

# Counseling for Physical Activity in Overweight and Obese Patients

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**Obesity has reached epidemic proportions in the United States. More than 60 percent of U.S. adults are now overweight or obese (defined as at least 30 lb [13.6 kg] overweight), predisposing more than 97 million Americans to a host of chronic diseases and conditions. Physical activity has a positive effect on weight loss, total body fat, and body fat distribution, as well as maintenance of favorable body weight and change in body composition. Many of the protective aspects of exercise and activity appear to occur in overweight persons who gain fitness but remain overweight. Despite the well-known health and quality-of-life benefits of regular physical activity, few Americans are routinely active. Results of research studies have shown that physician intervention to discuss physical activity (including the wide array of health benefits and the potential barriers to being active) need not take more than three to five minutes during an office visit but can play a critical role in patient implementation. This article describes elements of effective counseling for physical activity and presents guidelines for developing physical activity programs for overweight and obese patients. (Am Fam Physician 2003;67:1249-56,1266-8. Copyright© 2003 American Academy of Family Physicians.)**

▶ A patient information handout on physical activity for healthy weight, written by the authors of this article, is provided on page 1266.

**ACF** This article exemplifies the AAFP 2003 Annual Clinical Focus on prevention and health promotion.

See page 1226 for definitions of strength-of-evidence levels.

See editorial on page 1199.

Only about 15 percent of adults in the United States regularly engage in the modest amount of activity required to obtain health benefits.

An estimated 97 million adults in the United States, or more than six out of 10 men and women, are overweight or obese.<sup>1</sup> In the United States alone, approximately 300,000 deaths each year are attributed to a combination of dietary factors and physical inactivity—the two primary culprits of obesity—making these lifestyle habits second only to cigarette smoking as the leading cause of death in the United States.<sup>2</sup> The trend of overweight and obesity in adults appears to be growing unabated, while an increase in the number of overweight American youths points to an even greater preponderance of adult obesity and its associated comorbidities in the future.<sup>3</sup>

No longer is there any serious doubt about the strong impact of physical activity on promoting health and preventing disease, or

achieving and maintaining a healthy body weight. Despite the well-known benefits of regular physical activity, only about 15 percent of American adults regularly engage in the modest amount of activity required to obtain health benefits, while more than one fourth of adults are sedentary.<sup>4</sup> The role of physicians and other health care professionals is associated with greater efforts to help patients adopt healthy lifestyle habits related to diet and exercise. Results of a recent study,<sup>5</sup> however, indicate that only 42 percent of the 12,838 obese adults involved in the study had been advised by a health care professional to lose weight during the past year. Another study suggests the figure may be even lower.<sup>6</sup> Results of a national survey of adult patients reported that only 34 percent of physicians counseled their patients about physical activity.<sup>7</sup>

This article focuses on one component of the interaction between physicians and overweight patients: the promotion of physical activity. The authors present a description of elements important in counseling patients about physical activity and guidelines for developing physical activity programs for patients who are overweight or obese.

*Data from numerous studies in which diet, exercise, or a combination were compared suggest that diet is more effective than exercise in causing initial weight loss, but exercise is the best predictor of preventing recurrent weight gain.*

### **Health Consequences of Obesity**

The potential medical hazards of obesity have been documented extensively.<sup>8,9</sup> According to the American Heart Association (AHA), obesity is a major independent risk factor for coronary heart disease (CHD), and it appears to interact with or amplify the effects of other cardiovascular risk factors, including hypertension, dyslipidemia, insulin resistance, and hyperinsulinemia.<sup>10</sup> Moreover, clustering of risk factors in obesity is important because obese persons face more than a 65 percent chance of having at least one additional risk factor for CHD,<sup>11</sup> and a 50 percent chance of having two or more other risk factors for heart disease.<sup>12</sup>

The presence of cardiovascular risk factors is highly associated with the distribution of fat; abdominal or visceral fat is considered at least as important a health risk as the total amount of body fat.<sup>13</sup> Osteoarthritis and other noncardiovascular disease conditions, as well as psychosocial factors associated with obesity, are important negative influences on the overall well-being of obese persons.<sup>8,14</sup>

### **Sedentary Behavior in Overweight and Obese Persons**

Although its etiology is not completely understood, it is generally agreed that obesity results from a chronic imbalance between energy intake and energy expenditure.<sup>15</sup> In the weight-balance equation, energy intake and energy expenditure must be equivalent or a weight gain or a weight loss will occur. It has been suggested that societal or environmental factors such as large food portions and inexpensive, energy-dense foods, along with our increased reliance on technology, have re-

sulted in a constant pressure toward positive energy balance by promoting energy intake and discouraging physical activity.<sup>16</sup>

The issue of which side of the energy balance equation is more responsible for the growing prevalence of obesity is complicated by the lack of credible data about national trends in energy intake and energy expenditure. Nevertheless, a reduction in physical activity and, possibly, a greater energy intake appear to influence the growing prevalence of obesity. Each year, millions of persons in the United States claim they are dieting; meanwhile, a progressive increase in the prevalence of obesity continues. This situation emphasizes the strong influence of sedentary behaviors on weight and the ineffectiveness of diet alone in sustaining weight loss.

### **Role of Physical Activity in Body Weight Regulation**

Physical activity, particularly endurance-type exercise of sufficient intensity, duration, and frequency, favorably affects weight loss, total fat content, and body fat distribution; however, data comparing diet, exercise, or a combination suggest that diet is more effective than exercise in causing initial weight loss.<sup>17,18</sup>

Similarly, in persons who are overweight or obese, weight loss through physical activity alone produces only a modest reduction in weight and abdominal fat compared with dieting alone. This finding may be primarily the result of a low initial level of cardiorespiratory fitness that limits the person's ability to create an energy deficit that can result in a substantial weight loss. On the other hand, a marked energy deficit can be achieved through dieting, particularly when the person's energy intake was previously very high.

In patients who are obese, physical activity without caloric reduction most often results in only a slow rate of weight loss (e.g., about one half pound or less per week).<sup>17</sup> Physicians should ensure that their patients understand the limitations of immediate weight loss

through exercise without dietary changes. This understanding will help them avoid unrealistic expectations and stress the importance of combining a balanced diet with routine physical activity.

### **Educating Patients About the Benefits of Activity**

Regular physical activity helps persons achieve and maintain weight loss, particularly when exercise is combined with a reduction in energy intake, and regular physical activity plus the fitness that results confers a variety of health-related benefits in obese patients even if they lose no weight.<sup>19</sup> An emphasis on the health benefits of regular physical activity can be incorporated into effective counseling sessions for overweight and obese patients. Examples of important patient education points are summarized below.

#### **CARDIOVASCULAR AND ALL-CAUSE MORTALITY**

Study results show significant reductions in cardiovascular morbidity and mortality in patients who are overweight but achieve even a moderate level of cardiorespiratory fitness versus those who are overweight and remain unfit.<sup>19,20</sup> In all persons, a low level of aerobic fitness is an independent risk factor for all-cause mortality.<sup>20</sup>

#### **CARDIOVASCULAR RISK FACTORS**

Hypertension, insulin resistance, elevated blood glucose levels, and dyslipidemia have been shown to improve as a result of enhanced physical activity and increased fitness level in adults who are overweight or obese, even in the absence of weight loss.<sup>21,22</sup>

#### **FAT AND MUSCLE DURING WEIGHT LOSS**

As much as 50 percent or more of the weight loss achieved through dieting can occur at the expense of lean body mass, causing a loss of muscular strength that is amplified by feelings of fatigue and reduced basal metabolic rate—all of which can have a detrimental effect on long-term, successful weight management.<sup>23</sup>

Conversely, endurance-type exercise and strength training have been shown to attenuate the diet-induced loss of lean body mass, particularly when used in conjunction with low or moderate energy-restricted diets.<sup>17</sup> In addition, endurance and strength training facilitate reduction of fat mass during weight loss, effectively adding to favorable changes in body composition associated with exercise during caloric restriction.<sup>18</sup>

#### **PHYSICAL AND PSYCHOLOGIC WELL-BEING**

Increased cardiorespiratory fitness and greater muscular strength to perform activities of everyday life may improve the mobility, functional abilities, and quality of life in obese persons.<sup>9,21</sup> Moreover, an enhanced sense of psychologic well-being, including reduced feelings of stress, anxiety, and depression, and improved sleep patterns are associated with enhanced levels of physical activity and improved fitness.<sup>23</sup>

#### **LONG-TERM WEIGHT MAINTENANCE**

Results of numerous studies support the conclusion that successful weight maintenance in persons who have lost weight is highly dependent on the level of physical activity they sustain. The largest of these studies<sup>24</sup> enrolled 629 overweight women and 155 overweight men who lost an average of 66 lb (30 kg) and maintained a required minimum weight loss of 29.9 lb (13.6 kg) for five years. In addition to consuming a low-fat diet, these patients were highly active and expended approximately 2,500 kcal per week during approximately one hour of moderate to vigorous physical activity performed an average of five times per week.

### **Obesity/Weight Assessment**

The calculation and classification of body mass index (BMI) is provided in the most current evidence-based guidelines on the identification, evaluation, and treatment of adults who are overweight or obese (*Table 1*).<sup>25</sup> In addition, waist circumference, which has

TABLE 1

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

Weight level	BMI (kg/m <sup>2</sup> )*	Obesity class	Disease risk (relative to normal weight and waist circumference)†	
			Men ≤40 in Women ≤35 in	Men >40 in Women >35 in
Underweight	< 18.5	—		
Normal‡	18.5 to 24.9	—		
Overweight	25.0 to 29.9	—	Increased	High
Obesity	30.0 to 34.9	I	High	Very high
	35.0 to 39.9	II	Very high	Very high
Extreme obesity	≥40	III	Extremely high	Extremely high

BMI = body mass index.

\*—BMI is measured using the Quetelet index as follows: weight (kg)/height (m<sup>2</sup>). To measure BMI from pounds and inches, use this calculation: weight (lb)/height (in)<sup>2</sup> × 704.5.

†—Disease risk for type 2 diabetes, hypertension, and cardiovascular disease.

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

Adapted from *Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: the evidence report*. Bethesda, Md.: National Institutes of Health, National Heart, Lung and Blood Institute, 1998. NIH publication no. 98-4083.

been shown to correlate strongly with the amount of fat in the abdomen, provides a useful measure to evaluate cardiovascular risk associated with body fat distribution and is recommended as part of the contemporary guidelines on obesity.<sup>25</sup> Establishing a baseline for these simple measurements and checking them during patient visits (or at least annually) can provide physicians with an excellent means of evaluating and educating their patients.

### Cardiovascular Risk Assessment

According to the American College of Sports Medicine (ACSM),<sup>26,27</sup> most patients who are obese or overweight can begin an exercise program with a gradual increase in physical activity (e.g., walking) without undergoing diagnostic exercise testing. [Reference 26—Evidence level C, consensus/expert

TABLE 2

### Brief Behavior Assessment of a Patient's Weight Loss Initiative

Has patient sought weight loss on his/her own initiative?	Before beginning treatment, professionals must determine if patient recognizes the need and benefits of weight loss and wants to lose weight.
What events have led patient to seek weight loss now?	Weight loss motivation and goals are evident by responses to this question.
What is patient's stress level?	Patients who report higher-than-usual stress levels may be unable to focus on weight management. To increase the chances of weight-loss success, stress management may need to be initiated.
Does patient have an eating disorder?	Approximately 20% to 30% of obese patients who seek weight reduction (at university clinics) indulge in binge eating. Binge eaters are typically distressed by their chaotic eating patterns; the greater the person's distress or depression, the more likely the need for other forms of counseling (psychologic or nutritional).
Does patient understand the treatment requirements and believe that they can be met?	Health care professional and patient should select a course of treatment requirements together. Treatment activities should include those that are a high priority for the patient and those that the patient believes can be performed successfully.
How much weight does the patient expect to lose?	Professionals must assist patients in understanding that slow, modest weight loss can improve health.
What other benefits does the patient anticipate?	In addition to weight loss, progress should be assessed by achievement of overall health improvement goals.

Adapted from *The practical guide: identification, evaluation, and treatment of overweight and obesity in adults*. Bethesda, Md.: National Institutes of Health; National Heart, Lung, and Blood Institute, NHLBI Obesity Education Initiative, North American Association for the Study of Obesity, 2000. NIH publication no. 00-4084.

guidelines] Patients who have known coronary, metabolic, or pulmonary disease, however, and those who have signs or symptoms suggestive of CHD, including those who plan on participating in an exercise program more vigorous than walking, may benefit from such testing. In addition, the evaluation of coexisting cardiovascular risk factors or musculoskeletal conditions is recommended to provide safe exercise guidelines.<sup>26,27</sup>

### Assessment of Patient Readiness to Change

Predicting a patient's readiness to lose weight and identifying potential variables associated with successful weight loss are important steps in promoting a useful physical activity program. This may be easier said than done. According to contemporary guidelines for the treatment of obese patients, physicians and other health care professionals should briefly consider the issues outlined in *Table 2*<sup>28</sup> when assessing a patient's readiness to change.<sup>25</sup>

### Assessing/Establishing Weight Loss Goals

Although debate continues about the amount of weight loss required to achieve meaningful risk-factor reduction for CHD and other comorbidities associated with obesity, convincing evidence suggests that reducing initial body weight by 5 to 10 percent will result in significant CHD risk-factor reduction and health gains.<sup>21</sup> Sharing the good news that even a modest weight loss is healthful may help physicians counter the unrealistic expectations often held by obese patients<sup>29</sup> and help counteract the habitual relapses of nutritional and physical-activity programs that many patients go through.<sup>30</sup>

An initial weight loss of 10 percent of body weight over six months is a recommended target, and subsequent weight loss may then be attempted after establishing longer periods of weight maintenance.<sup>25</sup> [Evidence level C, consensus/expert guidelines] These data may help physicians establish individualized, realistic

weight-loss goals for patients initially and in the long term.

### Strategies for Patient Motivation and Behavior Change

Physician understanding and discussion of potential social barriers (e.g., feeling uncomfortable while exercising in public) and barriers caused by unsubstantiated expectations (e.g., the idea that exercise has to be painful or extremely vigorous to be beneficial), and developing an individualized physical activity program can lead to greater patient compliance.<sup>30</sup> Study results show that physician intervention (i.e., discussing the benefits of and barriers to physical activity, and patient preferences and practices) need not take more than three to five minutes during an office visit and can play a critical role in patient implementation.<sup>30</sup> Behavior strategies to promote the adoption and maintenance of physical activity are provided in *Table 3*.<sup>27</sup>

TABLE 3  
Behavior Management Strategies  
for Promoting Physical Activity in Patients

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Establish realistic expectations.
Correct overly pessimistic or optimistic expectations.
Allow patients to select their own goals and provide guidance in setting flexible, short-term goals.
Query patients as to what rewards will work for them.
Use environmental cues or stimuli to remind patients of their exercise commitment.
Establish routine times and places for exercise.
Develop and sign a behavior contract to augment the exercise commitment.
Discuss the advantages and disadvantages of exercise.
Discuss the benefits of social support to establish the exercise habit.
Encourage patients to practice self-reinforcement, including a focus on increasing self-esteem and realizing the health benefits of exercise.
Prepare patients for situations that may create a relapse and a challenge to exercise.
Discuss coping strategies that can help in the prevention of a complete relapse.

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*Adapted with permission from American College of Sports Medicine. ASCM's guidelines for exercise testing and prescription. 6th ed. Baltimore: Lippincott Williams & Wilkins, 2000:243-4.*

TABLE 4  
The FITT Principle\*

Component	Recommendations
Frequency	Three to five days per week. More frequent exercise is desirable, but care should be taken to first establish a regular exercise habit before recommending levels that may not be sustainable in the long term.
Intensity	To avoid musculoskeletal injuries and promote compliance, start at a low to moderate intensity† and gradually progress over the course of several weeks or months to more vigorous efforts (if desired by the patient). Emphasis should be on increasing duration rather than intensity, with the goal of optimizing caloric expenditure.
Time	30 to 60 minutes, using a gradual progression Multiple short bouts produce similar benefits as a single long bout of the same total duration. <sup>32</sup>
Type	Low-impact activities (e.g., walking, cycling, low-impact aerobics, water exercise) that are convenient, accessible, and perceived as enjoyable by the participant

FITT = frequency, intensity, time, and type of exercise.

\*—Components of the exercise prescription to improve cardiorespiratory fitness in healthy, overweight, or obese adults. Specific advice on the components of frequency, intensity, time, and type of exercise provides a framework of evidence-based recommendations for a safe and effective exercise program for overweight and obese adults.

†—An example of moderate intensity can be estimated using 55% to 70% of the age-predicted maximal heart rate (i.e.,  $220 - \text{age} \times 0.55 - 0.70$ ) or a rating of perceived exertion of 3 to 5 on a scale of zero (easiest) to 10 (hardest) effort.

Information from references 26, 27, and 32.

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## Guidelines for Activity Prescription

Exercise programs for patients who are overweight or obese should meet criteria for safety, effectiveness, and education/motivation. On the basis of the preparticipant evaluations, individually appropriate “prescriptions” for aerobic activity, resistance (strength) training, and daily lifestyle activities should be developed with particular attention to modifying exercise for conditions that may worsen during certain activities. A summary of the main components of the exercise prescription is provided in Table 4.<sup>26,27,32</sup> Appropriate warm-up and cool-down periods should be emphasized.

## Strength Training

Resistance (strength) training is recommended as an adjunct to aerobic conditioning because it assists in the maintenance of basal metabolic rate and effectively improves strength and ability to perform a wide variety of physical activities associated with normal daily living (e.g., carrying grocery bags, doing household chores).<sup>31</sup> [Evidence level C, consensus/expert guidelines] Moderate-intensity resistance training performed two to three days per week, with one set of eight to 15 repetitions at a moderate exertion level and using eight to 10 different exercises is recommended so that each major muscle group is recruited.

## Lifestyle Activities

Daily lifestyle activities also should be emphasized as a way to increase overall physical activity levels and energy expenditure.<sup>28,32</sup> The Centers for Disease Control and Prevention and the ACSM recommend accumulating at least 30 minutes of moderate-intensity physical activity on most, and preferably all, days of the week.<sup>33</sup> [Evidence level C, consensus/expert guidelines] Climbing stairs, walking greater distances, gardening, and house cleaning are all examples of this type of physical activity.

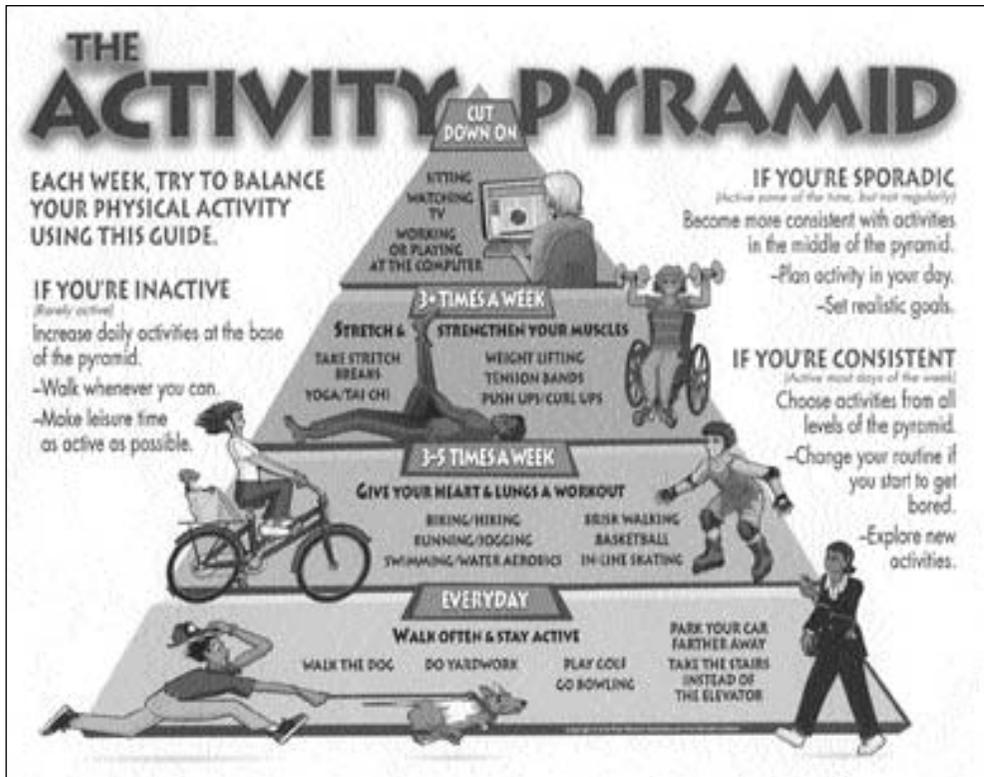


FIGURE 1. The Activity Pyramid. This pyramid, which is analogous to the U.S. Department of Agriculture's Food Guide Pyramid, has been suggested as a model to facilitate public and patient education for the adoption of a progressively more active lifestyle.

Reprinted with permission from *Activity pyramid*. Minneapolis, Minn.: Park Nicollet Institute, 1999. Copyright© 1999 Park Nicollet Health Source. Park Nicollet Institute.

Sharing with patients the Activity Pyramid (Figure 1), which was developed along the lines of the Food Guide Pyramid, may encourage them to understand and use the incremental or progressive nature of physical activity and personal conditioning. Another approach to the promotion of physical activity when using the activity pyramid is to emphasize spending less time being physically inactive (i.e., decrease sedentary behaviors), as well as becoming more physically active.<sup>33</sup> The end points are hopefully the same—a more active patient.

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