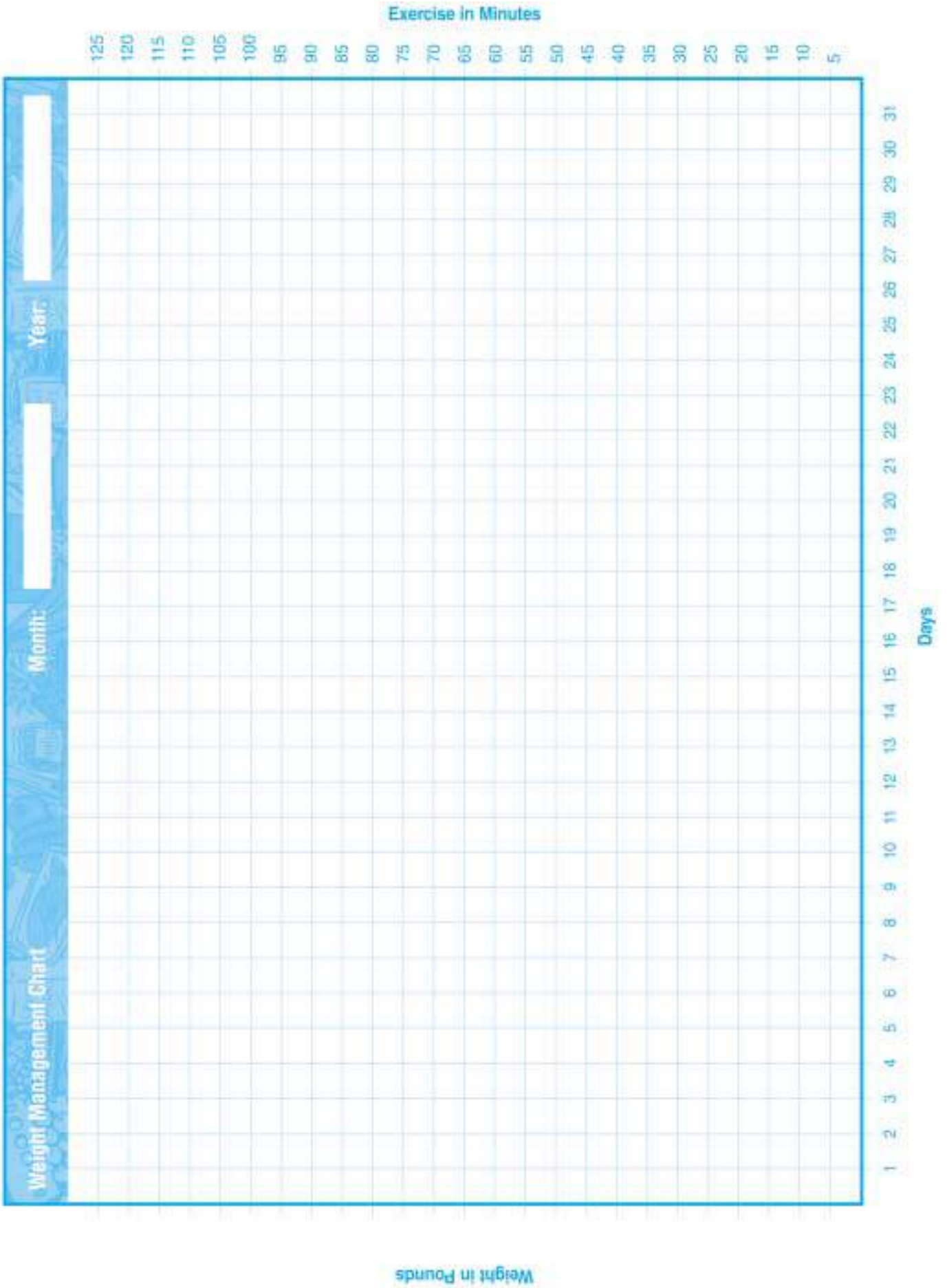
**See Your Success.**

The beginning of a weight loss program is when weight graphing is most fun—a good time to start the habit. Your graph will show ups and downs because of changes in fluid balance and differences in fluid intake from day to day. You will learn to understand these variations and use the overall trend to guide your weight control plan. Post the graph near your scale or on your refrigerator as a reminder of your progress.

**Weigh yourself at the same time under the same conditions every day. The bottom horizontal lines show the days of the month. The vertical lines on the left side will show a range of your weights, while the vertical lines on the right side will show the minutes of physical activity.**



Source: Adapted from the Weight Management Center, Medical University of South Carolina



Appendix K. Weekly Food and Activity Diary

Weekly Food and Activity Diary		Week of: _____						
		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast								
Lunch								
Dinner								
Activity								
Notes:								

## Appendix L. Additional Resources

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The *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: Evidence Report* was developed by the NHLBI Expert Panel and released in June 1998. In addition to the *Evidence Report* (NIH Publication # 4083), a number of professional and patient education resources based on the report are available from the NHLBI. These resources include the executive summary of the report (NIH Publication #55-892), evidence tables of data supporting the report, an electronic textbook, a slide kit, a BMI calculator including a Palm top application, a menu planner, highlights for patients, and this *Practical Guide to the Identification, Evaluation and Treatment of Overweight and Obesity in Adults*. These resources are available on the NHLBI's **Aim For a Healthy Weight Web page** at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov) or by contacting the address below:

In addition, the *Clinical Guidelines Evidence Report* was published in the September 1998 supplement of *Obesity Research* which can be obtained from the North American Association for the Study of Obesity (NAASO) at the following address:

### **National Heart, Lung, and Blood Institute**

Health Information Center  
P.O. Box 30105  
Bethesda, MD 20824-0105  
(301) 592-8573  
(301) 592-8563 fax  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

Online publications on blood pressure, overweight, cholesterol, heart disease, sleep disorders and asthma

### **North American Association for the Study of Obesity**

8630 Fenton Street, Suite 412  
Silver Spring, MD 20910  
(301) 563-6526  
(301) 587-2365 fax  
[www.naaso.org](http://www.naaso.org)

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### **Other materials available from the NHLBI include:**

1. *Second Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel II)*.  
NIH publication #3046.  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov).
2. *The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure*.  
NIH publication #4080.  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov).
3. *Consensus Statement: Gastrointestinal Surgery for Severe Obesity*.  
[www.odp.od.nih.gov/consensus](http://www.odp.od.nih.gov/consensus)

National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health  
Building 31, Room 9A52  
31 Center Drive  
Bethesda, MD 20892-1818  
(301) 496-5877  
(301) 402-2125 fax  
<http://www.niddk.nih.gov/index.htm>

The Weight-Control Information Network  
National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health  
1 Win Way  
Bethesda, MD 20892-0001  
(301) 570-2177  
(301) 570-2186 fax  
1-800-WIN-8098

National Diabetes Information Clearinghouse (NIDDK)  
1 Information Way  
Bethesda, MD 20892-3560  
(301) 654-3327  
(301) 907-8906 fax

American Society for Bariatric Surgery (ASBS)  
140 Northwest 75th Drive,  
Suite C  
Gainesville, FL 32607  
(352) 331-4900  
(352) 331-4975 fax  
<http://www.asbs.org/>

American Dietetic Association  
216 West Jackson Boulevard  
Chicago, IL 60606-6995  
(312) 899-0040  
1-800-877-1600 fax  
<http://www.eatright.org>  
Eat Right America Program  
Find a dietitian, 1-800-366-1655

American College of Sports Medicine  
P.O. Box 1440  
Indianapolis, IN 46206-1440  
(317) 637-9200  
(317) 634-7817 fax  
<http://www.acsm.org>

American Diabetes Association  
1660 Duke Street  
Alexandria, VA 22314  
1-800-DIABETES  
<http://www.diabetes.org>

American Society of Bariatric Physicians (ASBP)  
5600 South Quebec Street,  
Suite 109A  
Englewood, CO 80111  
(303) 770-2526, ext. 17  
(membership information only)  
(303) 779-4833  
(303) 779-4834 fax  
<http://www.asbp.org>

American Obesity Association  
1250 24th Street, NW, Suite 300  
Washington, DC 20037  
202-776-7711  
202-776-7712 fax  
<http://www.obesity.org>

American Cancer Society  
Atlanta, GA  
1-800-ACS-2345  
<http://www.cancer.org>

Office of Cancer Communications  
National Cancer Institute  
National Institutes of Health  
Building 31, Room 10A-24  
31 Center Drive, MSC 2580  
Bethesda, MD 20892-2580  
1-800-4-CANCER  
(1-800-422-6237)  
<http://www.nci.nih.gov>

National Eating Disorders Organization  
6655 South Yale Avenue  
Tulsa, OK 74136  
(918) 481-4044  
(918) 481-4076 fax  
<http://www.laureate.com/aboutned.html>

Eating Disorders Awareness and Prevention, Inc.  
603 Stewart Street, Suite 803  
Seattle, WA 98101  
(206) 382-3587  
<http://members.aol.com/edapinc/home.html>

American Anorexia/Bulimia Association, Inc.  
165 West 46th Street, #1108  
New York, NY 10036  
(212) 575-6200  
<http://members.aol.com/amanbu/index.html>

National Association of Anorexia Nervosa and Associated Disorders  
P.O. Box 7  
Highland Park, IL 60035  
(847) 831-3438  
(847) 433-4632 fax  
<http://www.anad.org>



American Heart Association  
7272 Greenville Avenue  
Dallas, TX 75231-4596  
(214) 706-1220  
(214) 706-1341 fax  
1-800-AHA-USA1  
(1-800-242-8721)  
<http://www.americanheart.org>

National Mental Health Association  
1201 Prince Street  
Alexandria, Virginia 22314-2971  
(703) 684-7722  
(703) 684-5968 fax  
1-800-969-NMHA  
(Information Center)  
<http://www.nmha.org>

Stroke Connection  
1-800-553-6321  
Hypertension Network, Inc.  
<http://www.bloodpressure.com>

National Institute of Neurological  
Disorders and Stroke  
National Institutes of Health  
P.O. Box 1350  
Silver Spring, MD 20911  
(800) 352-9424  
<http://www.ninds.nih.gov>

National Center on Sleep Disorders  
Research  
National Heart, Lung,  
and Blood Institute  
National Institutes of Health  
Two Rockledge Centre,  
Suite 10038  
6701 Rockledge Drive,  
MSC 7920  
Bethesda, MD 20892-7920  
(301) 435-0199  
(301) 480-3451 fax  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov) and click  
on NCSDR

American Academy of  
Sleep Medicine  
6301 Bandel Road, Suite 101  
Rochester, MN 55901  
(507) 287-6006  
(507) 287-6008 fax  
<http://www.aasmnet.org>

A Quick  
Reference  
Tool to ACT

# Obesity

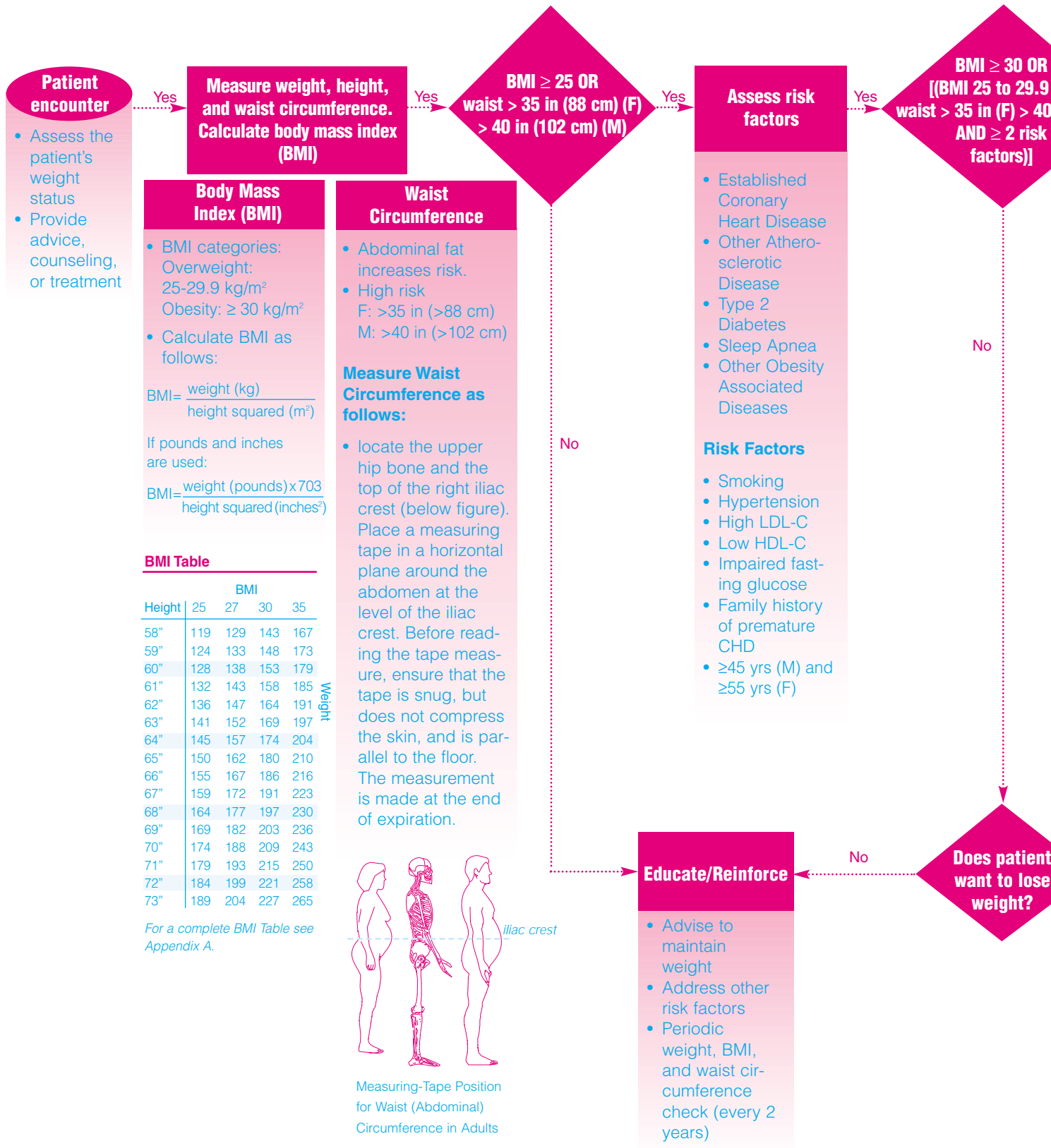
Waist Circumference

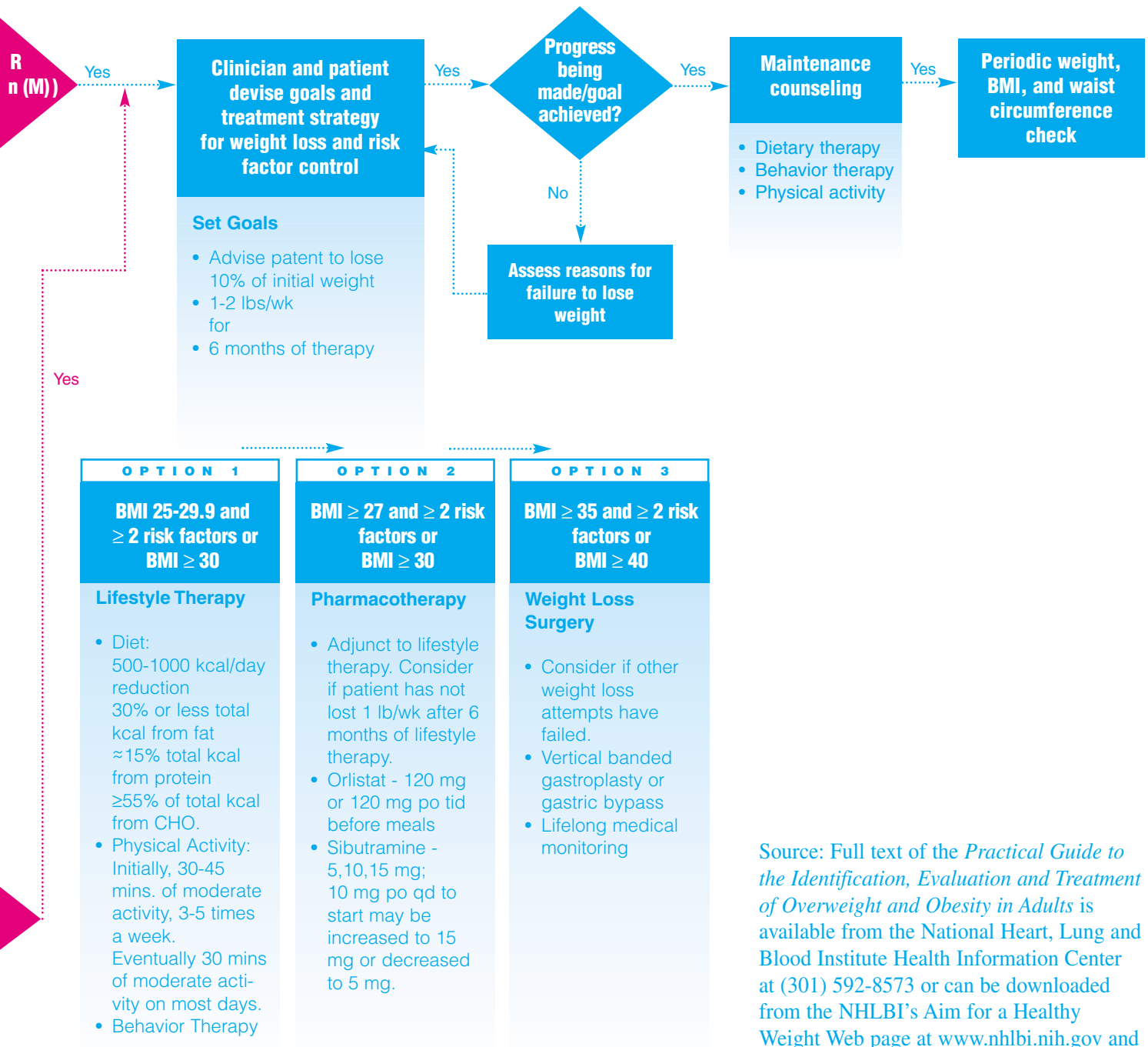
**BMI**

Treatment  
overweight

# A Quick Reference Tool to ACT

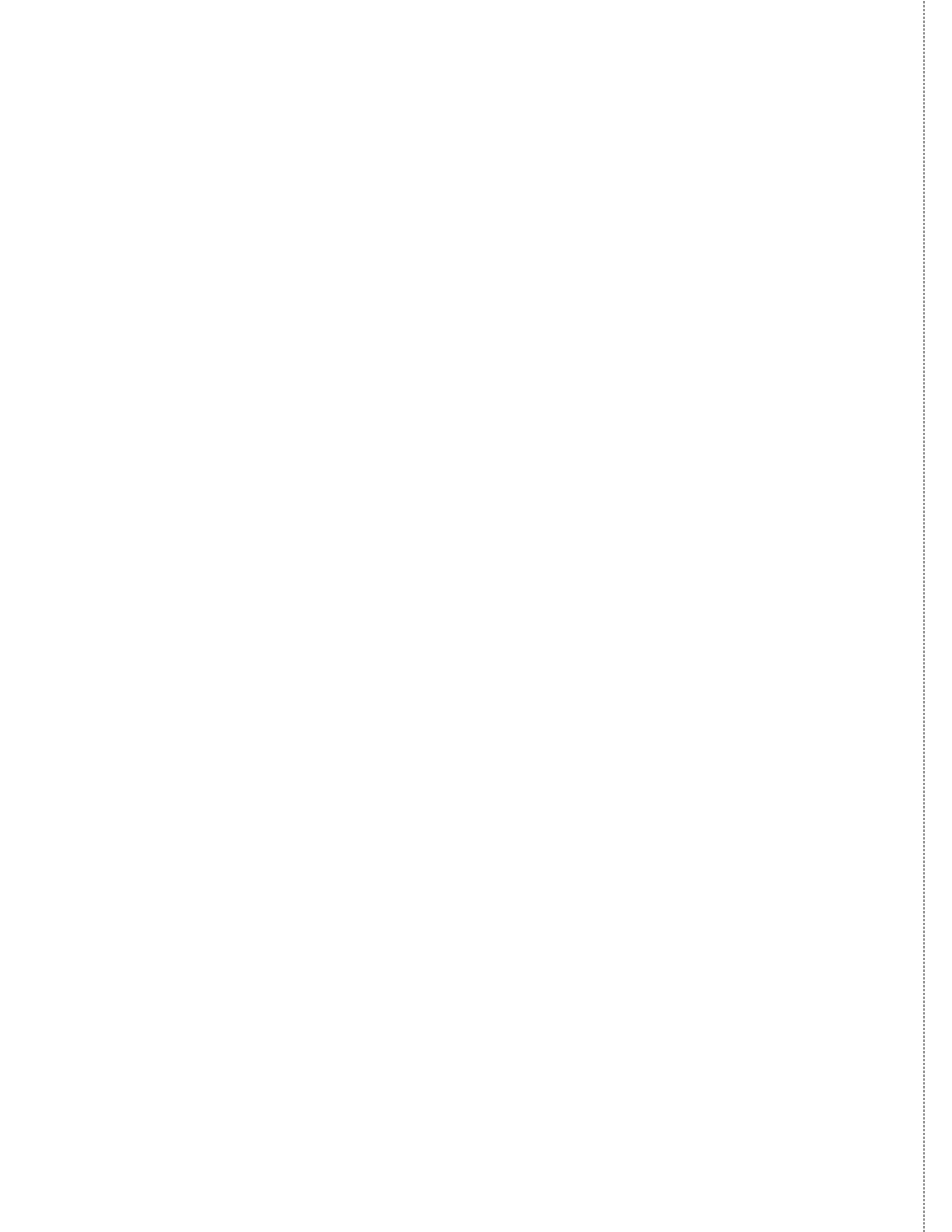
## Assessment (A) and Classification (C)





Source: Full text of the *Practical Guide to the Identification, Evaluation and Treatment of Overweight and Obesity in Adults* is available from the National Heart, Lung and Blood Institute Health Information Center at (301) 592-8573 or can be downloaded from the NHLBI's Aim for a Healthy Weight Web page at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov) and click on "Aim for a Healthy Weight." Also, available from NAASO at [www.naaso.org](http://www.naaso.org)







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U.S. Department of Health and Human Services  
Public Health Service  
National Institutes of Health  
National Heart, Lung, and Blood Institute

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